PROMOTING SUCCESS IN THE RANZCO ADVANCED CLINICAL EXAMINATION (RACE)

RANZCO

The Royal Australian and New Zealand College of Ophthalmologists

THE LEADERS IN COLLABORATIVE EYE CARE

UNIVERSITY of TASMANIA

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List of Acronyms and Abbreviations

AMC – Australian Medical Council
DDC – Delivery and Development Committee
DOT – Director of Training
EIC – Examiner in Charge
KFQ – Key feature question
MCQ – Multiple choice question
MET – Medical Education and Training
OBCK - Ophthalmic Basic Competencies and Knowledge
OSCE – Objective Structured Clinical Examination
PTSD – Post traumatic stress disorder
QEC – Qualification and Education Committee
RANZCO – Royal Australian and New Zealand College of Ophthalmologists
RACE – RANZCO Advanced Clinical Examination
ROC – Registrar of the Court
SEQ – Short Essay Question
SIMG – Specialist International Medical Graduate
STP – Specialist Training Program
TPC – Training Progression Committee
UTAS – University of Tasmania
VSAQ – Very Short Answer Question
VTP – Vocational Training Program
WBA – Workplace based assessment

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Executive Summary

Ophthalmologists are medical doctors who have completed additional specialist training in the diagnosis and management of disorders of the eye and visual system. Ophthalmologists provide the full spectrum of eye care, including prescription of glasses and contact lenses, medical treatment, and complex microsurgery. Training to become an ophthalmologist in Australia and New Zealand requires medical graduates who have completed 24 months of prevocational training to undertake a further five-year vocational training program (VTP). This training program, administered by the Royal Australian and New Zealand College of Ophthalmologists (RANZCO) utilises a prescribed curriculum to develop trainee competencies from basic to advanced, and culminates in the hurdle examination, the RANZCO Advanced Clinical Examination (RACE) (RANZCO, 2018). The RACE, which comprises both a written and clinical component, must be passed for trainees to commence their final year of training which they then must satisfactorily complete to graduate from the VTP and become an ophthalmologist (RANZCO, 2018).

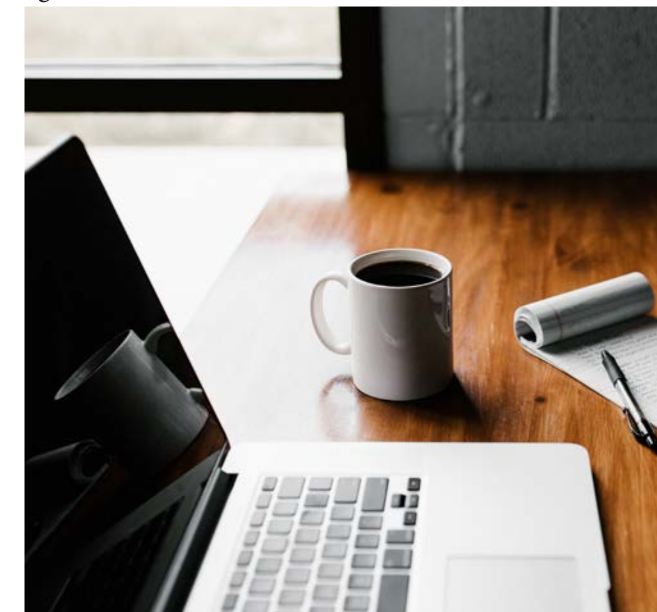
According to workforce modelling, Australia is expected to experience a shortfall in the number of ophthalmologists needed to support eye care in the Australian population by 2030 (Department of Health, 2018). Ensuring that trainees successfully pass their final examination is therefore of critical importance to future workforce growth given that it expedites trainee progression into the final year of the VTP, and subsequently into the ophthalmic workforce thereafter. In recent years, RANZCO has noted with increasing concern that the number of candidates sitting RACE, in particular the written examination, are not meeting a satisfactory standard. Although trainees can sit RACE up to three times (RANZCO, 2018), the impact of resitting on trainees, the training networks, RANZCO, health jurisdictions and the broader community who stand to benefit from their specialist skills, is significant.

The 'Promoting Success in the RANZCO Advanced Clinical Examinations (RACE) Study' has evolved as collaborative project with RANZCO, designed to explore issues underpinning trainee performance and achievement on the RACE. The aims of the study are to unpack potential reasons for poor examination performance by exploring both examination design and process, as well as trainee factors including examination preparation, training experiences, attitudes toward RACE and the personal impact of failure. The data obtained will pave the way toward improving assessment design and strategies to support trainees, thus promoting increased success in the RACE amongst future ophthalmology trainees. In turn, this will assure the continued and timely growth of the Australian ophthalmology workforce to meet anticipated future need.

Methods

An explanatory-sequential mixed method study was conducted. The initial quantitative component involved an analysis of recent trainee RACE performance data (2017-2020) followed by historical RACE candidate survey data (2013-2021). The subsequent qualitative component involved semi-structured in-depth interviews with trainees or Fellows who have sat RACE in the past five years, together with Supervisors who support trainees who are soon to sit RACE from across Australia and New Zealand (n=29). The study was undertaken by a research team at the University of Tasmania, with extensive engagement with RANZCO and an expert project advisory panel who were established to provide critical feedback and guidance throughout the project and the preparation of recommendations contained in this report.

Quantitative data were subject to descriptive analyses. Qualitative survey data were subject to deductive content analysis using a predetermined matrix of categories including: preparation; examination experience; examination design; and suggestions for improvement. Qualitative interview data were thematically analysed to identify issues relating to RACE preparation, RACE performance and post-RACE experience from the perspectives of both those who have recently sat and their Supervisors, with the results synthesised and consolidated into overarching themes. Finally, both qualitative and quantitative data were triangulated with meta-themes emerging from areas of agreement.



Key Findings

Analysis of historical trainee RACE performance data between semester 2, 2017 and semester 2, 2020 showed considerable variability in overall pass rates for both the written and clinical examinations. Although statistically no discernible trend was identified, it was evident that trainees have experienced greater success with the clinical examination compared to the written, and that the number of trainees experiencing success in the clinical examination has improved over time.

RACE candidate survey data found most trainees spend at least 6 months to 2 years preparing for RACE, with the length of time spent notably increasing for trainees who recently sat (2020). Common approaches to preparation for RACE centred around studying with other pre-RACE trainees. However, preparation for the clinical component was mostly guided by mock examinations organised by their own training network, followed by reviewing the curriculum standards and the Dunedin Ophthalmology Clinical Course. In contrast, preparation for the written exam centred around using past exam papers and reading Examiner's reports from past exams.

Trainee experiences and perceptions of examination design were variable across all semesters highlighting inconsistency in the standard and construct of the written and clinical components across the time period studied. Although trainees largely felt that the delivery of both the clinical and written examinations were smooth, there were concerns that the examinations were too time pressured, used images of poor quality, included rare cases that were not reflective of clinical training, and used poorly worded, ambiguous questions that left trainees unsure of meaning.

Given the variability in trainee RACE performance and RACE candidate survey responses across semesters, thematic analysis of interview data yielded sub-themes across three time points that drew out issues relating to examination performance. These time points related to preparation (pre-RACE), the examination itself (RACE) and post-examination (post-RACE). Once data from interviews and surveys were integrated, meta-themes emerged relating to ways to promote RACE success including: a) preparation is the key to success; b) fairness, equity and transparency; and c) guidance, feedback and support.

Preparation is the Key to Success

Although trainees are inherently motivated to pass RACE, this study observed that some are misguided in their preparation approach which can promote examination failure. For some, this involves the misconception that RACE is like any other university examination and therefore preparation aligns with a knowledge-based study approach. However, RACE is in itself a complex examination construct, with the single best preparation mechanism for passing being the development of examination technique. Largely, clinical technique is developed through guided practise and honed through day-to-day clinical training. When combined with attending tutorials, mock Objective Structured Clinical Examinations (OSCEs) and taking extra opportunities to present patients to Supervisors in rotations, this leaves trainees reasonably well prepared. However, written technique is harder to develop and must largely be self-driven, although support from study group peers was a critical factor in refining written exam technique. The single best mechanism is for trainees to practise writing answers to past examination papers, supported by robust discussion in study groups and approaching consultants for feedback to discern the adequacy of responses.

With past examinations being the single most utilised and important preparation mechanism to develop written technique, trainees expressed frustration that they are no longer released. Even more so, trainees described the inconsistency in the availability of model answers and Examiner feedback from which they could base their written technique development, leading to uncertainty around how to successfully answer questions. Trainees therefore described their reliance on discerning the adequacy of their answers based on feedback from their study groups or consultants, some of whom expressed differences in opinions, or a lack of surety around how to answer questions. This situation compounds the workload for Examiners who no doubt receive an array of individual requests from trainees seeking clarity on how best to answer RACE questions. This workload could be alleviated somewhat by ensuring that model answers are available for all past examinations, together with marking rubrics to help trainees and Supervisors understand what Examiners are looking for when answering questions. Further, whole of College training sessions that focus specifically on written examination technique, which are delivered by Examiners, would be highly beneficial for trainees, especially those who find themselves isolated from study groups, Examiners or consultants with contemporary RACE knowledge.

Aside from technique, group study also appeared critical for optimal preparation. Group study enables trainees to have robust discussion regarding examination answers, benchmark their performance against one another and provide support, motivation and accountability for study efforts. However, group study should be supplemented by independent study efforts where trainees undertake a variety of additional strategies to prepare for the examinations. These efforts should include reading textbooks and relevant evidence-based literature, attending tutorials, practising past examination questions, reviewing curriculum standards, attending courses and mock examinations, and most importantly, being proactive in seeking opportunities for feedback from consultants regarding both clinical and written technique. This independent focus, when combined with group study, forms a strong knowledge base that can be consolidated at the Dunedin Ophthalmology Clinical Course. Trainees described that the Dunedin course is timely after a period of study to help benchmark their preparation efforts against the rest of the RACE cohort, together with filling gaps in their knowledge, engaging in mock examination practise and collecting important tips and tricks regarding sitting RACE.

Trainees describe the all-consuming nature of RACE preparation, where their lives are effectively paused and consist of little else but work and study. With some trainees studying up to two years, this prolonged intense commitment not only impacts trainees physically and mentally, but also their personal relationships. Unsurprisingly, most trainees therefore harbour an underlying RACE philosophy: 'do it once, do it well'. Trainees therefore need to be cognisant of the challenge ahead and take steps to pace themselves accordingly to foster wellbeing. Trainees would initially benefit from a period of annual leave before they commence their RACE preparation to ensure they begin the process in optimal physical and mental health. Secondly, trainees need to develop a manageable long term study strategy to pace themselves over the potentially lengthy RACE preparation period. Trainees described that setting boundaries around daily study limits, being opportunistic in hours around study and adopting flexible study schedules helped maintain balance. Thirdly, trainees must focus on self-care, with exercise, adequate sleep and good nutrition all foundational for effective study. Consciously choosing to prioritise study efforts over work is one way to enact self-care. For example, leaving clinics on time will ensure the preservation of energy levels for after work study. Finally, as RACE draws closer and preparation intensifies, this study observed that on call demands act to limit study opportunities. Networks may need to consider strategically placing trainees in rotations immediately prior to RACE with reduced on call commitments, together with providing increased opportunities for study leave, to help support their preparation.

Fairness, Equity and Transparency

Although there were mixed opinions regarding RACE, it was generally described as a 'necessary evil', given that it motivated trainees to acquire both a breadth and depth of knowledge and skills that served as a solid foundation for future ophthalmic practise. With Australian and New Zealand trained ophthalmologists highly regarded on the international stage, there were strong opinions that the high standard of RACE needed to be maintained rather than reducing the pass rate to address the recent lower performance in RACE. Although many saw RACE failure as reflective of trainee skill, knowledge and preparation, there was also acknowledgement that trainees who prepare well and are highly regarded in the clinical setting do fail RACE. This left some interviewees concerned about the reliance on a single assessment mechanism to determine graduate competence, particularly if that process lacked fairness, equity and transparency. In this sense, there were opinions that work-based assessment should play some role in the final high stakes assessment to capture those trainees who do not perform well under structured examination conditions.

There were general concerns that RACE may not be a fair exam as it appears pitched more at the subspecialist rather than generalist standard for which the VTP aims. This concern was exemplified by trainee examination experiences with a heavy emphasis on the inclusion of rare, esoteric cases of which trainees had limited clinical experience, together with the assessment of OSCE stations by subspecialist Examiners in their own area of expertise. There was also marked variability in candidate survey responses across semesters regarding the appropriateness of examination difficulty and the relevance of cases to clinical or theatre work, suggesting a need to improve the consistency of RACE over time for different cohorts of trainees. It is noted that RANZCO has recently introduced (semester 1, 2022) the Angoff standard setting method to ensure the standard of every RACE (both written and clinical components) are consistent. Over time, this will help create a more consistent and fair examination outcome for trainees.

Concerns regarding examination fairness also centred on the inclusion of ambiguous questions which were open to interpretation. While the immediacy of Examiner feedback in the clinical examination largely resolved this issue, several trainees reported experiencing failure of at least one question on the written component due to not understanding what the Examiners were asking, as opposed to a lack of knowledge. This ambiguity was perceived to be a key driver of examination failure given the prescriptive yet obscure marking criteria that sought 'key words' in answers to be deemed 'satisfactory'. Without knowing what the Examiners were asking, trainees were left to 'hedge their bets' when answering in the hope to provide Examiners with some of the key words needed for a pass. However, this inevitably perpetuated failure, with Examiners failing such answers for a perceived 'lack of perspective'.

The overtly prescriptive marking criteria was also believed to be contributing to increasing failure rates amongst trainees. This study heard of examples where current evidence-based practices taught in clinics across different networks were failed by the Examination Committee. Trainees therefore perceived a degree of disconnect between clinical reality and RACE, with trainees describing having to learn a 'RACE' answer that differed from what they would do in the real world. Further, there were instances where Supervisors and consultants outrightly disagreed with the model answer or Examiner feedback, leaving trainees confused. Many interviewees reflected that this encapsulated the 'greyness' of ophthalmology, where it was perceived that there may not be one right answer but several ways to safely manage a clinical situation. There were hence calls for greater transparency regarding the marking criteria to understand how marks were awarded. In particular, Supervisors wanted reassurance that answers were current, evidence-based and considerate of the variations in management taught across network settings. Some interviewees argued that it may be best to avoid questions for areas that lack consensus and utilise more standardised assessment techniques such as multiple-choice questions to assess trainees.

The collective concerns regarding examination design and level of difficulty led some interviewees to question whether the current processes undertaken by the Examination Committee may lack rigour. For example, is there a greater representation or influence of subspecialists during the examination development process? Do Examiners independently answer questions under development to assay the substantial variability in interpretation? Trainees also questioned whether Examiners who lacked contemporary RACE experience were best placed to develop the assessment. In this respect, some argued that success could be promoted by the inclusion of recent Fellows on the Examination Committee who would no doubt bring refreshing insight given their recent examination experience.

Along with fairness and transparency, this study also observed inequities in the current delivery of training and RACE preparation. This was observed in four main areas. Firstly, there is inequity across training networks with regard to access to teaching, with networks also varying in their delivery of tutorials and mock examinations specifically for RACE. Secondly, there is inequity in access to Supervisors, consultants and Examiners who have contemporary knowledge and

expertise in RACE. This means explicit guidance on preparation approaches is lacking for some trainees. Thirdly, it is concerning that some trainees face difficulties forming study groups for RACE. Trainees from smaller networks lacking a critical mass of sitting candidates, trainees returning from periods of leave and trainees who had previously failed RACE all faced challenges finding a study group. Additionally, the highly competitive nature of trainees also led to the exclusion of some candidates from joining in study groups. RANZCO may need to consider strategies to develop whole of College relationships to help support trainees to connect both within and across networks and ensure that all have access to a study group during the pre-RACE period. Fourthly, there is inequity in access to training courses such as the Dunedin Ophthalmology Clinical Course. While not all interviewees perceived the Dunedin Ophthalmology Clinical Course to be necessary, all who attended indicated its worth in supporting preparation. Given that some trainees were denied the opportunity to attend by their employer, making this (or a similar) course a mandatory component of the VTP may therefore be of value in supporting equity of access to all pre-RACE trainees.

Guidance, Feedback and Support

The RACE experience has been described as 'exquisitely traumatic' for all advanced trainees, underscoring the importance of guidance, feedback and support at all stages of the VTP to promote success. Long before trainees sit RACE, there are clear opportunities for strengthening guidance, feedback and support mechanisms throughout the VTP which may in turn circumvent some of the initial failure currently experienced. For example, this study found that not all trainees were aware of the unique construct of RACE, the level and intensity of study commitment required, optimal approaches to exam preparation or the role of examination technique in achieving success. This naivety meant that some trainees failed RACE through misguided preparation rather than a lack of effort. Guidance from the very beginning of the RACE preparation period would therefore be beneficial to develop trainee understanding of examination design and what to expect, and hence effectively guide their study efforts and approach to learning.

Throughout the preparation period, strengthening formative assessment processes would provide further guidance, feedback and support to pre-RACE trainees. Supervisors often anticipated trainees at risk of RACE failure given their poor clinical performance, lack of confidence, poorly developed examination technique or substandard knowledge and skill levels. Sharing their concerns with trainees through formative assessments as they prepare for RACE provides time and opportunity for remedial plans to address deficiencies known to cause failure well before trainees sit. However, strategies are needed to support Supervisors to effectively performance manage trainees given concerns around perceived bullying and harassment, together with the subsequent workload issues created through remediation.

This study observed a final opportunity to provide guidance, feedback and support before sitting RACE was when trainees submit their 'intention to sit' to their relevant network Director of Training (DOT). Given that this study observed very few trainees having formal conversations with their DOT to assess their suitability for sitting, this process may need strengthening. Having the DOT formally interview pre-RACE trainees in the months immediately preceding their intended sit would allow for evaluation of their due diligence with respect to preparation, supervisory feedback from rotations, and assessment of their general mental health and wellbeing. This collective assessment would promote initial success by providing clarity around whether it would be in their best interests to sit. Although Supervisors report that trainees often indicate their desire to sit regardless of their preparedness, trainees must be cognisant that they only have three opportunities to sit RACE before potentially being removed from the VTP. Rather than wasting one of those opportunities through a lack of preparedness, delaying their initial sit and allowing a longer period to adequately prepare may serve them well in achieving initial success.

While guidance, feedback and support are clearly needed before and during the RACE preparation period, this study also found trainees equally in need after the examination itself. During the post-RACE period, trainees report experiencing a post-adrenalised depressive period characterised by a lack of motivation. Many describe returning to work without any formal debrief after such a lengthy and difficult examination process, with some perceiving a sense of failure for several weeks regardless of eventual examination performance. The very real psychological impact of RACE must therefore be recognised irrespective of examination performance, and trainees should be encouraged to prioritise self-care, and formal counselling and psychological support should be readily available if needed to help restore mental health. While most trainees will eventually regain physical and mental health in the short term, those who fail subsequently report stronger psychological impacts, with reports of stigma, shame, embarrassment and judgement from peers. These feelings are compounded by their own personal loss of confidence, with failure on RACE often a unique experience for these high achievers. This loss of confidence can be the catalyst for subsequent examination failure regardless of further preparation and therefore needs to be promptly addressed.

This study also observed the critical role of feedback and guidance in addition to support during the post-RACE period to promote success. With trainees only having three attempts at RACE before potentially being excluded from the VTP, interviewees reported the additional psychological stress and hence motivation to pass on subsequent sits. However, unanimous concerns were raised from trainees, together with Supervisors, regarding the lack of opportunity to learn from their mistakes given the generic and scant feedback provided regarding initial examination performance and the fact that examination manuscripts were not made available to reflect on what feedback had been provided. In many cases, this left trainees and Supervisors unable to discern examination deficiencies, leaving trainees to resit RACE after further, potentially misguided, preparation. For those who failed again after a second or even third sit and who had contact with the Training and Progression Committee, most continued to report limited constructive feedback on which to redress their preparation approach. This consistent lack of remedial guidance was seen as a critical flaw in promoting RACE success. With interviewees who experienced multiple RACE failures reporting long-standing psychological illness and trauma, efforts to promote success must occur at the earliest possible opportunity. This means that comprehensive and detailed information regarding reasons for examination failure are provided after their first sit, subsequently allowing for the development and provision of targeted remediation designed to specifically address their examination deficiencies. When combined with appropriate psychological support, this would undoubtedly give trainees the best possible chance of passing their second sit and hence circumvent some of the very real psychological trauma experienced through repeated failure.

Recommendations

The RACE is a necessary high stakes hurdle assessment of the VTP to ensure the competency and safety of trainees before they progress to their final year of training in which they will practise with increasing autonomy in preparation for unsupervised practise upon completion of the VTP. These examinations are the impetus for trainees to acquire deep clinical knowledge and skill which serves as a solid foundation for their future ophthalmic career. With the potential for some trainees to fail RACE and the subsequent lag this causes in workforce growth, supporting trainees to achieve success on their initial attempt at RACE is critical.

Given that RACE is unlike any previous tertiary examination, there is an overall need to cultivate awareness and understanding amongst the training cohort regarding RACE design, development, construct, preparation strategies, progression pathways and its overall impact on health and wellbeing. Trainees must be cognisant of the inherent differences in preparation needed for examination success, with whole of College approaches necessary to develop trainee relationships, timely and focused preparation strategies, and ultimately, examination knowledge and technique. RANZCO therefore needs to develop whole of College education strategies to ensure timely delivery of pertinent information for pre-RACE trainees. Mandating the Dunedin Ophthalmology Clinical Course (or similar) and working collaboratively with the University of Otago to deliver this intensive as part of the VTP will also foster a whole of College approach to providing all trainees with the opportunity to benchmark preparation, develop skills and knowledge, and receive timely guidance on examination strategy. Attention should also be paid to mental health, wellbeing and work/life balance for all trainees as they prepare for RACE by ensuring health jurisdictions are cognisant of the need for study leave and networks allocating pre-RACE trainees to rotations with reduced on call demands prior to the examination. Finally, Supervisors and Directors of Training must also play a critical role in RACE preparation through providing appropriate feedback, guidance, support and education for all pre-RACE trainees, but especially those perceived 'at risk' and who are anticipated to experience failure.

This study observed that the RACE design and development process may contribute to trainee failure. There is a need for greater consistency in the proportion of rare and difficult cases included in each examination. This will ensure fairness of RACE across chronological cohorts of trainees. Establishing mechanisms for external peer-review of examination development would also be invaluable. The progressive exploration, development and adoption of alternative evidence-based assessment constructs would also improve the rigour of RACE, as would the development and maintenance of an Examination Committee that broadly encompasses both a breadth and depth of clinical knowledge and experience. RANZCO must also acknowledge the role of work-based assessment in supplementing RACE performance in ensuring trainees achieve graduate competencies. It is understood that the pandemic disruption created unforeseen safety considerations with the clinical component of the RACE that have largely been addressed successfully through virtual examination delivery. However, returning to the traditional face-to-face format for the clinical component as soon as practically possible will be vital to ensure that trainees' attainment of the graduate competencies is examined in a more authentic, real-world context.

Finally, this study has provided insight into the psychological distress and trauma suffered by RACE candidates, especially those for whom failure is a unique experience. Establishing pathways for trainees to immediately access both formal counselling and informal debriefing with peers will be a valuable opportunity to support psychological health. RANZCO must also acknowledge the critical role of detailed feedback in helping trainees learn from their failure and successfully adjust preparation strategies for their subsequent sit. This feedback must occur after initial experiences of failure given the very real distress of being excluded from the VTP after three RACE attempts. By maintaining and evaluating trainee RACE feedback, RANZCO can continue its iterative approach to improvement by understanding the subsequent impact of initiatives adopted on trainee experiences and perceptions of RACE.

Based on the findings, together with stakeholder engagement completed as part of this study, several recommendations have been developed. These recommendations are aimed at improving trainee preparation (pre-RACE), examination experience (RACE) and the aftereffects of both success and failure (post-RACE). These recommendations are largely the responsibility of RANZCO, together with the Commonwealth Government Department of Health, Training Networks, Directors of Training, Supervisors and health jurisdictions. RANZCO has already implemented a number of important initiatives to address some of the issues raised in this study and this momentum should be encouraged.

Pre-RACE	• Affirm the principles of the RANZCO Trainee Progression Policy (May 2018) and purpose of the Trainee Performance Support Policy (2019). Review both policies in light of the findings and recommendations arising from this study.
	• Maintain and strengthen formative assessment processes for trainees in both basic and advanced training years of the VTP. Explore additional ways in which Supervisors can be supported (and the burden shared) in the assessment of trainees.
	• Consider developing a program to assign a study adviser/study coach (professional mentor) to each trainee as they enter the VTP. This professional mentor would follow the trainee from acceptance into the VTP through to completion and provide guidance on assessment and preparation for the RACE as well as career advice.
	• Develop and provide trainees with a 'RACE' orientation pack at least 12 months before being eligible to sit the examinations. It is envisaged that the orientation pack would include prescriptive information and guidance around:
	  o Timeline for RACE preparation (e.g. >12 months
	  o Illustrative study schedule (daily/weekly/monthly)
	  o Effective study strategies and techniques (e.g. group study, past examinations, seeking and responding to feedback, preparatory courses)
	  o Examination design and process
	  o Post-RACE pathways following success and failure
	  o Self-care strategies and support mechanisms whilst a trainee (e.g. EAP counselling, achieving work/life balance)
	• Develop as part of the RACE orientation pack a 'checklist' for trainees of requirements to be completed during the pre-RACE period (ensuring due diligence to preparation). This checklist would form the basis of discussion with the Director of Training at an interval no more than 3 months prior to assess 'readiness to sit' (see *recommendations for possible activities to be included in this checklist).
	• Offer a virtual whole of College RACE information and preparation course to all pre-RACE trainees at least 12 months before being eligible to sit. This session could be led by current Examiners and trainees who have recently sat and passed RACE to describe the RACE experience, how to approach study and successful examination technique.*
	• Establish virtual whole of College RACE teaching sessions (e.g. tutorials, mock OSCEs), facilitated by generalist and subspecialty Supervisors/Clinical Tutors/Examiners throughout the pre-RACE period.*
	• Encourage trainees to enrol in touch typing course if typing speed and accuracy is poor and to explore alternative ways to facilitate written responses to long and short answer exam questions.*
	• Release recent examination papers, together with model answers, Examiner feedback and marking rubrics, to allow trainees the opportunity to better develop their written examination technique.
	• Mandate the Dunedin Ophthalmology Clinical Course (or similar) as a pre-RACE component of the VTP. Investigate alternative ways of delivering this course by adopting approaches such as 'blended learning' and the 'flipped classroom' to allow for off-site delivery of content to trainees and thus focus the face-to-face intensive on practical (hands-on) and interactive problem-solving activities.*
	• Ensure all trainees who submit 'intention to sit RACE' paperwork have a face-to-face meeting with their relevant network Director of Training to assess 'readiness to sit' prior to the examination. Trainees would produce their checklist from the RACE orientation pack demonstrating due diligence in preparation.*
	• Review and disseminate guidelines to all Fellows and consultants on how to better support pre-RACE trainees.
	• To continue to explore, roll-out and evaluate technology mediated reporting formats to improve 'handover' of trainees from one rotation to the next.
	• Strengthen mechanisms for advanced trainees to be identified prior to commencing each rotation so that Supervisors can adequately prepare and adjust performance expectations depending on trainee progress towards sitting RACE. Strengthen reporting formats to include a traffic light system to denote trainees who present as 'at risk' for RACE failure during rotations. Trainees identified as 'at risk' would have a remediation action plan and additional supports as required.*

	• Ensure all Supervisors and Clinical Tutors train for and participate in annual continuing professional education relevant to their role (including how to effectively performance manage, bullying/harassment etc).
	• Provide an updated curriculum and associated resources to guide RACE preparation.*
	• Advocate to employers for:
	  o the need to approve study leave for trainees (up to the level of their entitlements) in the 6 months leading up to RACE.
	  o releasing trainees to attend a RACE preparatory course.
	  o the allocation of trainees to rotations with a reduced on-call burden in the 6 months prior to sitting for RACE.
	• For trainees to ensure they schedule a period of annual leave prior to commencing their pre-RACE preparation period to allow them to commence their preparation year in optimal physical and mental health.
	• Communicate zero tolerance of bullying, harassment and abuse to trainees, Supervisors and Examiners and address cases where bullying, harassment and abuse has occurred in accordance with RANZCO's Code of Conduct and Antidiscrimination, Harassment and Bullying Policy.

RACE	• Ensure the Examination Committee includes a mix of generalists, subspecialists, academic ophthalmologists and recent Fellows (who have sat RACE in the last ten years) to garner contemporary insight into examination questions and answers. • To ensure a generalist standard for written examinations, establish a secure external (independent) peer review process that includes generalist ophthalmologists, recent Fellows, an international expert and an educational advisor. • Ensure consistency in the proportion of rare and difficult cases included in each examination. • Progressively develop and test a multiple-choice question database for all examinable areas of the curriculum. Introduce other evidence-based assessment strategies that could be incorporated into RACE such as key feature questions. • Regularly review and change the balance between long and short answer questions and introduce a multiple choice or key feature question component to the written examination. • Consider the introduction of a summative work-based assessment component to the RACE and the weighting of each component (e.g. 40% clinical: 40% written: 20% work-based assessment). • Continue to administer the written component of RACE on-line (and invigilated) but augmented by more interactive and technologically enhanced components. • Re-establish the face-to-face clinical examination (OSCE) component at a suitable time post-pandemic. • Consider increasing the time provided at each OSCE station, the weighting given to assessment tasks and how the introduction of work-based assessment may reduce the pressure on candidates and provide for some flexibility in this component of the RACE. • Ensure a balance of Examiners who are generalists and subspecialists (for both written and clinical components). • Ensure that subspecialist Examiners do not assess OSCE stations in their own field of expertise. • Retain a record of all trainee written examination papers to help support the development of targeted remediation plans for those trainees who fail. • Invite Examiners from other specialist medical Colleges to observe and provide feedback on the RACE examination process.

Post-RACE	• Maintain and strengthen a reporting-back mechanism on individual and collective exam performance to Examiners and network Directors of Training. • Immediately contact all trainees post-RACE by text message and email providing the contact details of the College counselling support service (EAP). • Offer an online post-examination debrief session for all sitting trainees (group session) to be facilitated by a RANZCO official (not an Examiner). This debrief would offer the face-to-face opportunity for trainees to share their overall feedback regarding the examination process in much the same way that the survey collects feedback. • Disseminate relevant information to all sitting trainees regarding post-RACE pathways for those who pass and those who fail. This would include information regarding the real or perceived use and application of the 'three strikes and you're out' rule. • Ensure that all trainees who fail one or both components of their first attempt at RACE are provided with a face-to-face meeting, ideally with the Chief Examiner and relevant network Director of Training, to provide detailed feedback on all components of the exam and identify strategies for improvement. Use the trainee's actual written examination manuscript to exemplify deficiencies where possible to target remediation effectively. • For Directors of Training to ensure that a remedial action plan is developed for any trainee who fails (which must be followed and signed off to be eligible for a re-sit) and enable them to join an appropriate study group. • Review guidelines and application of 'extenuating circumstances' examination rules. • Maintain and collate RACE candidate survey data from trainees and seek to improve the quality of these data where possible through regular review of survey questions and trial of new data management systems.

Introduction

Of all the OECD countries, Australia has the lowest per capita number of practising ophthalmologists (Australian Institute of Health and Welfare, 2022), suggesting the need to bolster domestic trainee supply to ensure improved access to ophthalmic care in the future. A focus on workforce growth is also supported by workforce projections which suggest that of all medical specialties, ophthalmology will be experiencing significant shortfalls by 2030 (Department of Health, 2018). Efforts to address this projected shortfall have focused on increasing the number of training positions offered for ophthalmology trainees to ensure an adequate future supply of specialists. However, such a strategy will only be sound if all trainees who enter the training program are successful in completing all educational and training requirements and graduate as competent and safe ophthalmologists in the minimum timeframe possible. RANZCO has observed with increasing concern the number of trainees failing to meet standard at their final examination, resulting in delays in both the entry of new trainees into the training program, and the progression of competent ophthalmologists into the workforce. RANZCO is subsequently committed to exploring possible reasons for failure in an effort to provide necessary supports to trainees to promote examination success.

Best Practice Clinical Education and Clinical Learning Environments

Best practice principles for graduate education across medicine and other health professions have been articulated in accreditation standards, College policies, course review guidelines and numerous educational policy and research papers. These point to the importance of providing a supportive organisational culture and quality learning environment, in which trainee wellbeing is promoted and supervisory practice is valued. Effective trainee supervision by knowledgeable, trained Supervisors and the provision of timely, quality feedback to guide learning, is also advised. In addition, a comprehensive and contemporary syllabus and training program, incorporating fair, consistent and transparent assessment processes, is recommended. The best practice principles have been listed, in summary form, in Appendix A of this report.

RANZCO Vocational Training Program

As the medical College responsible for the training and professional development of ophthalmologists in Australia and New Zealand, one of the main functions of the Royal Australian and New Zealand College of Ophthalmologists (RANZCO) is to deliver a Vocational Training Program (VTP) to develop the future ophthalmology workforce. RANZCO has a well-established governance structure for its programs and activities related to the VTP. Each of the broad areas of work are usually overseen by a committee that is comprised mostly of RANZCO members and, in some cases, expert non-members. All committee members must be approved by the Board and the terms and conditions of their membership are regulated by the terms of reference. Committees can also form time limited working groups to work on specific projects.

The Qualifications and Education Committee (QEC) is the highest-level committee for the VTP which sits under RANZCO's Board of Directors in the hierarchical structure (Figure 1). All other education committees except the Training Post Inspectorate, report to the QEC and need to have their decisions ratified by the QEC.

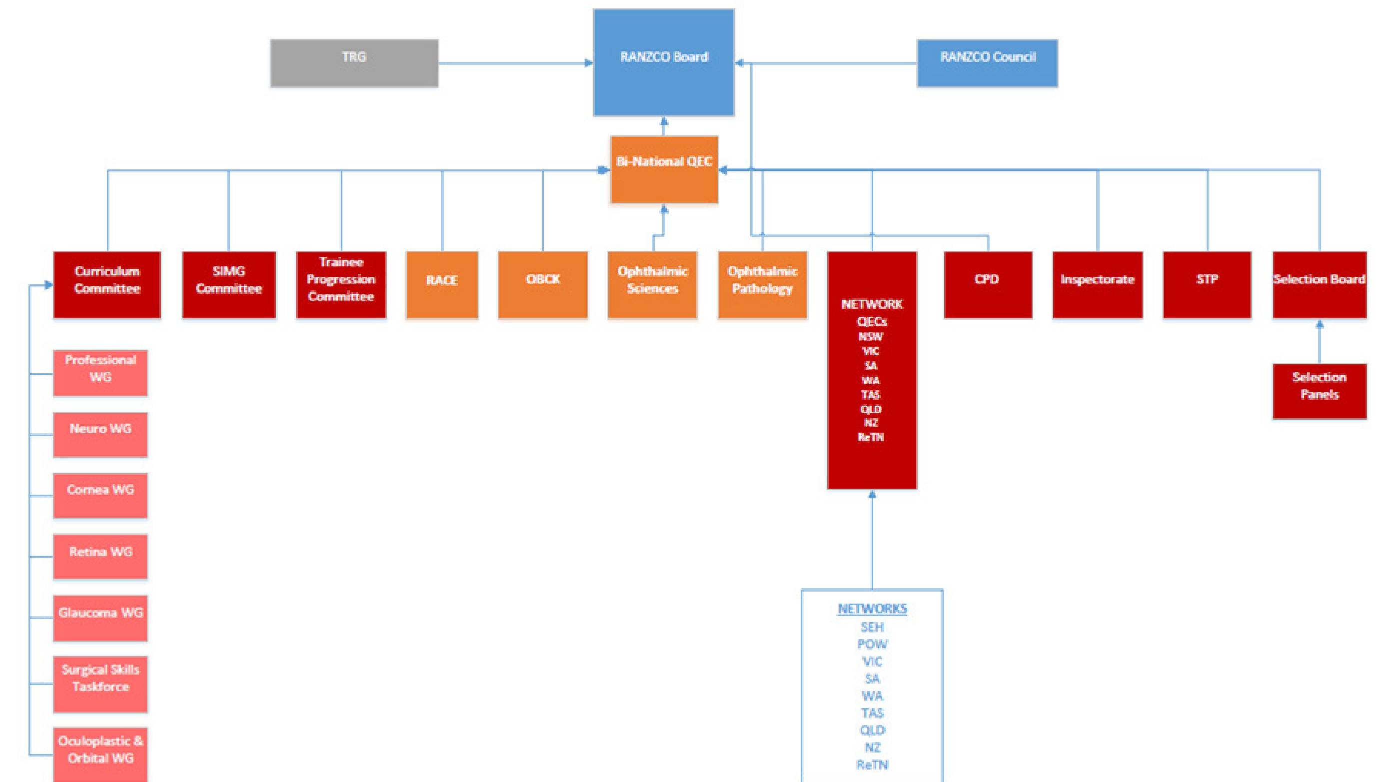


Figure 1. RANZCO Organisational Structure

The RANZCO VTP Curriculum Overview (2022) specifies the interdependent components of the curriculum and pathways to meet the objectives of the VTP. The broad course outcomes of the RANZCO Curriculum reflect the knowledge, skills and professional attributes for beginning, unsupervised and competent ophthalmic practice in Australia and New Zealand. The outcomes reflect the clinical, surgical and professional capabilities of the graduating RANZCO ophthalmologist. Further information about the course outcomes of the VTP and the multiple interdependent components can be found in the RANZCO VTP Curriculum Overview (2022).

The training stages of the RANZCO VTP are basic (Years 1 and 2), advanced (Years 3 and 4) and final year (Year 5). As trainees progress to advanced training from basic training, they are expected to demonstrate integrated application of foundation skills and knowledge of clinical and surgical practice in both subspecialty and cross-specialty areas of ophthalmic practice (RANZCO, 2018). Trainees continue to integrate professional capabilities and demonstrate skills and knowledge of increasing complexity and whilst developing their independence. In the final year of the VTP, trainees consolidate their specialist experience in preparation for the specialist ophthalmic qualification, and to function in the community as a safe, independent, comprehensive, general ophthalmologist (RANZCO, 2018). RANZCO graduates are expected to be able provide tailored, patient-centred eye care to individuals and communities.

During basic and advanced training, training is primarily centred on work-based learning within the training networks in which trainees are employed as accredited registrars and rotated through structured terms in various clinical settings and subspecialties in both Australia and New Zealand (RANZCO, 2018). Trainee progress and performance is assessed by the Term Supervisor and monitored and recorded through a series of formative assessment reports. To meet the College's standard, a trainee needs to undertake at least four supervised clinics and two supervised theatre sessions each week (RANZCO, 2018). Teaching is integrated into the care of the patient and the role of the trainee may vary according to their level and stage in the training sequence. Typical learning opportunities include patient care conferences, working in interprofessional teams and working as an apprentice in surgery. Short training sessions, primarily lecture based, relating to specialised aspects of work or procedures are facilitated for trainees by Supervisors and Clinical Tutors.

RANZCO Vocational Training Program Assessments

RANZCO uses a range of formative and summative assessments including work-based assessments and examinations to assess trainees' performance throughout the VTP (RANZCO, 2022). For the formative assessment, information is obtained from a range of assessment tools to provide feedback to trainees for their own learning and readiness to progress. The Trainee Progression Committee (TPC) uses this data to recommend support strategies for trainees in difficulty. From 2023, the TPC will use this data to assess whether each trainee enrolled in the VTP is ready to progress to the next stage of training and the Delivery and Development Committee (DDC) will use it to recommend support strategies for trainees who are not ready to progress. For summative assessments, information is gained via multiple sources (e.g. work based reports, exam scores, surgical log book) to assess all domains and measure whether the trainee has achieved the course objectives at the required standard.

There are a series of assessments that trainees must complete as they progress through the VTP (Figure 2). It is important to note that the assessment practices described in this report reflect the 2021 academic year. It is understood that there have been changes to the VTP and assessments in 2022 which are subsequently not captured in this report.

According to the Trainee Progression Policy (RANZCO, 2018), basic trainees are required to sit and pass six RANZCO examinations:

- Clinical Ophthalmic Pharmacology and Emergency Medicine (COPEM) Module 1
- Clinical Ophthalmic Pharmacology and Emergency Medicine (COPEM) Module 2
- Anatomy
- Optics
- Physiology
- Ophthalmic Basic Competencies and Knowledge (OBCK)

Advanced Trainees are required to sit and pass two RANZCO examinations:

- Ophthalmic Pathology (OP)
- RANZCO Advanced Clinical Examination (RACE)

Further details about the assessment methods and progression can be found in the RANZCO VTP Curriculum Overview (RANZCO, 2022) and Trainee Progression Policy (RANZCO, 2018).

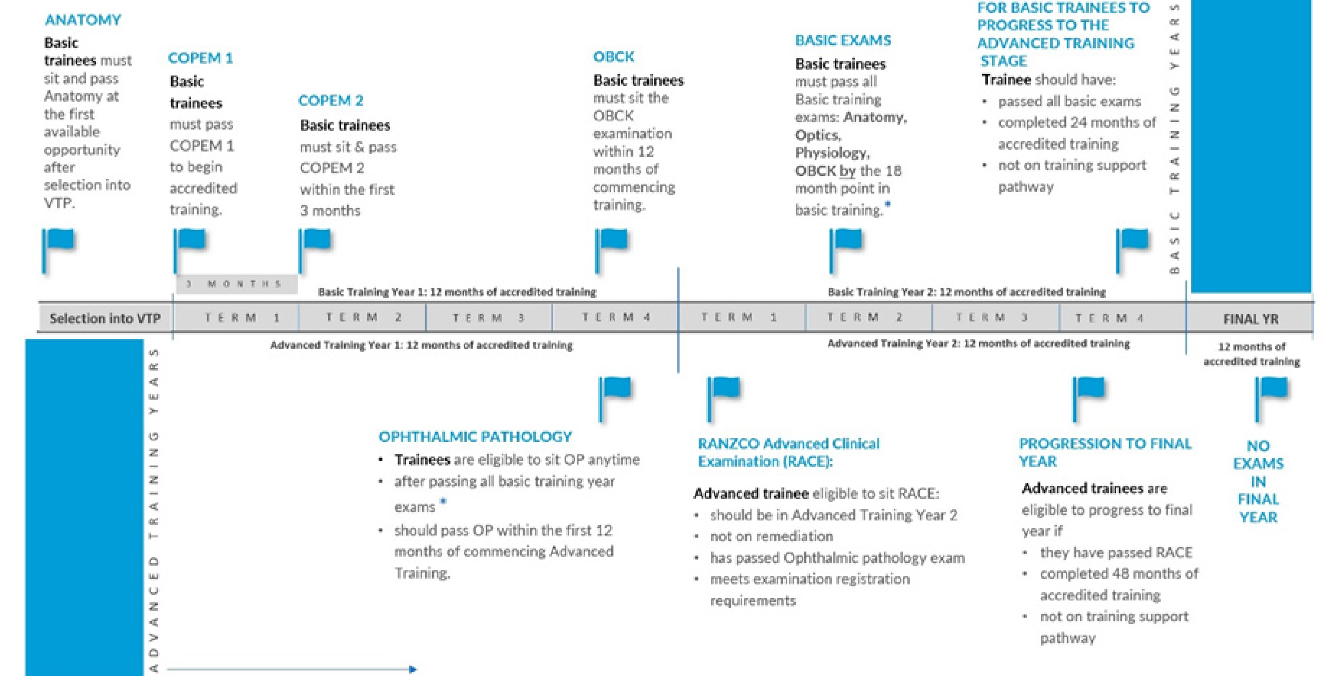


Figure 2. Timeline for RANZCO VTP Examinations

RANZCO Advanced Clinical Examination (RACE)

RACE is the final examination hurdle before trainees complete the formal part of the VTP and progress through to their final year, where they work towards consolidating their knowledge and skills towards working as an independent ophthalmologist (Figure 2). As such, RACE is considered to be the highest stake of all RANZCO examinations by trainees, Fellows and stakeholders. Although there have been changes made to the VTP and assessments in 2022, no changes have been made as to how RACE is conducted.

RACE comprises of two separate components, a clinical and written examination, both of which must be passed independently for trainees to commence their final year of training. Advanced trainees are eligible to sit RACE if they have commenced their second year of advanced training, are not under remediation, have passed the Ophthalmic Pathology examination and meet examination registration requirements (RANZCO, 2018). It is important to note that due to the timing of RACE sittings, some trainees may fall short of the mandated training timeframe necessary prior to sitting. Trainees in this situation may apply to the Censor-in-Chief to sit RACE up to three months in advance of their start of their fourth year with the approval of their QEC Chair and Director of Training (DOT) (RANZCO, 2018).

All advanced trainees must sit both the clinical and written components of RACE at their first attempt. A trainee may hence be credited with a 'pass' on either the written or clinical, or both components at this first sitting. If trainees do not pass an individual component, they are only required to resit the examination that they have initially failed. For trainees who fail to pass both components of RACE at first sitting, both components must be resat at their second attempt. A trainee who fails to pass both components of RACE at their second attempt will be referred to the TPC for review (RANZCO, 2018). Currently, RANZCO's Trainee Progression Policy (RANZCO, 2018) stipulates that trainees are permitted three attempts to pass any examinations (which includes RACE), and any trainee who fails to pass at either the second or third sitting is referred to the TPC for review.

After a second failed attempt, the TPC will review the individual feedback and marks obtained and may interview the trainee if either the trainee or the TPC require more information. The TPC prepares a report for the trainee based on their review. Such a report will typically include general advice on preparation strategies, exam technique and a reminder about trainee well-being.

After a third failed attempt, the TPC will review the individual feedback and marks obtained by the trainee. An interview with the trainee is arranged to decide whether a fourth attempt is to be permitted by trying to understand where the specific problems lie and what support may be needed to ensure a successful sitting. The trainee will be asked to reflect on their preparation strategies between attempts so that the TPC can identify the deficits or patterns of unsuccessful behaviour. The TPC also recognises that at this point, a trainee's well-being is of significant concern as with every successive failed attempt, their anxiety level rises and this is explored in the discussion.

If a fourth attempt is permitted, the TPC will prepare a comprehensive report that details their findings, maps out the specific issues to be addressed and sets out the conditions for the next attempt. Such conditions typically involve delaying the next attempt and obtaining a trainee undertaking that they will take steps to safeguard their physical and mental well-being (e.g. professional guidance from a psychologist or simply taking time out from study to recharge).

Examination Design, Development and Administration

The RACE can be sat by candidates in either of two separate sittings each year. The first semester sitting occurs in January (written component) and March (clinical component). The second semester sitting occurs in July (written component) and August (clinical component).

Written Component

Since semester 2, 2018, the written component of RACE has been conducted in an online format, comprised of two papers conducted over two consecutive days. The College currently uses "Moodle" as the written examination platform. All written examinations are password protected and only accessible on the day of the exam once RANZCO staff make the examination available which is shortly before the start of the exam. The written examination is conducted simultaneously across Australia and New Zealand at Cliftons Test Centres.

Each of the written examination papers consists of two parts:
- Part A consists of 9 Short Essay Questions (SEQs)
- Part B consists of 30 Very Short Answer Questions (VSAQs)

The questions are based on the current clinical curriculum performance standards and are allocated according to the examination blueprint to ensure that each of the standards is represented. Candidates type their answers online. Each question consists of a stem followed by several parts to the question, some of which may also include images pertinent to the case.

Each paper is completed in one day over two separate sessions. The total duration of each paper is 4 hours and 10 minutes, which includes 40 minutes preparation time (20 minutes for each session) and 30 minutes supervised break between the first and second sessions. The 20 minutes preparation time is granted before the start of each session to allow 5 minutes to log into Moodle and 15 minutes to read the questions, take notes and write their candidate number into the online answer boxes.

To develop the written examination papers, the Examination Committee comprising of approximately 25 generalist and subspecialist RANZCO Fellows meet in May each year to commence the design of the RACE for the subsequent two semesters. Prior to the meeting, each member of the Examination Committee prepares two SEQs and seven VSAQs. VSAQs are designed to test more specific and detailed knowledge than the SEQs.

Types of SEQs include:

a. clinical scenarios where the diagnosis is fairly clear and the focus is on how the candidate would provide care for a patient e.g. treatment of angle-closure glaucoma;
b. clinical scenarios where the diagnosis is not clear and the candidate needs to come to reasonable conclusions based on the information presented e.g. assessment of red eye with reduced abduction; and
c. disease discussions – e.g. trachoma, retinopathy of prematurity screening.

Prior to the scheduled May meeting, each SEQ is critiqued by one other member of the Examination Committee and VSAQs are critiqued by at least two other members of the Examination Committee, one of whom is not a subspecialist in that area. At the May meeting, the Examiners then divide into groups (mix of generalists and subspecialists) and every SEQ is reviewed and refined again before being accepted. Table 1 details the considerations for SEQs undertaken by the Examination Committee. Unlike SEQs, VSAQs are not reviewed again at the meeting.

Table 1. Considerations for short essay question development

Short Essay Questions (SEQs): Critical Assessment by Examiners
• Is the question clear and unambiguous? • Are all medications given in their generic form? • Is the material in the question in the curriculum standards and have these been referenced? • If it is a multiple section question, does failure in the first inevitably lead to failure in the rest? If so, is this acceptable? • Does the way the question has been asked lead to the model answer given? • Is the model answer appropriate in breadth and in detail? • If this is a non-core subject, is the scenario a typical one for this condition? • Do pictures match the clinical scenario? • Are pictures of adequate quality? • Is the nature of the question and the depth of answer required appropriate for a competent general ophthalmologist? • Have the expectations for a candidate to pass been clearly documented? • Is it reasonable to expect a candidate to be able to answer the question in twelve minutes?

A model answer for each SEQ is initially created by the Examiner who writes the question. This model answer is first reviewed by a second Examiner prior to the May meeting. The model answer is again reviewed and critiqued during the May meeting, in a small group consisting of approximately 6-8 Examiners, before finally being approved. Given that the Examination Committee comprises experienced ophthalmologists, many of whom are subspecialists, the model answer is therefore of a high standard, well above what is required of the candidates to pass the question. From this model answer, a set of criteria are determined for the "pass" standard. This is what is used to determine what constitutes a "satisfactory" grade for an individual SEQ (see Table 2).

To mark the written component of the RACE, members of the Examination Committee work both independently and collaboratively. Each VSAQ is marked independently by two members of the Examination Committee, with each question receiving up to 2 marks (part marks are granted). The scores for each Examiner are entered into a spreadsheet and aggregated to produce a final result for each candidate (60 VSAQs x 2 marks x 2 Examiners = 240 marks). The VSAQs count for 10 out of the possible 46 total marks possible, meaning every 24 VSAQ marks contributes candidates with 1/46th of their total examination result.

For SEQs, again two members of the Examination Committee mark papers independently, reviewing candidates' answers and comparing them to the criteria determined for a 'pass' standard. Each Examiner subsequently grades each SEQ (Table 2), then submits their results to the College. If there are discrepancies between allocated grades, Examiners are asked to confer with one another and decide if their grades stand. Examiners may agree to disagree if an answer is borderline (e.g. one may grade 'S' and the other 'NS'). All SEQs graded by each Examiner as either 'excellent' or 'satisfactory' are awarded one mark. Both Examiners marks are then allocated for each of the 18 SEQs, resulting in the remaining 36/46 portion of marks.

Table 2. Performance criteria for short essay questions

Grading Short Essay Questions (SEQs)	
Excellent 'E'	Pass and may be relevant for the Howsam Medal. E's do not make up for NS.
Satisfactory 'S'	Pass. A safe, competent but not outstanding performance. Most of the information is logically presented, most judgements are correct and there are no major omissions. I would be happy to have this person as a locum in my practice.
Not Satisfactory 'NS'	Common reasons are: failed to answer question, inadequate knowledge or poor perspective.
Very poor 'VP'	Sight or life threatening. Discussed at Examiners meeting. Local QEC notified. A single error or omission will not result in a fail unless it is critical to the management, is sight or life threatening or shows a clearly unprofessional attitude.

Clinical Component

Historically, the clinical component of the RACE has been run as a face-to-face examination process. However, due to the emergence of the COVID-19 pandemic and the associated health and safety concerns for trainees and patients, this face-to-face examination was cancelled in semester 1, 2020. The clinical component was subsequently adapted to be run as a virtual examination and recommenced in virtual format in semester 2, 2020. Ongoing safety concerns related to the pandemic have continued the clinical component of the RACE to be offered as a virtual examination.

a) When run as a **virtual** examination:

The virtual clinical examination is run at Cliftons Test Centres in all major capital cities, with candidates travelling to their closest Cliftons Test Centre to sit. The virtual examination is sat in one day, with nine virtual double Objective Structured Clinical Examination (OSCE) stations presented via Zoom Business video conferencing. Examiners and trainees are located in different rooms within the testing centre and therefore rely exclusively on virtual communication during the examination. Examiners use images and/or video clips of real cases instead of live patients with each clinical curriculum performance standard examined in two stations:

- Cataract and Clinical Refraction
- Cornea and External Eye Disease
- Glaucoma
- Neuro-ophthalmology
- Ocular Inflammation
- Ocular Motility
- Oculoplastic and Orbit
- Paediatric Ophthalmology
- Vitreoretinal

Each virtual double OSCE station is allocated 15 minutes, allowing a changeover of three minutes between stations. Candidates therefore have 12 minutes to answer two sets of questions relating to one or two cases and 3 minutes to move virtually to the next station. All stations are staffed by an Examiner. During the examination, independent observers, who are Fellows of the College, are assigned to virtually observe some of the Examiner/candidate station interactions.

The material examined in the clinical component of the RACE is designed to exclude topics already examined in the written SEQs. Two weeks prior to the clinical examination, the RACE Chair holds a Cases Discussion Meeting. The Examiner in Charge (EIC), RACE Chair, Registrar of the Court (ROC) and local Examiners meet to discuss the cases that have been created by the EIC for the clinical examination which will in turn become the individual OSCE stations. Cases are reviewed, with questions to be asked edited and refined, and requirements to pass the station discussed. During this meeting the group decide how to allocate the cases (OSCE stations) among the Examiners. Each RACE Examiner is then sent the OSCE station they will be running in the exam. They have seven days to personalise the case to their own taste, which often involves further minor editing.

One week prior to the virtual OCSE exam, all Examiners meet for the pre-OSCE Examiners Meeting. Each Examiner presents his/her station to the entire cohort of Examiners, with the other Examiners critiquing the station and suggesting small edits and refinement of questions to be asked. The model answer developed is also further reviewed in a group of approximately eight Examiners during the pre-OSCE Examiners Meeting, and the final model answer is then agreed upon and finalised. Following the pre-OSCE Examiners Meeting, each Examiner makes the final edits/amendments suggested during the meeting, before then sending the final station questions to RANZCO. This is then placed in the final exam.

Candidates are graded for each double station as 'excellent', 'satisfactory', 'not satisfactory', or 'very poor' based on the predetermined requirements for each station by the assessing Examiner. The Examiner will detail written comments for any candidate who is awarded a 'not satisfactory' or 'very poor' grade in the three minutes allowed for the change over of the station. Once all stations are completed, the scores and comments for each candidate are entered into a spreadsheet and aggregated to produce a final result for each candidate (9 double stations x 4 marks x 1 Examiner = 36 marks).

b) When run as a **face-to-face** examination:

In the face-to-face format, the clinical component of the RACE is run over two consecutive days at a single geographical location (e.g. Westmead Hospital) using real-life patients with confirmed ophthalmic pathologies. All sitting candidates are therefore required to travel from their respective network to the location of the clinical examination. Candidates complete nine OSCE stations on each of the two days (18 stations in total), with two stations for each of the clinical curriculum performance standards including:

- Cataract and Clinical Refraction
- Cornea and External Eye Disease
- Glaucoma
- Neuro-ophthalmology
- Ocular Inflammation
- Ocular Motility
- Oculoplastic and Orbit
- Paediatric Ophthalmology
- Vitreoretinal

Each face-to-face OSCE station is allocated 9 minutes, allowing a changeover of 3 minutes between stations. Candidates therefore have 6 minutes to answer questions relating to the station and 3 minutes to move to the next station. All stations are manned by an Examiner. During the examination, independent observers, who are Fellows of the College, are assigned to observe some of the Examiner/candidate station interactions.

About a week before the face-to-face clinical examination, the RACE Chair meets with the EIC, the ROC and the other Examiners in that location to go over the cases to be assessed at each OSCE station. The questions relating to each case are refined and any necessary changes considered and included in a PowerPoint. At this meeting, the stations (cases) are allocated to the various Examiners who are then sent the questions and can take ownership of these as they are expected to add /take away suggested questions as they see fit.

At a meeting the afternoon before the face-to-face clinical examination, the EIC and the ROC present the updated PowerPoint with the details of all OSCE stations, so the Examiners can familiarise themselves with all the stations and particularly with the ones they are to mark.

On the days of the face-to-face clinical examination, the Examiners have an hour or so prior to the examination to see the patients and confirm the findings and make any final alterations to the questions if they feel they are necessary.

Candidates are graded at each of the 18 OSCE stations as 'excellent', 'satisfactory', 'not satisfactory', or 'very poor' based on the predetermined requirements for each station by the assessing Examiner. Any 'not satisfactory' or 'very poor' grades in an OSCE station requires a "pink sheet" feedback form to be completed by the relevant station Examiner. These can be hand-written but also need to be typed into Word and given to College staff before the end of the day. They will be included in the feedback for any failing candidate. Once all stations are completed, the scores and comments for each candidate are entered into a spreadsheet and aggregated to produce a final result for each candidate (18 stations x 2 marks x 1 Examiner = 36 marks).

Pass Criteria for Written and Clinical Examinations

Prior to semester 1, 2022, RANZCO published fixed and pre-determined pass marks that trainees were required to meet to pass an examination. For RACE, the pass mark was 83%. However, from semester 1, 2022, RANZCO implemented formal standard setting methodologies across all its examinations, and fixed and pre-published pass marks no longer apply. This change will ensure that the passing standard is the same for each sitting of an examination, which is fairer for trainees. This change is in line with the Australian Medical Council (AMC) accreditation standards for assessment.

From Semester 1, 2022, the RACE Board will therefore consider the difficulty of each clinical and written examination and the expected competencies of ophthalmic trainees who are sitting the RACE and determine the passing standard for the examinations. While the underlying standards for an examination will remain the same from sitting to sitting, the actual pass marks for each sitting may differ to allow for differences in question and examination difficulty. All passing standards will be reviewed by the RACE Board following every sitting. An error adjustment may be applied to the passing standard to set a minimum score required to pass RACE.

Changes to Examination Design, Development and Administration

RANZCO are committed to the continual review and improvement of RACE design, development and delivery. The Examination Committee meeting in May provides the opportunity to review the RACE candidate survey feedback from the prior two sittings as a basis for discussion about possible alternations to the format of both the clinical and written components of RACE. Based on this survey feedback, several changes have been made to examination development, design and delivery over the past decade, examples of which can be found in Table 3.

Table 3. Historical RACE changes

RACE Component	Changes
Written	• A break part way through each written paper • Reading time prior to the start of the exam • Greater clarity over 'required to pass' criteria • A telephone discussion between the marking pairs prior to final grades to review the 'required to pass' criteria and make final adjustments to allow for any unexpected misinterpretations of the question • An additional step requiring Examiner pairs to reconsider their grades if there was a disparity between the two. • On one occasion, at a May meeting, having all the Examiners actually answer a question in the required time to remind them how short 15 mins is.
Clinical	• An increase to 18 OSCE stations to allow for two of each curriculum standard • A meeting the week before the OSCE with the chief Examiner, Examiner in charge, Registrar of the Court and local Examiners to refine the cases and standardise the questions for each station. This change allowed any unsuitable cases to be discarded and helped focus the meeting involving all the Examiners the day before the OSCE (when in face-to-face format). • Electronic rather than paper records of results of each station and feedback. This facilitated us providing feedback provided within a few days of the exam rather than weeks later as it had been. • Greater clarity over 'required to pass' criteria • Continuing professional development for Examiners part way through their 10-year term by allowing one person each day to observe other Examiners in action. This meant increasing the number of Examiners at each sitting from 9 to 10. • Involving a community representative in consent/communication stations and having them provide feedback on the station, the candidates and the Examiner.

Trainee RACE Performance

The pass rate of RACE is critically important for workplace planning as it will directly influence the number of new ophthalmologists that will be available to join the workforce in the next few years. Trainees remain in an accredited training position until they pass the RACE, which subsequently delays entry of new trainees into the VTP. In addition, the ramifications of delayed entry of final year trainees and new ophthalmologists into the workforce has significant implications for ophthalmic service delivery, particularly in regions and settings that are currently underserviced such as rural and remote areas and extended settings.

RANZCO has completed an interim analysis of the RACE clinical and RACE written pass rates from 2014-2022 (Figure 3). The data needs to be interpretated with caution given the low numbers of trainees sitting the RACE every year. Nonetheless, the analysis has shown that there was a decreasing trend in pass rates for both clinical and written RACE over the years, with the decline substantially steeper for written than clinical toward the latter half of last decade. Pass rates tend to drop with the number of attempts, which is most likely because less competent trainees are resitting. Interestingly, the pass rates were the same for RACE clinical and written in 2014 but diverged in subsequent years, with the exception of 2018. The gap between the pass rates for clinical and written components has fluctuated over the years but following a rapid decline in the pass rate for RACE written in 2019 from 2018, the gap in the pass rate widened in 2019 and 2020. More recent data from late 2021 and 2022 suggests this gap may be closing, which may possibly relate to the introduction of the Angoff rating system (piloted in semester 2, 2021 and introduced formally beginning semester 1, 2022) and the subsequent moderation of pass scores relative to examination difficulty (Figure 3).

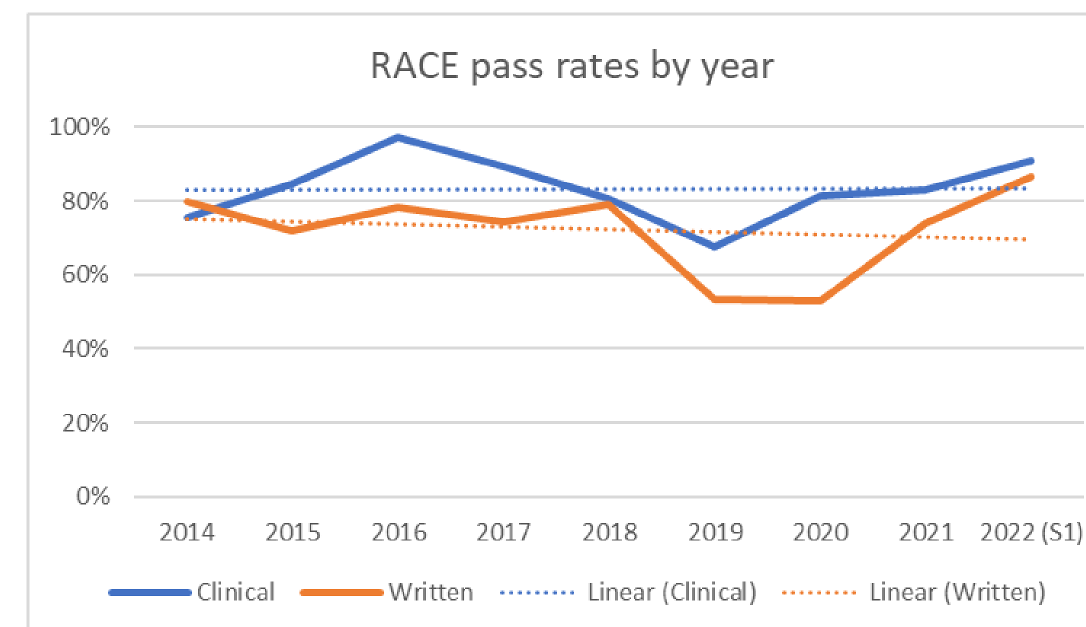


Figure 3. RACE pass rates 2014-2022

The decline in trainee performance more broadly over recent years (not including 2021 and 2022) has undoubtedly been an area of significant concern for RANZCO, trainees, Fellows and other stakeholders with interest in future workforce development to promote equitable ophthalmic care across Australia and New Zealand. However, the latest Medical Education and Training (MET) report published in 2016 shows that the low pass rates in the final examinations are not unique to ophthalmology and is widespread across all medical Colleges. Understanding the reasons why such a high proportion of RANZCO trainees fail RACE and identifying strategies to support trainees prepare for their exams would therefore not only be beneficial to RANZCO, but other Colleges who are facing similar issues with high failure rates.

Trainee Feedback About RACE

RANZCO has been receiving anecdotal feedback from trainees and Supervisors about why trainees are failing RACE based on their personal opinions and experiences. As would be expected, there is a substantial variation in the feedback provided by different people which makes it very difficult to make informed decisions on how to resolve issues. Regardless, RACE was also identified as one of the major causes of poor health and wellbeing by trainees in the RANZCO trainee survey that was conducted in late 2020.

As one of the main outcomes of the 2020 trainee survey, RANZCO has identified preparation for RACE as one of the main aspects that needs to be addressed in the training to improve trainee experience whilst ensuring that the high quality of ophthalmology graduates in Australia and New Zealand is maintained. Research suggests that trainees may prefer to be posted in the tertiary hospital settings in the lead up to RACE as it facilitates access to preparation resources and networking with peers while preparing for the examinations (Jessup et al., 2021).

STP and RACE

The RANZCO STP posts are predominantly based in rural (MM2-7) and private settings. This aligns with the STP operational requirements and also helps achieve RANZCO's strategic goal to address the large disparity in ophthalmic services between rural and metropolitan areas. It is also well recognised that a positive experience in rural areas during advanced training is likely to encourage trainees to relocate back to practice in these areas after they graduate. Also, the regional STP posts usually have only one trainee on site supported by 2-3 Fellows with a heavy caseload which make these posts unsuitable for basic trainees as basic trainees require a higher level of supervision and this may not be possible in a very busy clinic.

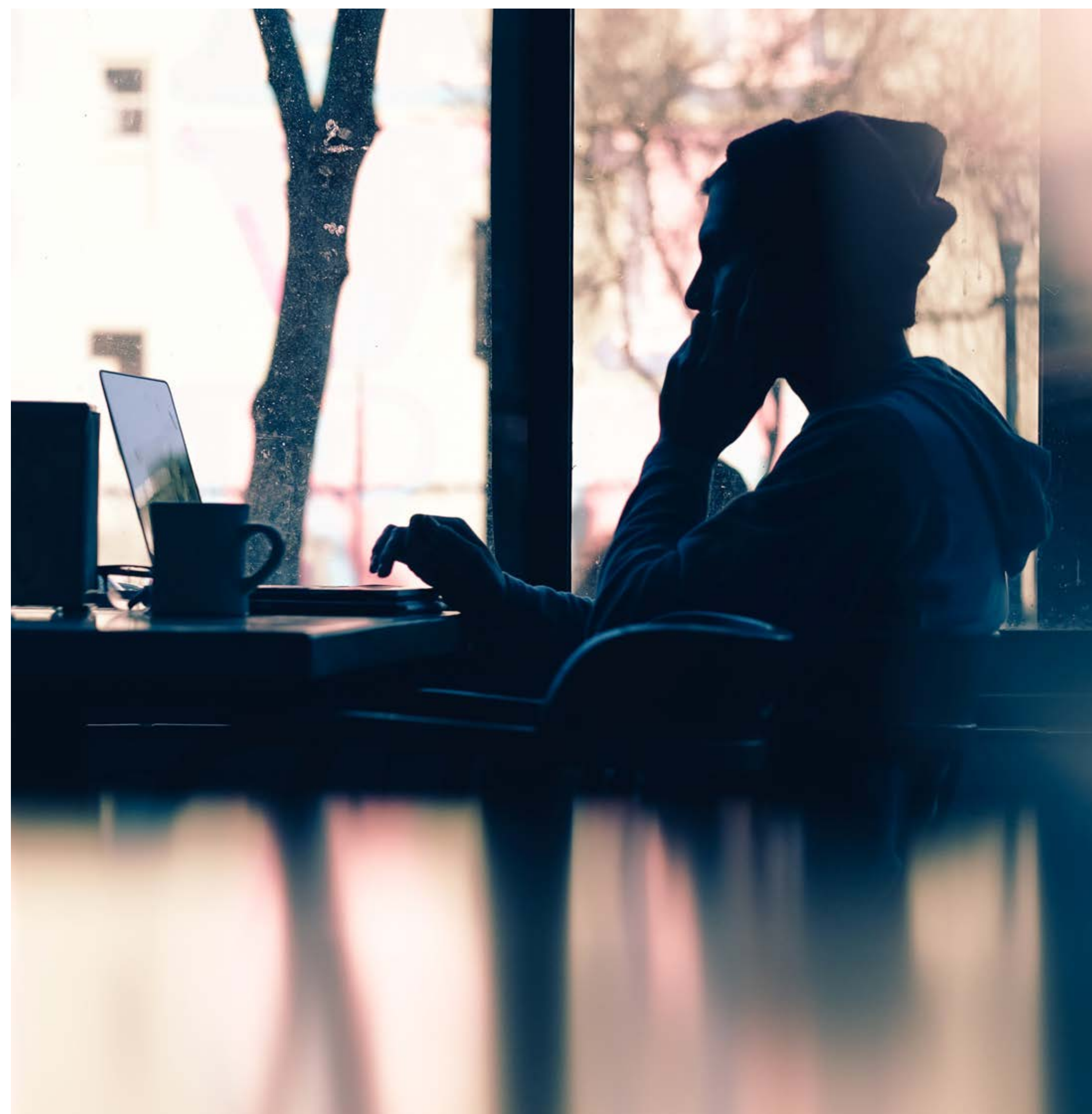
One of the key issues in posting advanced trainees to regional and rural STP posts is that these trainees will have started preparing for their RACE with an intention to sit the examination within the next twelve to eighteen months. As flagged by trainees during the in-depth interviews for the currently ongoing qualitative evaluation of the STP, they consider being posted in regional and rural areas and extended settings a disadvantage in their preparation for RACE, particularly given the increasing failure rates.

Study Aims

Given the importance of ensuring ophthalmology workforce growth, and the increasing concerns of RANZCO regarding trainee RACE performance, the overarching aim of this study is to identify the causes for success or failure in RACE and determine how RANZCO could provide additional support to trainees preparing for RACE.

As part of this overarching aim, it is expected that the study will determine:

- Why is the pass rate for RACE written dropping so substantially compared to clinical?
- What are the barriers faced by trainees in preparing for RACE?
- How did the trainees who passed in their first RACE attempt prepare for the exams differently to those who required multiple resits?
- For the trainees that failed RACE at least once, how did they prepare differently for the attempt they passed?
- How can Supervisors and training networks help trainees prepare for RACE?
- How can Supervisors and RANZCO support trainees who are the sole trainee in their rotation help prepare for RACE?



Methods

Study Design

To address the research aims, this study employed an explanatory-sequential mixed methods design (Cresswell & Cresswell, 2018). During the first phase of the study, an initial quantitative component was conducted, comprising an analysis of both recent trainee RACE performance data (2017-2020) and historical RACE candidate survey data (2013-2021), collected by RANZCO following the completion of RACE each year. This quantitative component was then followed by a qualitative approach to further explain the quantitative findings. This qualitative component involved semi-structured in-depth interviews with ophthalmology trainees and Fellows who have sat RACE in the last five years (>2017) and Supervisors who support pre-RACE trainees in rotations across Australia and New Zealand.

Throughout the project, the research team adopted a collaborative approach with RANZCO, scheduling bi-weekly meetings to develop and refine the study design, and generate possible explanations for emerging results. An expert advisory panel was also formed to garner high-level advice and information relating to RACE, as well as gather critical feedback around hypotheses, results and recommendations.

Ethics Approvals

The research was conducted by a team of researchers (BJ, PA, TB) from the University of Tasmania (UTAS). The Tasmania Health and Medical Human Research Ethics Committee (Project ID: 25018) provided ethics approval for the research on the 19th of August 2021 and the RANZCO Human Research Ethics Committee (Human Research Ethics Committee Reference number 129.21) provided approval on the 16th of September 2021. Approved ethics documents are in Appendices B through D. The finalised interview guide was submitted as an ethics amendment to both committees (Appendix D). Final approval of the revised interview guide was granted by the Tasmania Health and Medical Human Research Ethics Committee on 6th December 2021 and by the RANZCO Human Research Ethics Committee on 3rd December 2021.

Phase One: Analysis of Historical RANZCO RACE Data

RANZCO collates and retains trainee performance data concerning both the written and clinical components of the RACE sat each semester. RANZCO also collates feedback from candidates following each written and clinical examination each semester. Feedback is obtained from candidates via anonymous RACE surveys (Appendix E and F) which are provided to each candidate post-examination. The surveys collect both quantitative and qualitative data on aspects of both the written and clinical examination experience of trainees including clinical relevance, perceived level of difficulty, alignment with clinical training, ambiguity of questions and overall examination experience. Trainees are also asked to provide feedback on how examinations could be improved.

Phase one of this study involved an analysis of recent trainee RACE performance data (2017-2020) and historical RACE survey data (2013-2021) made available by RANZCO. The data were analysed by semester, with data concerning the January/March RACE sitting referred to as semester 1, and the July/August RACE sitting referred to as semester 2. The clinical examination scheduled for March, 2020 was postponed to October, 2020 due to COVID-19 restrictions. The performance and survey data for this specific examination are still referred to as semester 1, 2020 as it relates to the semester 1 cohort, despite the clinical examination taking place later in the year. Response rates were calculated for the RACE survey from semester 2, 2017 to semester 2, 2020 using the number of candidates from the trainee RACE performance data as the denominator. It was not possible to calculate response rates for other semesters due to RACE performance data not being available. Quantitative data from RACE surveys were analysed using descriptive statistics. Open ended survey responses were imported into NVivo (NVivo Qualitative Data Analysis Software 2020), with deductive content analysis then undertaken (Elo & Kyngas, 2008). This involved coding by the lead author (BJ) using a predetermined matrix of categories including: preparation; examination experience; examination design; and suggestions for improvement. Coding of open-ended responses was reviewed by another member of the research team (PA), with disagreements regarding coding resolved through consensus discussion.

Phase Two: Interviews with Trainees and Supervisors

The second phase of the study involved undertaking a qualitative study to further explain the findings from the initial quantitative phase. The qualitative component comprised of semi-structured in-depth interviews. Eligible interviewees were:

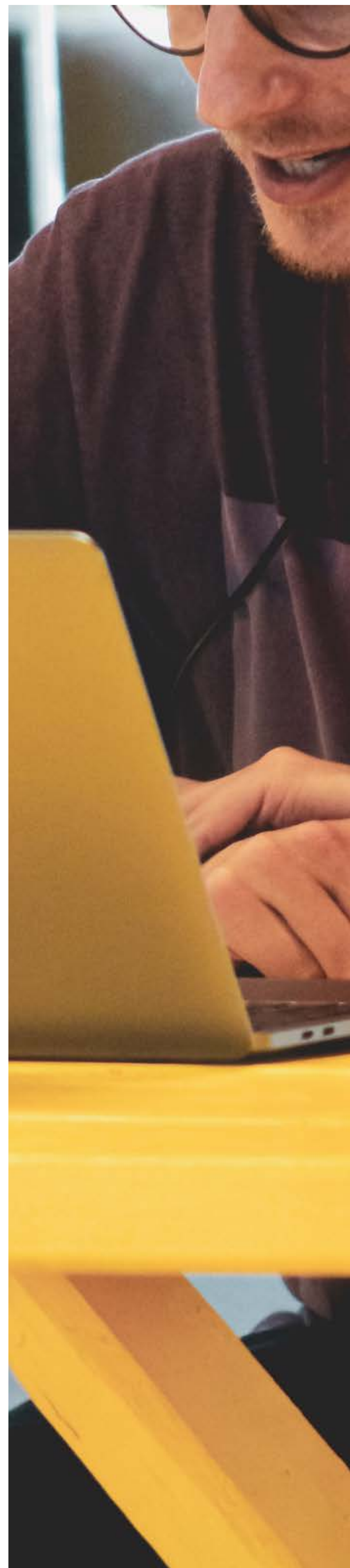
- Ophthalmology trainees or Fellows who had sat RACE within the past five years (>2017) (n=166)
- RANZCO Fellows providing supervision to trainees who are soon to sit RACE (n=127)

To recruit interviewees, an email invitation with an embedded Information Sheet (Appendix B) was sent to all potential participants by RANZCO administration who were unaffiliated with the research project. The email invitation provided a generic email address (RACEstudy.team@utas.edu.au) to contact to express interest in participation. As participation was voluntary, only those who replied to the initial email invitation were subsequently contacted by a member of the research team to arrange an interview.

All interviews were conducted over Zoom or telephone at a time convenient for the participant. Interviews were completed between January 2022 and March 2022 and ranged from 27 minutes to 75 minutes in length (average time 42 minutes). Prior to the commencement of the interview, a study consent statement (Appendix C) was read to participants, with all interviewees providing verbal consent for their interview to be audio recorded. Interviews were semi-structured in nature, with guiding questions used to elicit key information depending on whether the participant had recently sat RACE or was in a position where they provided supervision to trainees (Appendix D). All interview recordings were immediately transcribed verbatim. Interview transcripts were then emailed to participants to check for accuracy and completeness, with amendments made by participants where necessary. All amended transcripts were deidentified by removing names, dates, training networks and health jurisdictions, and imported into NVivo version 12.0 (NVivo Qualitative Data Analysis Software 2020) for analysis.

Qualitative data were analysed according to the methodology espoused by Elo & Kyngas (2008). Firstly, individual transcripts were reviewed multiple times by members of the research team (BJ, PA, TB). Lead authors (BJ, PA) then undertook independent coding of transcripts using NVivo version 12.0 (NVivo Qualitative Data Analysis Software 2020). Using an inductive approach, both authors independently read transcripts and identified codes as they emerged from the text. The codes were hierarchically organised into broader sub-themes, and eventually themes as the coding progressed. Both researchers then met to discuss their coding and to confirm the main themes, sub-themes and the relationships between themes. Any instances of disagreement in coding or themes were resolved through consensus discussion (BJ, PA, TB).

Once individual quantitative and qualitative data had been analysed, triangulation was then undertaken to identify agreement, partial agreement, silence and dissonance between the two components (O'Cathain, Murphy & Nicholl, 2010). This was achieved through consensus discussion with members of the research team (BJ, PA, TB) and saw the emergence of meta-themes, which cut across both quantitative and qualitative data sets and underpinned the overall findings of the study. Verbatim quotations were used from both the survey and interview data to exemplify findings. It is important to note that some quotations were truncated or redacted to protect the privacy and anonymity of participants.



Results

Phase One: Analysis of Historical RANZCO RACE Data

Trainee RACE Performance Data

Between semester 2, 2017 and semester 2, 2020, the total number of candidates sitting RACE for the available time periods ranged from 16 (semester 2, 2017) to 42 (semester 1, 2019). Candidates were based in a range of training networks with no training network over-represented according to the proportion of candidates who failed the written component or the OSCE. As suggested by Figure 4, there were no longitudinal tends of either increasing or decreasing mean scores for the SEQ, VSAQ, written or OSCE components. As described in the methods, the results for the OSCE for semester 1, 2020 relate to the semester 1 cohort, despite the clinical examination taking place later in 2020.

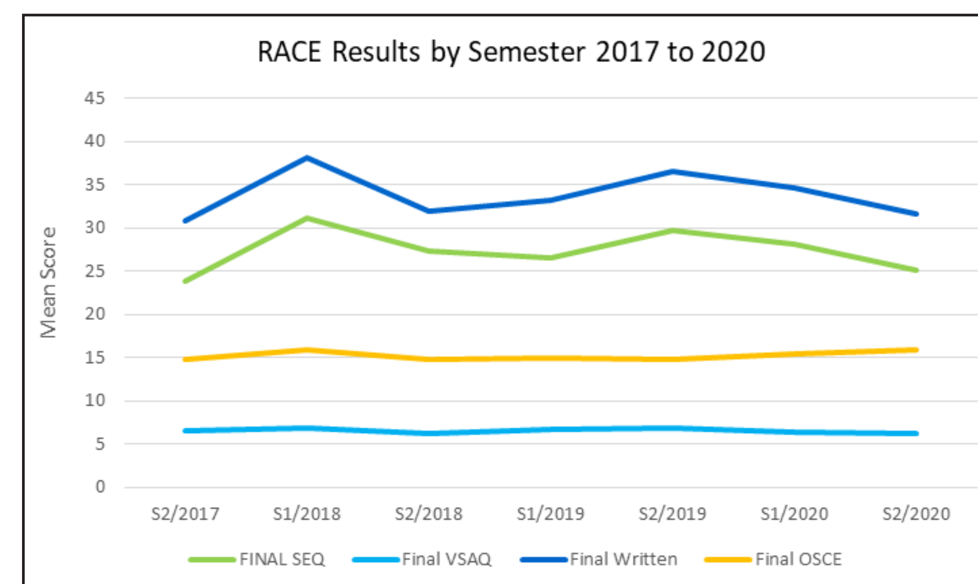


Figure 4. RACE results by semester 2017 – 2020

Table 4 details the mean score overall for all candidates and range of scores for the SEQs, VSAQs, written and clinical components of RACE from semester 2, 2017 to semester 2, 2020. The final SEQ scores ranged from a low mean of 23.9 in semester 2, 2017 to a high of 31.1 in semester 1, 2018. The final VSAQs ranged from a mean of 6.2 in semester 2, 2020 to 6.9 in semester 1, 2018. Final written scores ranged from a mean of 30.8 in semester 2, 2017 to a 38.1 in semester 1, 2018 and final OSCEs from 14.8 in three semesters (semester 2, 2017, semester 2, 2018 and semester 2, 2019) to 16.0 in semester 1, 2018 and semester 2, 2020.

Table 4. Mean and range of scores for SEQ, VSAQ and overall RACE

Year Semester	Final SEQ Mean (range)	Final VSAQ Mean (range)	Final written Mean (range)	Final OSCE Mean (range)
s2 2017	23.9 (8, 34)	6.6 (5, 8)	30.8 (14, 40)	14.8 (11, 18)
s1 2018	31.1 (24, 36)	6.9 (6, 8)	38.1 (30, 44)	16.0 (12, 18)
s2 2018	27.3 (14, 35)	6.3 (4, 8)	32 (18, 42)	14.8 (11, 17)
s1 2019	26.5 (8, 36)	6.7 (4, 8)	33.3 (11, 43)	15.0 (5, 18)
s2 2019	29.8 (12, 36)	6.8 (5, 8)	36.5 (18, 44)	14.8 (10, 18)
s1 2020	28.1 (12, 34)	6.4 (4, 8)	34.6 (18, 42)	15.4 (9, 18)
s2 2020	25.2 (9, 34)	6.2 (4, 7)	31.7 (13, 41)	16.0 (9, 18)

After excluding specialist international medical graduates (SIMGs) and those designated as having previously passed, the percentage of candidates who passed the written and clinical components were calculated for each semester. Figure 5 shows the percentage of candidates who passed the written exam ranged from a low of 30% in semester 2, 2017 to a high of 81% in semester 1, 2018. There was no longitudinal trend in the percentage of candidates who pass the written exam. The pass rate for the OSCE component ranged from 56% in semester 2, 2018 to 90% in semester 2, 2020, with an overall trend of a slightly increasing pass rate over time.

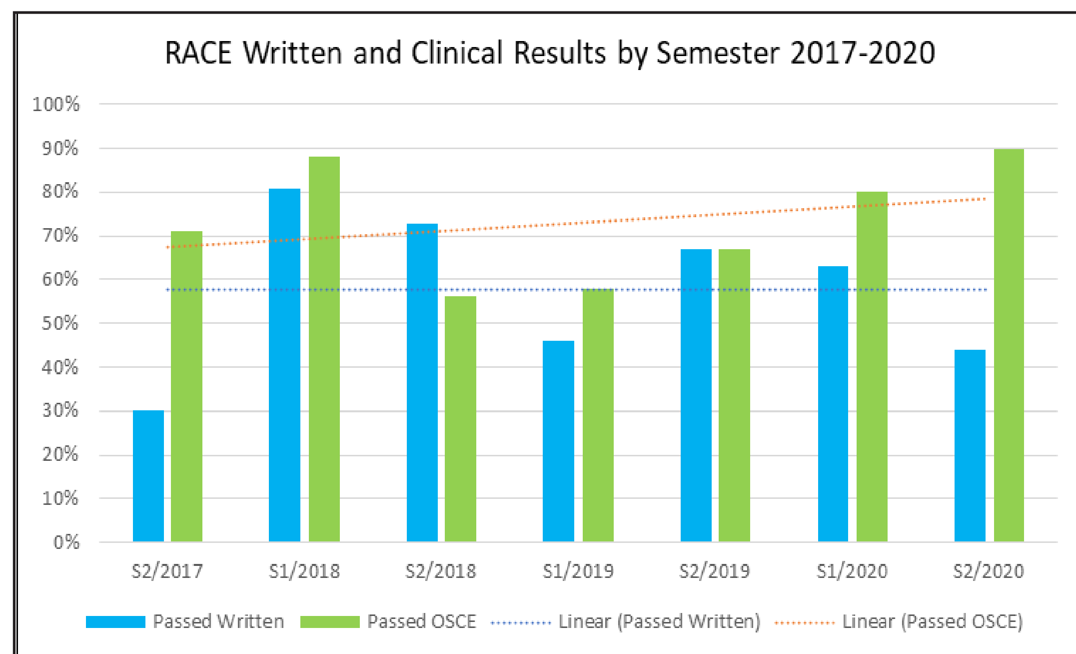
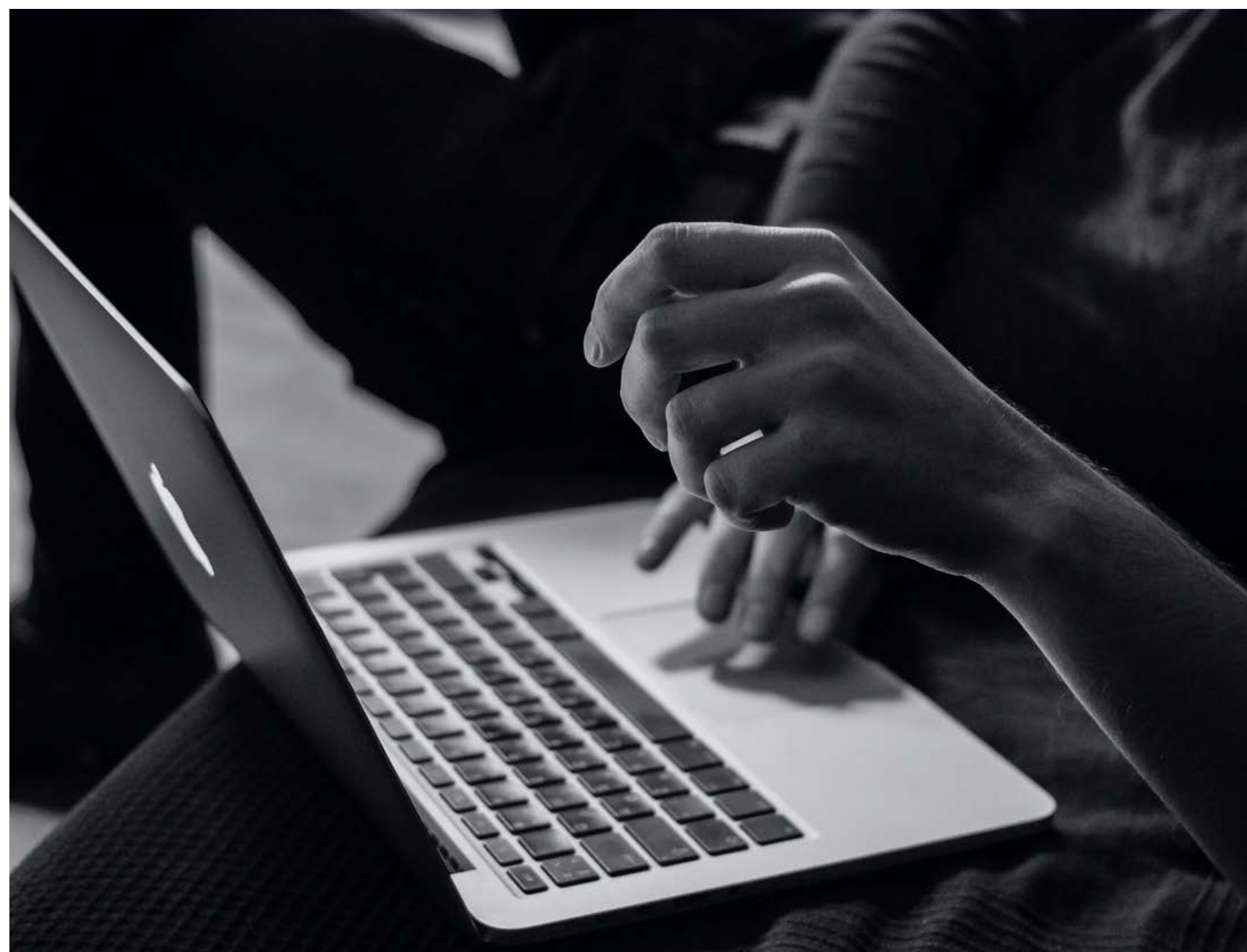


Figure 5. RACE written and clinical results by semester 2017 - 2020



RACE Clinical Examination Candidate Survey Data

Between semester 2, 2013 and semester 2, 2021, a total of 317 survey responses were received from trainees following the clinical examination. As described in the methods, the candidate survey data obtained following the clinical examination for semester 1, 2020 relates to the semester 1 cohort who sat the OSCE later in 2020. Response rates varied across semesters, with the lowest response rates recorded in semester 2, 2020 (39%), semester 1, 2020 (41%) and semester 2, 2017 (54%). Higher response rates were observed in semester 1, 2019 (94%), semester 1, 2018 (84%), semester 2, 2019 (83%) and semester 2, 2018 (81%). It was not possible to calculate response rates for the remaining semesters due to the RACE performance data illustrating the number of sitting candidates not being available.

Preparation

The largest proportions of trainees in each semester spent either 6-12 months or 12-18 months preparing for RACE (Table 5). Interestingly, 22% of trainees in semester 2, 2019 spent more than 24 months preparing for the clinical component of the RACE.

Table 5. Time spent preparing for RACE clinical exam by semester

Semester	0-6 months	6-12 months	12-18 months	18-24 months	>24 months	Total
s1 2017	3%	29%	55%	0%	13%	100%
s2 2017	0%	33%	67%	0%	0%	100%
s1 2018	15%	73%	8%	4%	0%	100%
s2 2018	0%	77%	23%	0%	0%	100%
s1 2019	0%	66%	34%	0%	0%	100%
s2 2019	6%	33%	11%	28%	22%	100%
s1 2020	15%	15%	46%	8%	15%	100%
s2 2020	8%	17%	50%	8%	17%	100%
s1 2021	6%	13%	63%	13%	6%	100%
s2 2021	22%	33%	22%	22%	0%	100%

Note: shaded cells indicate the largest proportion within each semester

From semester 2, 2013 through to semester 2, 2021, the most commonly reported RACE clinical exam preparation strategy was mock examination organised by the trainee's own training network (Table 6). The second most common preparation strategy was studying the curriculum standards while the equal third most common strategies were the Dunedin Ophthalmology Clinical Course and study with College trainees sitting the same examination.

Table 6. RACE clinical examination preparation strategies by semester

Semester/Year	Curriculum standards	Mock examination organised by trainee's own training network	Mock examination organised by another training network	Preparatory course organised by trainee's own training network	Dunedin Ophthalmology Clinical Course	Study with College trainees who are sitting the same examination	Study with College trainees who have already passed RACE
s2 2013	82%	100%	82%	27%	73%	91%	73%
s1 2014	79%	97%	72%	41%	93%	90%	62%
s2 2014	73%	82%	55%	18%	73%	73%	55%
s1 2015	79%	97%	88%	70%	97%	97%	61%
s2 2015	100%	67%	50%	33%	75%	58%	50%
s1 2016	62%	100%	88%	69%	100%	100%	65%
s2 2016	67%	67%	50%	28%	50%	61%	44%
s1 2017	81%	69%	59%	47%	91%	75%	72%
s2 2017	43%	29%	0	0	29%	29%	29%
s1 2018	81%	85%	85%	70%	85%	81%	59%
s2 2018	85%	92%	85%	31%	85%	69%	38%
s1 2019	68%	94%	81%	48%	87%	90%	48%
s2 2019	74%	95%	84%	68%	79%	84%	42%
s1 2020	82%	82%	64%	55%	64%	82%	45%
s2 2020	92%	75%	25%	33%	75%	75%	58%
s1 2021	63%	100%	38%	19%	88%	100%	44%
s2 2021	89%	78%	56%	22%	78%	78%	56%

Note: shaded cells indicate the largest proportion within each semester. Respondents indicated multiple clinical examination preparation strategies.

Open-ended responses revealed trainees believed the Dunedin Ophthalmology Clinical Course to be of value given the perceived (although not always) comparability between the level of difficulty of mock exam questions and those asked in the OSCE. Feedback from some trainees was that curriculum standards were too broad to adequately guide exam preparation. Responses also revealed alternative study strategies, the most common was to use consultants to support study, while the least frequent were attending preparatory courses organised by their own network or studying with trainees who had already passed RACE.

> *This exam was harder than the OSCEs at Dunedin but the OSCEs at Dunedin were invaluable and very helpful to my preparation. (Semester 2, 2018)*

> *Sit in many clinics and get quizzed by subspecialists. (Semester 2, 2013)*

There was wide variability across semesters in the percentage of respondents who reported that it was difficult to identify what they needed to learn to pass the OSCE examination (Figure 6). In semester 1, 2020 no respondents agreed with this question, however, in semester 2, 2021 one-third of respondents agreed or strongly agreed that they had difficulty identifying what they needed to learn to pass.

> ***"Having adequate knowledge is only part of the game. Mentors and previous trainees saying that RACE is not just about knowledge, one needs to play the game well. There is some irony to this but an inevitable truth." (Semester 2, 2020)***

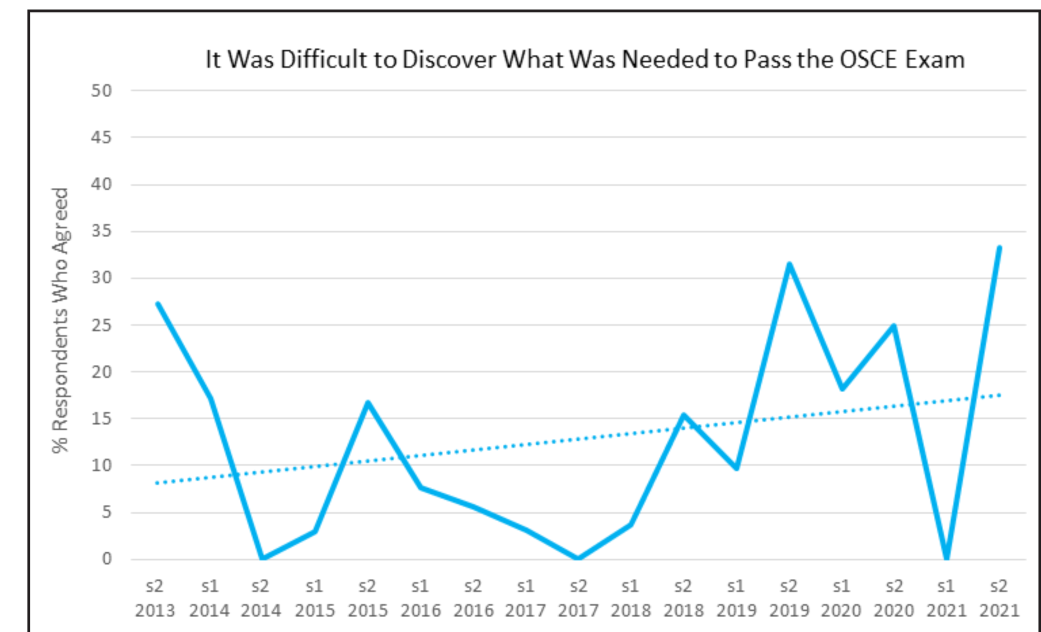


Figure 6. Percentage of respondents who reported that it was difficult to discover what was needed to pass the OSCE exam

Examination Experience

Although trainees reported incidental issues with the testing environment (e.g. noise, heating, failed equipment), trainees were almost unanimous in reporting that the clinical examination ran smoothly up until semester 1, 2018 (Figure 7). Since then, feedback has been variable, with the majority (92%) reporting no concerns at the most recent sit of semester 2, 2021. Across semesters, trainee concerns regarding the clarity of images used was a feature across all survey feedback regarding OSCEs. However, this trend has been generally improving over time, with more recent sits showing stronger satisfaction with image quality, although semester 2, 2021 was considerably lower than semester 1, 2021.

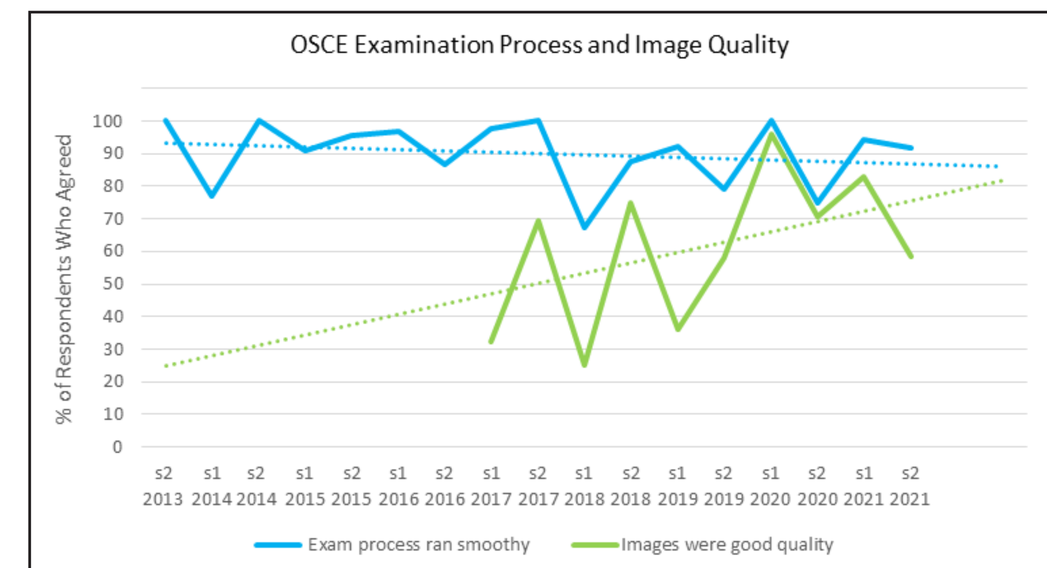


Figure 7. OSCE process ran smoothly and the images were of good quality

Open-ended responses did capture some reports of concerns regarding Examiner behaviour. However, descriptively, the majority of Examiners were perceived to be polite and non-threatening, and communicated in a way that helped trainees demonstrate their knowledge across semesters. Again, semester 2, 2018 through to semester 2, 2019 showed more dissatisfaction amongst trainees regarding Examiner behaviour and communication than previous sits (Figure 8). Open-ended responses from trainees indicated that Examiners at some OSCEs were unclear causing trainees to get off track. Examiners also varied in their ability and willingness to 'guide' trainees throughout the scenario to keep them focused, with trainees therefore concerned that performance was more related to Examiner ability than their own lack of knowledge. Trainees expressed concern that without sufficient direction, it was easy to waste valuable time and fail to demonstrate clinical abilities within the time allocated.

There was a lot of variability with Examiners - some guided really well, but I felt that others did not and in their stations, it was difficult to know what the aim of the station was. (Semester 1, 2020)

One Examiner said several times that time was of the essence but got angry when I tried to move quickly; berated me for talking through my differentials rather than listing them point form. (Semester 1, 2016)

Some great, some harsh and off-putting, made candidates flustered. (Semester 1, 2018)

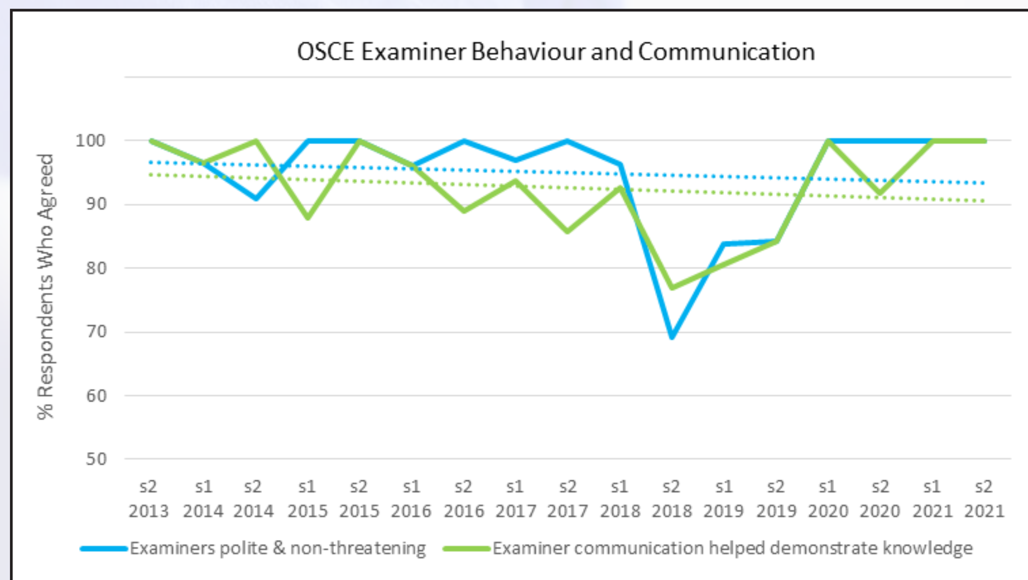


Figure 8. OSCE Examiners were polite and non-threatening and that Examiner communication helped trainees demonstrate their knowledge

Examination Design

Although trainees generally felt the OSCE was harder than they anticipated, they largely believed it was pitched at the appropriate level of difficulty (Figure 9). The exception to this seemed to be semester 2, 2018, where a greater proportion of trainees expressed concern regarding exam difficulty. Trainees largely agreed across semesters that the examination was closely aligned with clinical curriculum standards (Figure 9).

There were some difficult stations but overall reasonable. (Semester 1, 2015)

Some of the cases were very rare and as such I did not feel that it reflects our practice in everyday ophthalmology. (Semester 2, 2018)

Pitched at a subspecialist level rather than level of "general" ophthalmologist. (Semester 2, 2019)

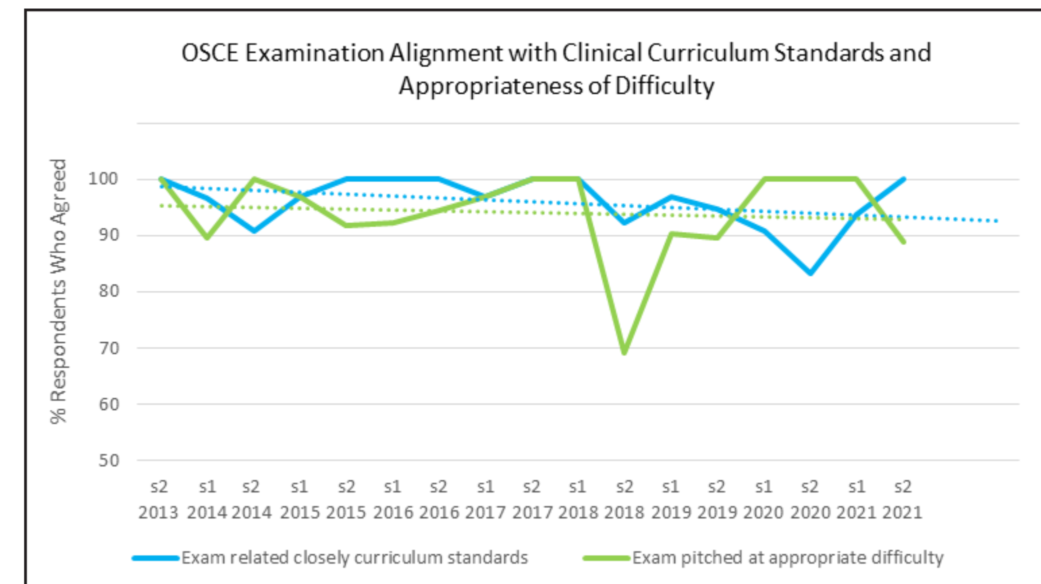


Figure 9. OSCE alignment with clinical curriculum standards and exam pitched at appropriate level of difficulty

The percentage of respondents who agreed that the OSCE was related closely to their experiential learning ranged from a low of 69% in semester 1, 2014 to a high of 100% in semester 1, 2021 (Figure 10). Upwards of 67% of trainees across all semesters felt that OSCE tasks were clearly phrased and unambiguous (Figure 10). Again,100% of respondents in semester 1, 2021 agreed with this question.

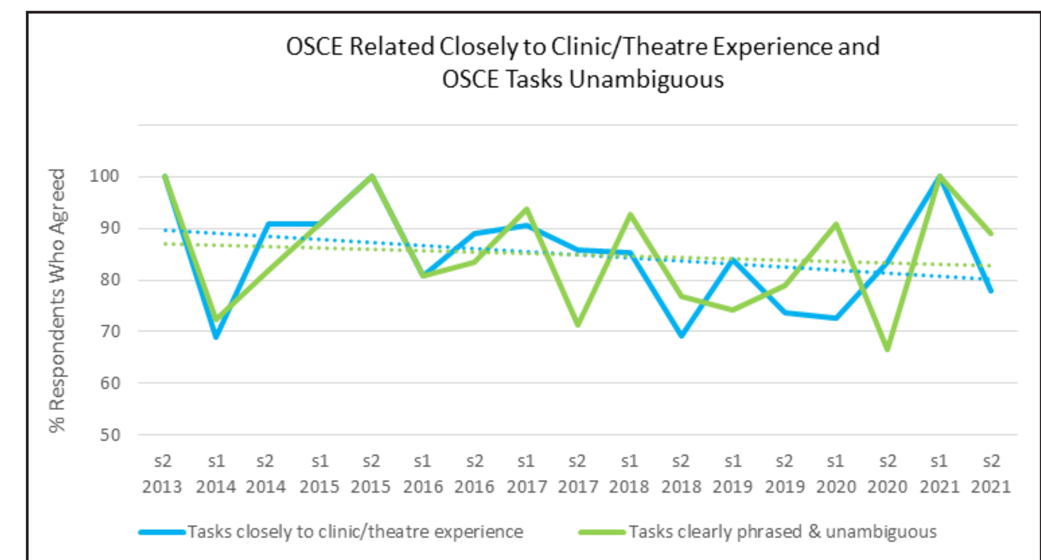


Figure 10. OSCE related closely to clinic and theatre experience and OSCE tasks clearly phrased and umbiguous

From semester 2, 2020 to semester 2, 2021, 100% of respondents agreed or strongly agreed that the OSCE tasks were effective at testing the trainee's ability to evaluate a range of cases and to present their assessment and management of the cases (Figure 11). However, open ended responses did suggest some concerns regarding the artificiality of the clinical examination environment that did not adequately reflect their real-life approach in clinics.

The OSCE does not emulate real life practice – you take a history! (Semester 1, 2014)

Some of the questions were very general, broad, vague, and did not direct me to exactly what the Examiner was asking. I understand you cannot give too much away when asking questions but specific questions elicit specific answers and I felt lost with broad questions. (Semester 1, 2014)

Not all questions and stations were clear, lacked direction. One station in particular – questions were confusing. (Semester 1, 2017)

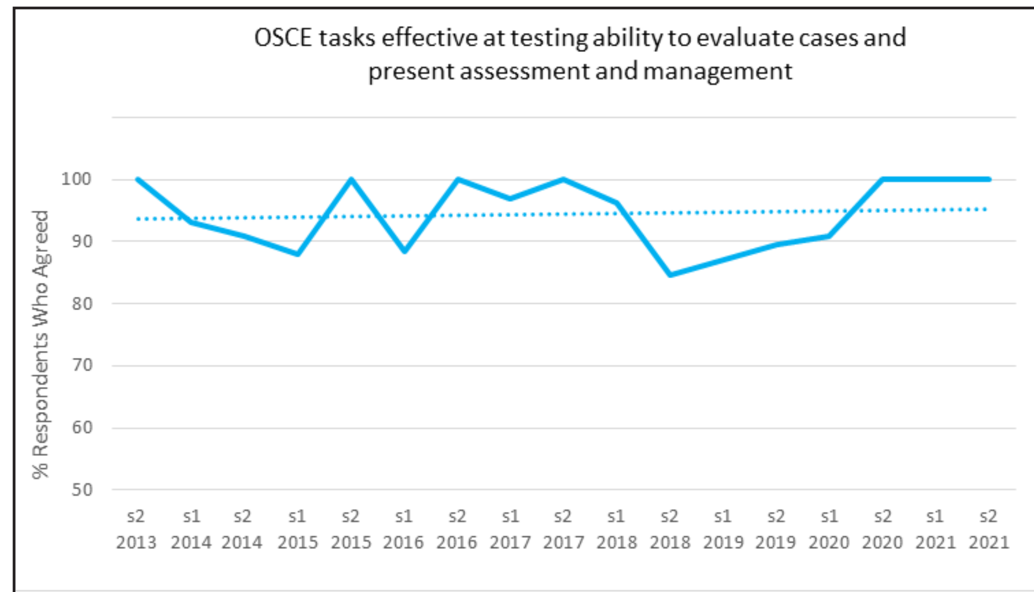


Figure 11. OSCE tasks effective at testing ability to evaluate cases and present assessment and management

There was wide variability in the percentage of trainees who agreed or strongly agreed that the OSCE tasks were easy to complete within the allocated time (Figure 12). The lowest percentage was in semester 1, 2020 where only 27% of respondents agree or strongly agreed with the question. Notably, this aligns with the first virtual OSCE due to ongoing pandemic restrictions. The highest percentage (100%) was observed in semester 2, 2021.

"To more accurately assess a candidate's ability to properly assess and manage, definitely need more time per station. Six minutes (inclusive of describing further examination) feels like a rapid dash to the finish rather than a considered discussion." (Semester 1, 2020)

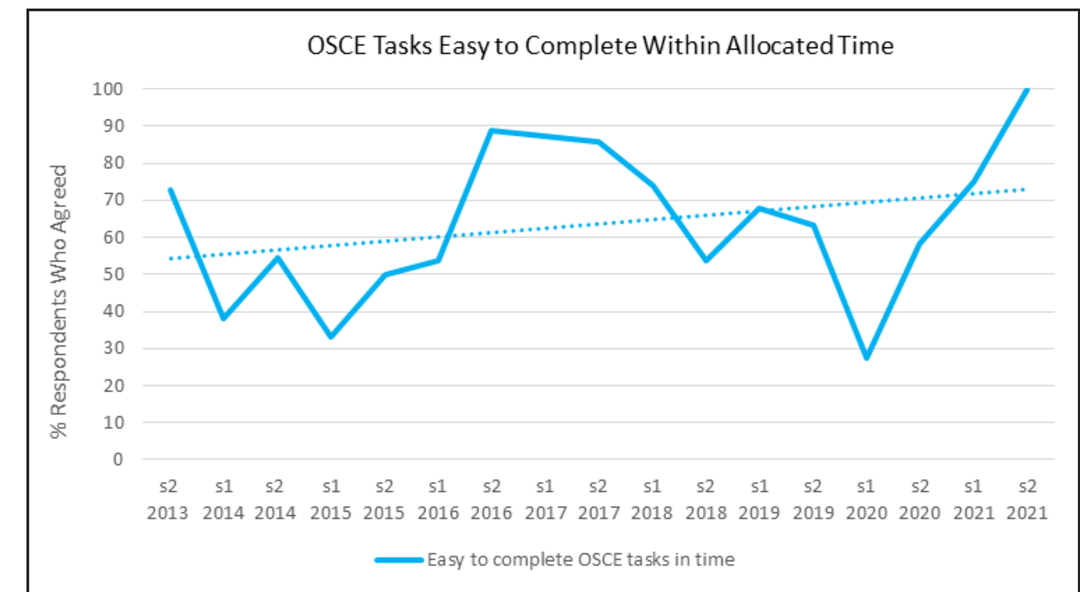


Figure 12. Easy to complete OSCE tasks within allocated time

Suggestions for Improvement

Suggestions for improving the clinical examination centred around improving the ambiance of the testing environment, the time provided to complete the station, the clarity of questions asked, the consistency of feedback delivered by Examiners and the availability of preparation materials from RANZCO (Table 7).

Table 7. Trainee suggestions to improve the RACE clinical examination

Trainee Suggestions to Improve the Clinical Examination
• Avoid double stations • Fewer rest stations • Provide additional time at stations to avoid rushing. This is particularly true for double stations, and stations with complex cases as it is difficult to tell which aspects are being examined and therefore there is a lot to say in a short space of time • Exam rooms should be quieter places for trainees to think clearly and respond without distraction • Consider running smaller groups of trainees to limit noise • Clear, unambiguous wording of questions and scenarios – seek external review to ensure clarity before offering examination • Provide structured Examiner scripts to allow for consistency in feedback to trainees throughout scenarios • Ensure cases are at a level of a general ophthalmologist, not subspecialist • Ensure better images are available • Ensure the first station is a positive experience for trainees to set the tone for the remainder of the exam • Allow Examiners to provide feedback during the scenario e.g. indicating if diagnosis was correct before then providing further management information • Scenarios should allow for more clinically relevant behaviour e.g. writing down notes as you would in real life • Some information could be displayed prior to starting task to allow trainees more time to prepare • More preparation courses and resources should be made available from RANZCO • Practice exam questions and scripts should be made available to get an understanding of how questions are asked and how they should be answered • Individual feedback on performance from OSCE should be provided as a learning tool • Examiners should focus on being friendly to reduce anxiety • Two Examiners should be present at each station to avoid potential bias in marking • Ongoing support throughout the examination preparation process to encourage trainees mentally and physically

RACE Written Examination Candidate Survey Data

Between semester 2, 2013 and semester 2, 2021, a total of 418 survey responses were received from trainees following the written examination. The response rate for the written exam survey was moderate in semester 1, 2019 (66%). However, for all other semesters the response rate was over 80%. The response rate was excellent in semester 2, 2020 (96%), semester 1, 2020 (93%) and semester 1, 2018 (91%). It was not possible to calculate response rates for the remaining semesters due to the RACE performance data illustrating the number of sitting candidates not being available.

Preparation

The majority of trainees reported spending between 6-12 months, followed by 12-18 months to prepare for the written exam (Table 8). In semester 2, 2020 21% of respondents reported studying for more than 24 months for the written component of RACE. This was a considerably larger proportion compared with any other semester.

Table 8. Time spent preparing for written RACE by semester

Semester	0-6 months	6-12 months	12-18 months	18-24 months	>24 months	Total
s1 2017	10%	43%	35%	8%	5%	100%
s2 2017	15%	54%	15%	15%	0%	100%
s1 2018	17%	41%	31%	10%	0%	100%
s2 2018	6%	56%	25%	6%	6%	100%
s1 2019	16%	52%	20%	8%	4%	100%
s2 2019	5%	21%	42%	26%	5%	100%
s1 2020	12%	60%	20%	8%	0%	100%
s2 2020	4%	21%	38%	17%	21%	100%
s1 2021	6%	49%	29%	9%	9%	100%
s2 2021	0%	42%	25%	25%	8%	100%

Note: shaded cells indicate the largest proportion within each semester

From semester 2, 2013 through to semester 2, 2021 the most commonly reported RACE written exam preparation strategy was studying using past exam papers, followed by reading Examiner's reports from past exams (Table 9). The third most common preparation strategy was study with College trainees who were sitting the same examination. Even though attendance at the Dunedin Ophthalmology Clinical Course was common to support preparation, open ended responses highlighted that some trainees had difficulty obtaining leave to attend. Trainees also indicated that the curriculum standards were considered vague and unhelpful, and did not emphasise examinable topics.

> *Was not allowed to attend the Dunedin by my hospital. (Semester 1, 2018)*

> *I find the clinical curriculum performance standards completely unhelpful - they may as well be summarised to 'know everything and anything'. (Semester 2, 2020)*

Table 9. RACE written examination preparation strategies by semester

Sem/ Year	Curriculum standards	Mock exam by trainee's own training network	Mock exam by another training net-work	Preparatory course by trainee's own training network	Dunedin Oph-thalmology Clinical Course	Study with College trainees who are sitting the same examination	Study with College trainees who have already passed RACE	Past exam papers	Read Examiners' reports for past exams
s2 2013	76%	62%	33%	33%	62%	90%	48%	0	0
s1 2014	0	62%	49%	31%	69%	79%	36%	87%	0
s2 2014	67%	33%	20%	27%	60%	60%	40%	0	0
s1 2015	73%	58%	76%	91%	94%	48%	45%	0	0
s2 2015	100%	32%	27%	36%	68%	55%	32%	100%	100%
s1 2016	75%	50%	63%	38%	75%	84%	59%	0	0
s2 2016	100%	27%	7%	7%	67%	73%	67%	0	0
s1 2017	83%	58%	55%	58%	85%	83%	55%	98%	98%
s2 2017	100%	46%	54%	54%	69%	69%	62%	100%	100%
s1 2018	93%	60%	53%	40%	97%	83%	43%	100%	100%
s2 2018	88%	50%	50%	44%	81%	69%	31%	94%	94%
s1 2019	76%	44%	56%	24%	80%	84%	48%	100%	92%
s2 2019	74%	53%	47%	53%	100%	89%	53%	100%	100%
s1 2020	92%	72%	52%	56%	96%	84%	52%	100%	96%
s2 2020	92%	58%	46%	46%	92%	88%	63%	100%	100%
s1 2021	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
s2 2021	92%	58%	50%	25%	100%	83%	58%	100%	100%

Note: shaded cells indicate the largest proportion within each semester. Respondents indicated multiple clinical examination preparation strategies.

Regardless of semester, approximately 70% of respondents from 2013 to 2016 disagreed or strongly disagreed that it was easy to find out what they needed to do to prepare for the written exam (Figure 13). This question was not included in the survey after semester 2, 2016, so it is unknown if this has changed in recent years. Open-ended responses indicated that trainees felt exam preparation was more about understanding 'how' to answer questions appropriately, rather than learning 'what' to say. However, past exam answers and Examiner feedback was not made available or was limited, leaving trainees to guess as to whether they had answered practice questions appropriately. Trainees also indicated that past examinations were a poor indication of the level of difficulty they experienced in their actual RACE.

> *Success seems more dependent on exam technique rather than real-world knowledge. (Semester 1, 2017)*

> *The past questions found very difficult with poor wording and the ability to get answers where sometimes like 'guess what the Examiner wants' which I found difficult in studying for exam. (Semester 2, 2021)*

> *First paper harder than many previous years. (Semester 1, 2014)*

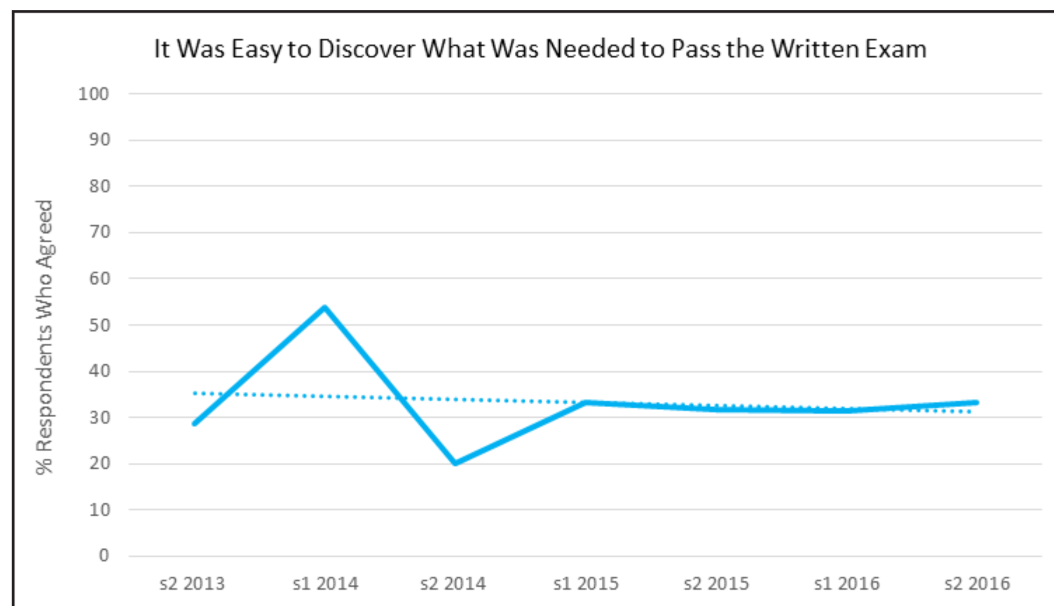


Figure 13. It was easy to discover what was needed to pass the written exam

Examination Experience

Trainees have largely felt the examination process ran smoothly (Figure 14), but a clear dip was evident in semester 1, 2018. Similar incidental issues regarding the examination environment were noted to the OSCE (e.g. noise, temperature, parking), along with a raft of internet and technology issues as the examination process moved online (e.g. difficulties logging on, loss of typed work). Open-ended responses highlighted particular concerns regarding the influence of typing speed on examination performance given the strict time limits provided to answer questions.

> *Accidentally deleted typed question & was NOT able to recover text. Lost 10 minutes just retyping what I wrote before. It was VERY stressful. Needs to be a system of recovery of lost text or automatic saving of typed text. (Semester 1, 2018)*

> *The time available is too short to assess our knowledge. The way it is, we are being evaluated by our typing speed and not by the medical knowledge. I would suggest at least doubling the time offered in order to evaluate the medical knowledge and not the typing skills. (Semester 2, 2018)*

From 2017 onwards, there was variability in agreement that the written exam images were of good quality (Figure 14). Although in more recent sits agreement has been stronger, between semester 1, 2021 and semester 2, 2021, the percentage of respondents who agreed or strongly agreed with this question declined from 83% to 58%.

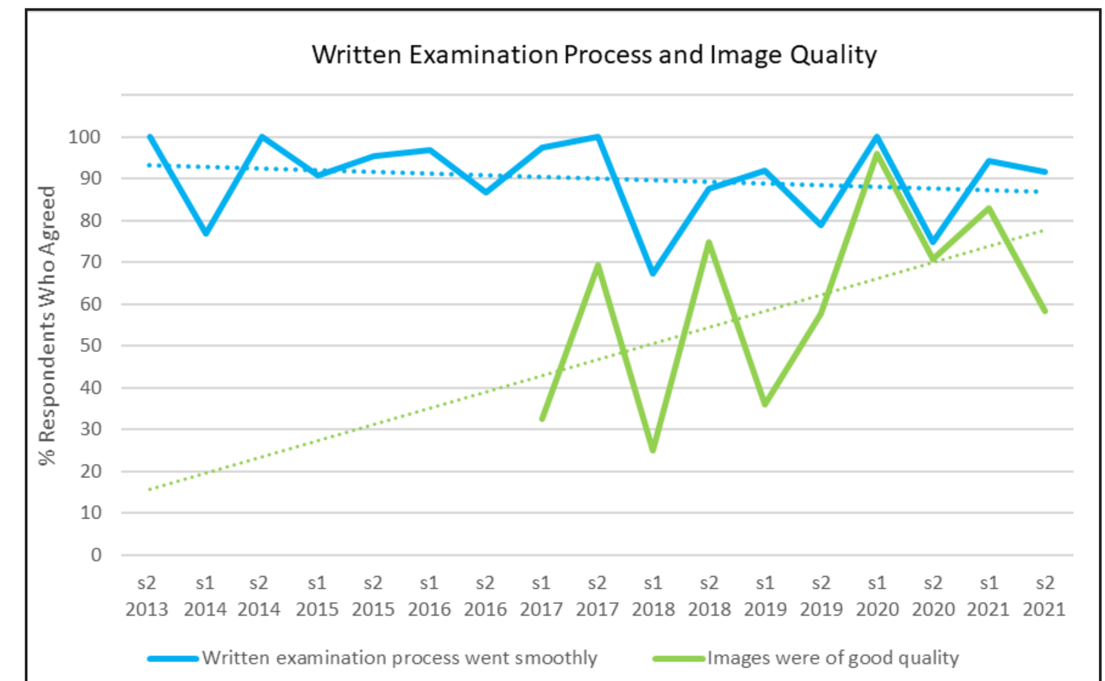


Figure 14. Written examination process went smoothly and images were of good quality

Examination Design

Between 72% and 100% of respondents agreed or strongly agreed that the written examination was related closely to clinical curriculum standards (Figure 15). Open-ended responses revealed trainees were concerned that the written exam was too focused on rare pathologies and contained long, complex or ambiguous questions. Trainees also reported a lack of clinical experience needed to answer questions and the perception that some questions were reflective of subspeciality and not generalist level knowledge.

> *Too much focus on interpretation of the question rather than actually testing knowledge. (Semester 1, 2017)*

> *Some questions are very difficult especially rare cases where many candidates may not have had exposure to. (Semester 2, 2014)*

> *Questions did not seem to test ability as a general ophthalmologist, many were subspecialty approaches. (Semester 2, 2019)*

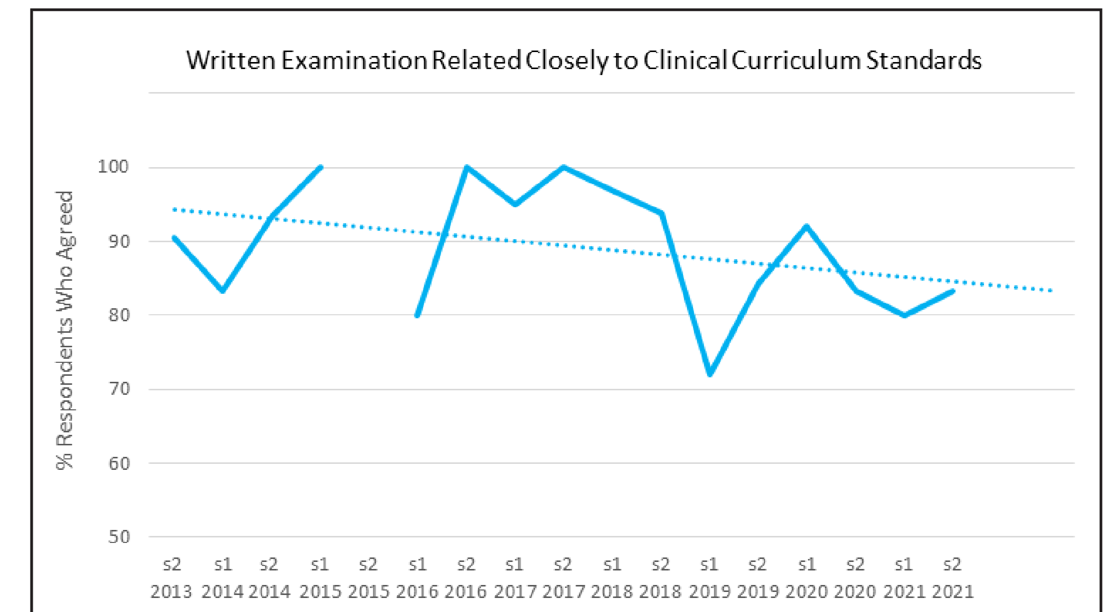


Figure 15. Written examination related closely to clinical curriculum standards

Around half of the trainees across all semesters felt that VSAQs did not relate to the experiential learning from clinics and theatre (Figure 16). This was fairly consistent during the period in which this question was asked from semester 2, 2015 to semester 2, 2020. By contrast, there was wide variation in the percentage of trainees who agreed or strongly agreed that the VSAQs were set at the appropriate level of difficulty, from a highpoint of 92% in semester 2, 2017 to a recent semester low of 50% among respondents in semester 1, 2021 (Figure 16).

> *Very hard, some of them are irrelevant to ophthalmology. (Semester 2, 2013)*
>
> *Relates to standard but not encountered in clinical experience. (Semester 1, 2014)*
>
> *Some were completely obtuse – for example ocular associations of the zika virus -> which has no proven cases in Australia or New Zealand. (Semester 1, 2017)*

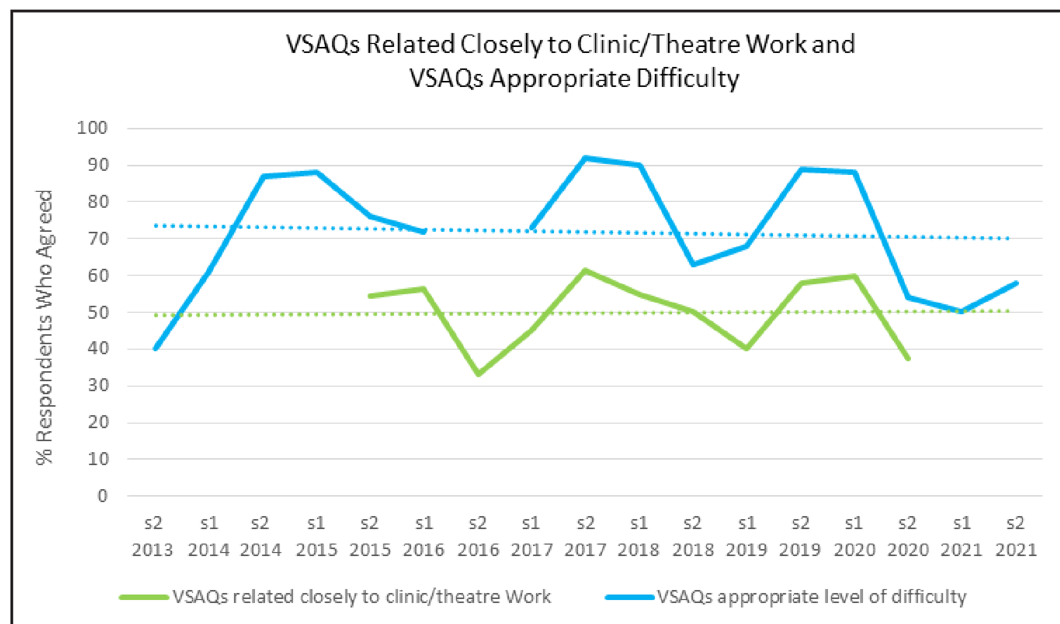


Figure 16. VSAQs related closely to clinic/theatre work and have appropriate difficulty level

There was also wide variation in the percentage of respondents who agreed or strongly agreed that it was easy to complete the VSAQs within the allocated time (Figure 17). In semester 2, 2017, 100% of respondents agreed or strongly agreed with this question. In recent years the lowest percentage was for semester 2, 2020 when only one-third of respondents agreed or strongly agreed that it was easy to complete the VSAQs within the allocated time, however, this proportion rose to 86% in the subsequent semester (semester 1, 2021).

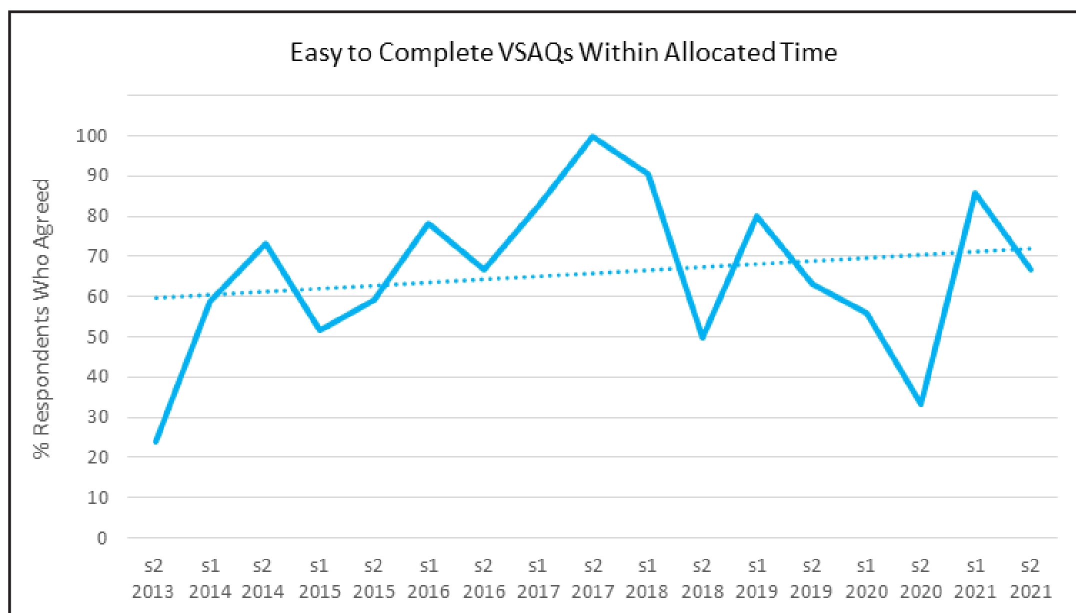


Figure 17. Easy to complete VSAQs within allocated time

Trainees provided similar feedback regarding the SEQs, with around 30% of trainees reporting ambiguous questions each semester, although this question was not asked in 2021 (Figure 18).

> *There was so much ambiguity! Need to show perspective, but things could be interpreted in many ways which means we might fail even with ample knowledge. (Semester 1, 2021)*

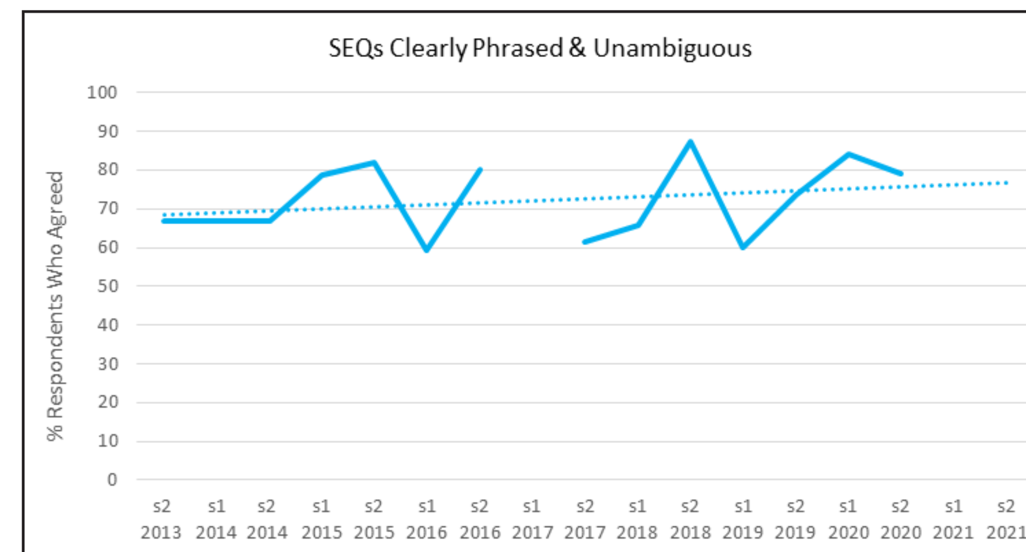


Figure 18. SEQs clearly phrased and unambiguous

Approximately 75% of respondents agreed or strongly agreed that the SEQs were pitched at the appropriate level of difficulty, with the lowest percentage (58%) in semester 2, 2019 and the highest percentage agreeing or strongly agreeing with this question in semester 1, 2020 (96%) (Figure 19). Approximately 30% of respondents agreed or strongly agreed that the SEQs were easy to complete within the allocated time. The lowest percentage in recent years was in semester 2, 2020 and semester 2, 2021, when 25% of respondents agreed with the question, meaning three-quarters of RACE candidates in these semesters disagreed that they had adequate time to answer the SEQs (Figure 19).

> *It was extremely time-pressured. I was unable to complete the papers in the allocated time. (Semester 2, 2019)*

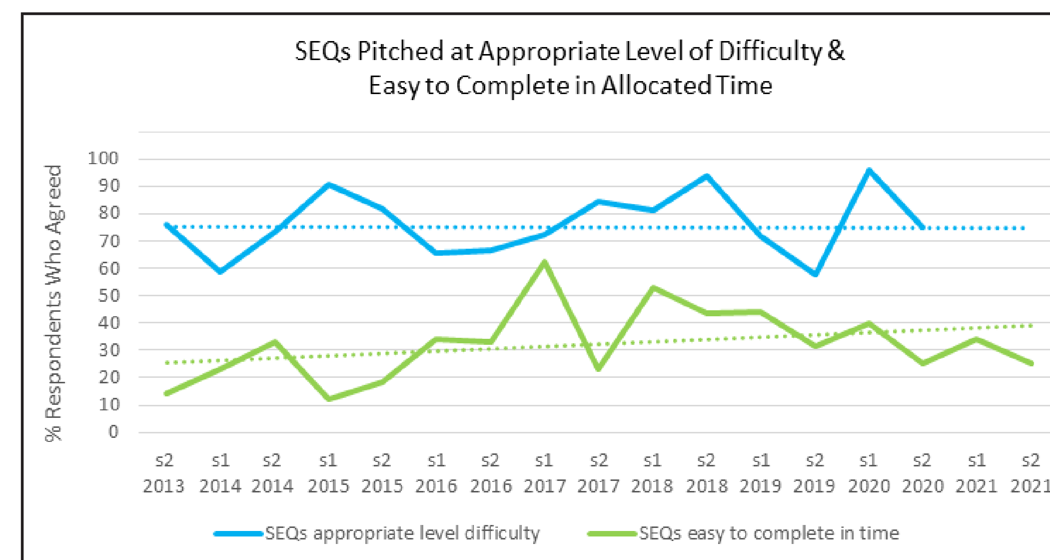


Figure 19. SEQs pitched at an appropriate level of difficulty and easy to complete within allocated time

In recent semesters there has been a declining trend for respondents to agree or strongly agree that the SEQs were related closely to conditions seen in their clinical or theatre work (Figure 20). In semester 2, 2021, only 42% of respondents agreed with this question. By contrast, 91% of the respondents who sat RACE in semester 1, 2018 agreed or strongly agreed that the SEQs were related closely to conditions seen in their clinical or theatre work. In semester 1, 2019, only 28% of respondents agreed or strongly agreed that the SEQs only included conditions encountered in clinical learning, and hence 72% had not seen one or more of the examined conditions in their training.

Real life training as a registrar in ophthalmology is VERY different to the expectations of RACE. (Semester 1, 2019)

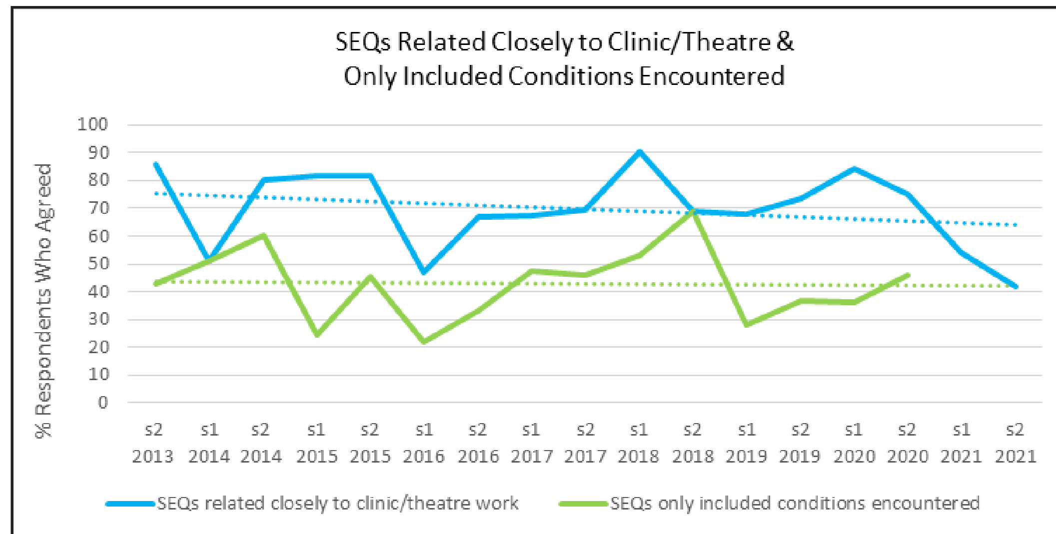


Figure 20. SEQs related closely to clinic/theatre work and SEQs only included conditions encountered

Suggestions for Improvement

Trainees provided varied suggestions to improve the written component of the RACE (Table 10). Suggestions for improving the written examination included making available past examination answers and Examiner feedback regarding how questions should be answered. Trainees also felt the examination processes could be improved by providing dual screens, improved image quality, paper copies of exams to write notes during reading time and providing those with poor typing skills alternative ways of answering questions. Many trainees commented on the importance of the written examination including clinically relevant questions of a generalist knowledge standard, together with providing adequate time to enable trainees to fully answer questions.

Table 10. Trainee suggestions to improve the RACE written examination

Trainee Suggestions to Improve the RACE written examination	
Examination Preparation	• Make available all past exams, along with detailed answers and feedback from Examiners about how they would like questions answered • More preparation courses run by RANZCO that focus on developing exam technique e.g. SEQs • Have mock exams with trainees prior to sitting RACE and provide feedback • Improve curriculum standards so that assessable content is clearly flagged
Examination Experience	• Quiet venue with sufficient room, suitable temperature and sufficient time allocated to combat IT issues if they arise • Consider dual screens to allow trainees to view photos and write at the same time • Trainees felt questions that required multiple responses should contain text boxes where relevant to avoid scrolling up and down • Provide a paper copy of exam to allow for notes to be written during reading time • One question per A4 page to avoid confusion • Consideration of poor typists by allowing either written or online completion • Improve the photo quality and ensure trainees can magnify images if needs be • Provide extra reading time to allow trainees to make notes and prepare responses
Examination Design	• Consider MCQ style questions • Consider verbal exam so that trainees can demonstrate knowledge more clearly than via written format • Remove time pressures – allow more time to adequately an-swer questions, particularly if requiring typed responses • Provide allocation of marks within exam so trainees can re-flect on how much information they need to provide • Exam questions should assess the broad curriculum, not be content heavy in specific areas • Easy and hard questions should be evenly distributed throughout the exams • Questions should be clinically relevant and take into account what a general ophthalmologist would do in clinical practice • Target questions at generalist level competence, not sub-specialist • Ensure questions are chosen from cases that trainees see in training • Ensure questions are written in a structured and specific way, with adequate information to allow trainees to form a differential diagnosis – there is too much guessing at the moment of what the Examiners are alluding to • VSAQs should be just that, avoid lengthy and multi-part questions • Consider increasing the number of short answer questions to cover more curriculum content and reduce the number of essay questions • Less writing, shorter exams
Other	• Provide individual trainee feedback on examination perfor-mance so they can learn from their mistakes • Reduce passing grade • Provide a rubric for passing grade before the examination • Consider marks from training rotations as part of pass/fail • Consider trainees not having to travel to undertake exam • Examiners should trial exam on other generalist consultants to see if they can pass • Reduce examination to 1 day, or spread-out days over a pe-riod of time to reduce stress • Reduce the length of the examinations (very fatiguing) • Consider running exam earlier in the training course (e.g. year 2/3) • Consider an open book exam

Phase Two: Interviews with Trainees and Supervisors

A total of 29 participants (12 females and 17 males) completed an in-depth interview as part of the second qualitative phase of this study. Interview participants included both those who had sat RACE recently (n=19), together with those supervising RACE candidates (n=10). The resultant response rates were 11.4% for those who had sat RACE recently and 7.9% for Supervisors of pre-RACE candidates. However, there was overlap for some participants who had sat in the past five years and who were also supervising trainees making it difficult to determine definitive response rates for each participant group. Participants were representative of all 7 training networks across Australia and New Zealand.

All 29 interviewees expressed unanimous belief in the importance of a hurdle assessment to ensure the safety and competence of the future ophthalmology workforce. However, differing views were shared by interviewees regarding the overall appropriateness of RACE in its current format, depending on their own personal experiences sitting the examinations and their underlying beliefs regarding summative assessment processes. On one end of the spectrum, some participants shared their positive views of RACE, the fairness of the exams they sat, their experience of passing first sit and the subsequent seamless transition to their final year of training. On the other end, some participants shared their deeply traumatic experiences of examination failure, the impact on their personal wellbeing and subsequent training, and ultimately their disillusionment with RACE and its processes.

An important point to make regarding the qualitative data was that there was not always a correlation between RACE success and positive views of the examination process, nor of RACE failure and negative feedback. In fact, some participants who reported what seemed to be a relatively seamless and straightforward RACE experience raised several concerns regarding the assessment process. Likewise, others who had a challenging pathway to eventual RACE success described many positive aspects of the examination. Therefore, regardless of RACE performance, all participant experiences were analysed to unpack both positive and negative aspects at each stage of their RACE journey. For the purposes of this report, qualitative data will be discussed according to: a) the preparation and lead up to RACE (pre-RACE); b) the exam experience itself, including examination design and the experience of sitting both the written and OSCE (RACE); and c) the after effects of the examination experience, regardless of success or failure (post-RACE). Table 11 provides an overview of the range of concerns identified for each time point across participant groups, which are detailed further in the sections to follow.

Table 11. Areas of concern associated with RACE

	Areas of Concern
Pre-RACE	4. Motivation 5. Guidance on How to Study 6. Learning Examination Technique 7. Past Examination Resources 8. Study Groups 9. Teaching and Preparation Courses 10. Work/Life Balance 11. Wellbeing 12. Readiness to Sit 13. Relationships
RACE	1. Final Hurdle Examination 2. Discriminating Candidate Competency 3. Factors Contributing to Examination Failure a. Trainee Factors b. Examination Factors i. Feedback ii. Online Format iii. Generalist Standard iv. Ambiguous Questions v. Marking Criteria vi. Examination Development 4. Predicting RACE Performance
Post-RACE	1. Experiences and Impacts of RACE Failure 2. Psycho-social Consequences of RACE Failure 3. Lack of Feedback and the Need for Greater Transparency 4. Remediation Experiences, Policies and Procedures

Pre-RACE

As described above, the pre-RACE period involves the lead up to the examinations (both clinical and written). It encapsulates the reality of life as an advanced trainee and the strategic approach of trainees to studying and preparing for RACE during that third year, typically to enable them to sit at the beginning of their fourth year. Analysis of participant interview data yielded a variety of sub-themes regarding the pre-RACE period including: motivation, guidance on how to study, learning examination technique, past examination resources, study groups, preparation courses, work/life balance, wellbeing, readiness to sit and relationships.

Motivation

There was unanimous reflection amongst participants that trainees were inherently motivated to pass RACE the first time they sit, given the exhaustive nature of preparation and the impact on their physical, mental and financial health. To this end, trainees indicated that they wanted to give themselves the best chance of passing first sit by throwing everything they had at the initial preparation process.

In my experience, all candidates invest considerable effort in their education. (Supervisor #2)

With the amount of time that I had dedicated to it and how committed I was to it, I didn't want to ever do it again. I wanted to make sure that I gave it one shot and a really good shot. I didn't want to draw it out … I've got friends and it's been drawn out over years. It's so hard because they don't ever get that kind of reprieve at the end. It's just constant. (Trainee #2)

I was so focused on the exam and getting it done the first time because I didn't want to do it again. (Trainee #9)

My [partner] took on a lot, my mother took on a lot, everyone around me, we had a nanny, we had all hands on board. We threw a lot of money at it. It was really hard but equally I think if I hadn't put 100% in, I might not have got through and then I'd be dragging it out for another six months and then maybe even longer, so that was kind of my approach. (Trainee #18)

Trainees described several strategies which helped them maintain motivation throughout the preparation period. Firstly, trainees described that having a clear and rigid timetable set from the beginning was critical to help keep them on track. Secondly, being part of a study group helped maintain accountability for study and preparation, as things were required to be completed for sessions, usually held weekly. Thirdly, interviewees described the importance of being around others who were also sitting, as part of a larger cohort, to maintain momentum.

> *We had a conference and we sat down and said, 'look, this will be the biggest exam we're going to sit in our lives, we want to get through the first time. So let's come up with a strict study schedule and let's not waste time anymore.' And so we got on top of that. And then some of our other colleagues got on board as well. But you know, we were very strict to keeping each other accountable. Like we were doing five exam questions a day, these are the questions, we'd sit around at the end of the day, these are the questions we're doing tomorrow, make sure you do it. Let's have a chat about it, let's reach out and see how our answers are, see how we compare. (Trainee #8)*

> *I think having that peer support and the combined learning experience with colleagues going through exactly the same thing as you are at exactly the same time, that's the single biggest thing that I think we need to make sure they all have. Because without that, I honestly don't think you can pass. I really don't. (Supervisor #5)*

Supervisors and trainees both described how RACE preparation was inherently the trainee's responsibility. Supervisors indicated that they were more than happy to help candidates prepare, but it was inherently up to them to ask for help, rather than expecting it to be offered.

> *You really have to drive it yourself I think is the thing. You have to not expect anybody's going to give you anything … I think if you go in with the attitude that I've got to really do all this myself, then I think that gives you the best chance of passing. (Trainee #16)*

> *It's very up to you to approach consultants for help. Like, if you shut your mouth and don't say anything, no one's going to help you. But if you ask them, people are going to help you… I think the onus is very much on the trainee. You have to make the effort. If you don't make the effort then no one's going to help you. (Trainee #5)*

While there was general agreement that most trainees were self-driven, there were some concerns raised by Supervisors regarding candidates who do not sufficiently apply themselves during the pre-RACE period. Supervisors were concerned that the importance of a self-directed learning approach and the high level of personal motivation needed for RACE preparation was not clearly articulated to trainees, and at times resulted in situations where Supervisors had to directly intervene to prompt increased motivation from candidates.

> *It does seem to be the people that emphasise their leisure time, they tend to do worse. And I mean, there was one trainee, we sat down and I actually said, 'look, actually sit down and study because you're definitely smart enough and you know all the stuff, you just need to get it down onto paper. You've come this far, don't waste the opportunity,' and that particular person sat down and studied really hard for the next six months and passed [their] exams and it was absolutely fine. (Supervisor #3)*

> *I am entitled to have my time off, why should I work hard? And that certainly is a bit more of a reflection of the current generation who want quality of life as well, which is fair enough, but there are certain rewards for the investment and you've got to decide if you want to make the investment. (Supervisor #7)*

> *You've got to do everything you can, you've got to ask everyone you come across, you know for a tutorial, for some help, for some exam like question marking, or just talking through scenarios. You've got to be proactive and maybe the trainees don't hear that from enough people? … Nobody wants to go through that [failure]. So, if they're far enough out that it's not going to impede their preparation then I do really try and scare the pants off them… (Supervisor #8)*

Guidance on How to Prepare

With trainees inherently motivated to pass on their first RACE sitting, they described wanting to ensure that they prepared in the best possible way to ensure success. Most interviewees described seeking or receiving such advice on how to study and prepare from other trainees or Supervisors who had recently sat, and then adapting the advice to suit their own circumstances. With inconsistencies in advice given, interviewees underscored that there seemed to be no 'one size fits all' approach to RACE preparation. Supervisors highlighted the very real danger for some candidates for whom knowing how to prepare successfully for RACE did not come intuitively, with prescriptive guidance needed for them to follow about what types of things they should be doing during their study period. One trainee described how this prescriptive guidance could be provided via a study 'framework' that would illustrate expected time commitment to study and types of useful study activities. This was seen as vital for trainees who choose to prepare by themselves to help them benchmark their efforts, particularly in terms of both the length of time and number of hours each week devoted to study together with the types of study activities undertaken.

> ***When you're at university, you talk to your colleagues who have passed it before and you say, 'how would you study for this exam?' Usually they will tell you this is how you do things and as long as you follow the advice, you're pretty much safe to pass, right? And even your lecturers will give you notes and say, 'read this and you'll be fine'. But I think when it comes to these College exams, it's very different. There is no one way, or several ways to pass. And I think the tricky thing is that no one really knows. There's no secret formula. (Trainee #5)***

> *I think in medicine it's always been just go off and do your whatever it is that you do and then you see who comes out at the top, or who's sort of managed to survive it and some of that isn't intuitive for certain candidates, but also some of them get stuck. And it's hard because they're working and trying to study, so it's easier to take a simpler road, just sitting at home and looking at your books … (Supervisor #4)*

> *I have a friend who's failed a few times and I think one of the things, especially the first time they sat it, they just had no idea how much people studied for it or how long they studied for it and things like that. So like I said, everybody plays down how much they study. So I think it would be good to be like, 'here is a plan, you have to do at least nine months, this is what people do and what I think'. That would be helpful. You could even have like a, we did two weeks of these topics, and we did one week on these topics and then we did five days, just as an example type thing. I think that would be helpful because I spent a long time figuring out how I was going to study for it … I think a framework might help cut down some of that wasted early time in the study. (Trainee #2)*

> *I think the first time, although I felt like I put in a lot of effort and study, it probably wasn't as directed as it could have been because I was doing it by myself and just doing bookwork. (Trainee #13)*

Learning Examination Technique

RACE was described by interviewees as being unlike any university assessment trainees were likely to have previously encountered. This was particularly so for the written component, where Supervisors emphasised that RACE was not an examination of knowledge, but rather of how knowledge is applied. Some trainees only recognised this with hindsight, having failed RACE initially after expecting a traditional university examination and hence preparing by focusing on reading textbooks to become saturated with knowledge. After reflecting on their failure, they described that they had not understood the need to develop and practise examination technique, which involved learning how to apply their knowledge in a meaningful and structured way. Supervisors expressed concern that undergraduate medical education emphasised the use of multiple-choice assessments, leaving trainees with limited opportunities to develop written skills which underpin success in the written component. Interviewees therefore described the critical importance of developing and honing examination technique throughout the preparation period to achieve RACE success.

> *Some of them approach the written more as a textbook examination, they think it's just reading a textbook just like a medical school exam, that you're sort of answering a textbook answer. But that's not the skillset that's being examined. It's a clinical skillset. (Supervisor #9)*

> *The other thing that happens unfortunately in medical schools these days is very few essay writing sort of assessments … I think one of the key things about the written paper is it's an opportunity for the candidate to be able to write down their clinical approach and their clinical thinking and clinical reasoning, and that's quite a complex thing for trainees to do because it's really trying to put down what is going through their head when they're seeing patients. (Supervisor #6)*

> *In terms of preparation, I used the same technique I've used my whole sort of life and I felt that after failing the first time, that that was not the way to do the written. What I mean by that is, I'm always someone that wants to know as much as possible and go to the exam as well equipped as possible, meaning that I sort of read the book cover to cover, just trying to learn as much as I could and that's because I sort of didn't want holes in my knowledge. I wanted to know A to Z, so that if there is something in exam, I know that it has to be somewhere in my knowledge, rather than just sort of cherry pick some important topics … what I found is that, when I looked at the people that passed the first time in my cohort, the good clinicians passed, but there were also some not so good clinicians that passed very easily and so I kept thinking, 'why is it that I'm good clinically, but couldn't pass the written?' And I sort of worked out that the people passing quite efficiently were the people who just studied the exams, they just studied for the exam. They actually studied the old exams, and they went through systematically what were in the previous exams and used that to work out what would come up in the next exam, and also, they structured their answers based on what the Examiners wanted. And it's funny that in my entire life, I've never used that sort of model to prepare for exams. (Trainee #11)*

> ***So a lot of us have this rosy view of 'I'm going to go through all the materials and once I've gone through the materials I'm going to go back and start studying the past papers', which is the approach I did, which is a bit of a mistake in hindsight because as you're studying, you don't really know what are the important points until you look at the questions and then you realise, 'oh, this topic, this is the kind of things they want you to look at.' And then when you start going through the past papers, then you realise, 'oh, maybe I should have done this in the reverse order kind of thing.' (Trainee #19)***

Supervisors described their empathy for trainees preparing to sit RACE and unanimously indicated their desire to support their preparation and development of examination technique. In fact, Supervisors indicated that if they knew a trainee was pre-RACE, they took it upon themselves to 'grill' them in clinics, asking them to present as many cases as possible to help build their knowledge and skills. This, together with attending practice OSCEs seemed the most beneficial for trainees to develop technique for the clinical examination. Related to this, one of the challenges expressed by Supervisors was therefore not knowing exactly where along the RACE journey a trainee was before the term commenced. Knowing this information would help to determine appropriate goals during the rotation and to focus on a level of support suitable for their stage of preparation.

> *It's huge. It's something they tried so long to get into, then they got into ophthalmology, and then they've been training for almost five years or four years before it … and most of them have all got partners, plus or minus kids waiting to be born … all of that riding on the 'I've just got to pass and then I can get on with my life.' I've got a lot of time for them in that regards. (Supervisor #1)*

> *When I was at [hospital] just before the OSCE, and quite a lot of the consultants working there were good, like, take you out of their way to like, have a look at this patient, now examine them, tell me what's going on, that kind of thing. So quizzing you. I don't think before the written it wasn't necessarily that helpful. Of course, if you have a specific question, you can go and ask them and they're usually helpful. Some of the consultants at [hospital] actually had a previous kind of RACE OSCE questions like on version PowerPoints. So call me in and like quiz me. So that was really going out of their way. (Trainee #14)*

Written examination technique was reportedly best developed by using past examination papers to study, supported by robust discussion in study groups and obtaining feedback from consultants, supervisors and Examiners on written answer attempts. Trainees reported that the constant review of past examination answers written by others (e.g. sitting candidates, previous cohorts, Examiner feedback or via study groups) helped them hone their technique by allowing them to identify patterns and templates for how to approach and answer questions. This was further supported by advice garnered from study groups, Supervisors, consultants, and past and current Examiners regarding the accuracy and sufficiency of their written answer attempts. Supervisors indicated that they were more than happy to support trainees seeking feedback for written questions but stated this had to be self-driven by the trainee. As such, Supervisors highlighted that requests to review answers were infrequent. While this may reflect a lack of trainee motivation, some interviewees reported specifically seeking feedback from lots of different Supervisors and consultants to help share the burden and garner a variety of opinions to help their study.

> *There was a lot of technique in how you answer the question that was taught from the people that had sat the year before us and their practice questions that we were reviewing. There was a learned pattern of response that I stuck to in my questions. (Trainee #10)*

> *So many people offered to be available if you want to go through questions in the year leading up to the exam. It's still daunting to go and ask people, but every single person that I asked was very gracious with their time and was willing to stay a few minutes after a clinic or in between patients. And I think the big thing was going to lots of different people, because if you go to lots of different people, you don't have to ask one person to spend hours and hours with you. But they can do little bits with you and some of the consultants told me that they find it really interesting to go through the questions and discuss things, so it was positive from their perspective as well. (Trainee #9)*

> *You say to the registrars, 'well I'm happy to give you feedback on anything', and some of them will just be in the clinic, just seeing patients and never come and ask you anything. But you just try to say to them, 'well you've got to use every patient as a presenting opportunity and go and talk to your consultant'. So not all of them do actually connect and reach out to the consultants … one of them I've got at the moment, I said I'd help and look at [their] answers, [they] sent me one lot of them … maybe they're reaching out to other people, it's hard to know, or maybe the clinics are too busy, they don't feel that they want to present, but [I] just try to give them practice at presenting, practice at looking at answers. (Supervisor #4)*

> *This is a very much a self-driven process and you go to your Supervisors for specific help, like I would go to the corneal unit and say, how do you screen for keratoconus in your clinic? Can you do this? Can you do that?' But it is self-driven. (Trainee #4)*

Although Supervisors indicated their desire to support trainees prepare for the written, some interviewees outlined that they did not necessarily know how best to support candidates. This was especially true when Supervisors had not sat RACE recently or were trained internationally and were therefore unfamiliar with RACE. Trainees highlighted the importance of Supervisors having contemporary knowledge to help guide them, especially with written examination technique.

> *I feel that a lot of Supervisors care but they don't know how to help prepare. So like, for instance, when I failed, I sent a message to my lovely mentor, [they're] like, 'oh, just, you know, work it through with your study group or your friends to see how they got through'. And I'm like, that's not helpful but I know that you care. (Supervisor #1)*

> *So really depends on how long ago your consultants had taken the exam. So in the centre that I was in, a lot of consultants maybe took the exams ten, twenty years ago, so the format's completely changed. I mean, they do what they can to give you advice, but often things are not quite, your techniques will be a lot more different … it's not so much being contemporary, it's more the technique, because the questions have changed so much from ten years ago, just the way they've asked them, it's just technique and how you answer them, and how you structure your time. (Trainee #5)*

Past Examination Resources

All interviewees who had sat RACE in the past five years acknowledged the importance of using past exam papers as a study resource to prepare and develop examination technique. In fact, some trainees specifically indicated this was the sole mechanism used to prepare for the exam rather than traditional textbook studying. Past exam questions were also almost exclusively used as the focus for study groups, with trainees reporting the success of various apps and cloud platforms which helped to share their answers in real time formats to help streamline group discussions. Several trainees who experienced initial failure on the RACE recognised that they had not spent enough time practising past examination papers which they felt contributed to their examination performance. After refocusing their study efforts on past examination resources before their second sit, this helped them achieve subsequent RACE success.

> *What I did was I printed out every single old exam and the Examiners feedback, and then I sat down and said, 'what do the Examiners want for each type of question?' And then all I did was past exams for that entire period and if I didn't know any information, I'd go and look it up. But I sat for every day and I did five written questions, 12 minutes each, that made 60 minutes and that was my 60 minutes of study per day. And I did that for essentially 18 months. (Trainee #4)*

> *The way that we tackled the study group was past questions, so I would do my dedicated past questions and then we would discuss the past questions, we'd share them in a Google document. And we did that the whole way through, but we got better at doing it. (Trainee #2)*

> *When I sat the first time, there was a question that I didn't know how to answer because there was three options to answer it and so I left it and then ran out of time. But the second time I sat there was a similar question where there were two possible answers, but instead of not being able to figure out how to approach it, I just said, 'look, option A, option B, this is why I don't know how to choose, this is my dilemma', and I actually put that in the question and then passed the question. Whereas the first time I'd been frozen with the 'oh my gosh, I don't know what they're asking, I don't know how to answer this question' … and sort of leaving it. So that kind of practice writing questions with the consultants who were able to critique what I was doing was probably really helpful. (Trainee #13)*

Both individually and within study groups, trainees described a progression in the way in which past exams were utilised to study. Initially, some trainees divided questions into subspecialty areas to hone knowledge. Trainees described that this helped identify gaps in knowledge and questioning for particular topic areas which allowed them to develop their own mock exam questions to pose to study groups. Trainees also used this approach to develop templated answers to ensure they were covering all the important elements when answering for particular conditions. As study progressed, trainees highlighted the critical importance of practising past exams to time and then finally out of topic areas as it became closer to the exam to simulate exam reality and to hone the speed at which information needed to be shared.

> *Yeah, I definitely delved into the past exams. And in fact, our group study kind of was basically based on past exam questions and going through those, but we only went through I think, going back to about 2010. That's as far back as we went. And what we actually tried to do was group the questions according to subspecialty, and then just having a look at the recurring themes that were coming up so that we weren't repeating ourselves because you kind of have to try and be as efficient as possible, even though you study over 12 months, you never feel like, 'yeah, I'm ready for the exam'. You always kind of feel like there's more to do … when you look at that you can also group it into low yield and high yield. So there are some questions that pop up all the time and so that was like a topic we needed to know really well. And then there were the more obscure topics that would come up here and there and you weren't so fussed about knowing the ins and outs of those topics. (Trainee #7)*

> *We also did one thing which was quite good, we wrote somewhat sort of templated answers to questions, even for questions that hadn't been asked before, but we're kind of assured that, so for example, a uveitis question, might be like approach to a cataract in the iris or something like that. We would have, you know, these are the things you need to talk about. (Trainee #6)*

> *When I got to the final bit, I made sure that I was just doing the exams paper to paper. I think we saved like three years worth of exams that we hadn't looked at, so that way it was all kind of fresh for that final practice. (Trainee #2)*

While past exam papers were considered vital to preparation, there were several issues that trainees encountered with their access and usefulness. Firstly, interviewees reported that exam papers have stopped being released to candidates in recent years. Certainly, in previous years, candidates reported good access to past exam papers. Secondly, there was also a failure to release any very short answer questions (VSAQs) from which candidates could study and prepare. Thirdly, and most frequently highlighted by participants, was the current failure to release model answers and a marking rubric to illustrate the types of answers that Examiners expect and how marks are allocated for past examinations. This left trainees challenged in situations where examination questions were seen as vague or ambiguous and could be interpreted in a variety of ways. While some candidates did report seeing some feedback on past examination answers, trainees described it as rather generic, with the lack of marking criteria meaning it was impossible to determine what elements were critical to include to achieve a 'pass'. To benchmark the accuracy and adequacy of their answer, trainees had to rely on feedback from other Supervisors or consultants, some of whom may or may not have been familiar with RACE. Alternatively, trainees relied on consensus discussion within their study group to arrive at 'best' answers. However, one trainee described the success of this approach was inherently linked with the quality of the candidates within the group.

> *I think it all stems from perhaps a bit of lack of transparency as to how the papers are set, or how they're marked. Before the digital changes, so before 2018, they gave out a lot of model answers which I found very helpful. So they gave you the best candidate answer for each of the questions so you could actually look through and say, 'oh, okay, this is what they wanted.' And then for some reason, into 2019, they kind of scrapped the idea and just didn't do that anymore. And so the feedback that you get is just a paragraph. So they'll have the question and then they'll give you a paragraph and be like, this is what the Examiners were looking for. These are some of the mistakes that candidates have made and some of them are very brief, maybe a couple of lines and that's it. But there's no real criteria, like Part A is five marks, Part B is three marks. So they don't do that anymore. And I think they used to do that quite a while ago. Looking back at like papers, 10 years ago, they used to give a breakdown of what each section, how many marks it was and then they had model answers. So they kind of did away with all of that. I'm not sure why. So I think there's a lack of transparency in how they mark what they're looking for. What they give you in the feedback is very general, very brief. I don't know what the rationale is for that. (Trainee #5)*

> *There was definitely for a lot of them, like the best answer that I could read through and that was really hard to figure out because you'd look at these best answers and you'd be like, how can you write that in 13 minutes or whatever the time allowance was? And you're like, 'oh, yeah, because it's the best answer, so it's not necessarily what's passing you, it's the very best one that got written at the time', so just trying to figure out if I had a marking sheet, what would I have been looking for in this and so therefore, what points would I need to put in? (Trainee #15)*

You can kind of guess what a pass/fail answer would be and whether you included some of those based on the feedback, but you wouldn't be able to know whether you're a clear pass or a borderline I guess. That's I guess why it's useful to use other people and share answers and see what other people are writing and whether you're sort of in the ballpark. But that's not the best way, because if your study group happens to be really good, that's great, but if they're not so good then you think you're doing okay and actually you all end up failing so... (Trainee #18)

With the reliance on Supervisors to guide the adequacy and accuracy of examination answers, candidates who had recently sat outlined a number of difficulties in achieving consensus during discussions regarding model answers. Interviewees identified that candidates were often seeking advice regarding ambiguous questions, to which Supervisors and consultants equally expressed their confusion at how best to answer and hence provided varied opinions and interpretations. Secondly, Supervisors described that they may not necessarily agree with model answers or feedback that had been provided in past examinations, leaving the candidate to question who had the right approach. Thirdly, some Supervisors and consultants emphasised the importance of evidence-based approaches often not reflected in model answers, leaving the candidates further confused as to how best to answer past examination questions.

So many times I'll take the questions to my senior colleagues and [they] say, 'that's a badly worded question' or 'that's a badly written question'. There are so many times I've heard that, even from senior colleagues who've passed, like they've been around for ages and they'll say, 'I disagree with that Examiner feedback.' So what are you going to say to that? (Trainee #19)

I personally didn't go to supervisors because most of the time they didn't know either. It was ambiguous enough that they wouldn't know exactly what they're after. (Trainee #6)

It's very subjective to who you ask, like, you could ask someone and they would say, 'that's totally fine.' And then the other person would say, 'no, that's wrong'. And then sometimes your question is 'who's right?' Is it my Supervisor that is right? And you have no idea because they're not the ones writing the exams either. (Trainee #11)

I would correct the answers based on best practice ... they do have these model answers I think the College or other candidates have developed, and they have this stuff on there which is sort of, some of it I wouldn't do in my own practice, but I have to say to trainees, 'well for the exam purposes ... put that down, because that's sort of what's in these model answers', and you sort of know that's what some of the other people are teaching. (Supervisor #4)

To address the confusing advice provided by Supervisors and consultants, trainees reported specifically having to seek feedback on written answers directly from current and past Examiners who could provide greater clarity around exactly what the question was asking and how best to answer. Interviewees highlighted this was critical given that these people are the ones who are setting the questions and determining the criteria for satisfactory and unsatisfactory answers but indicated it often required leveraging off personal relationships given the time constraints supervisors had to provide feedback. Interviewees therefore described the inherent challenge with this approach given not all training networks have ready access to current Examiners, which was felt to unfairly disadvantage some candidates.

I sent it to Examiners here in [state]. I sent them to former Examiners here in [state]. I sent them to Examiners interstate who I had contact with to say, 'listen, can you have a look at these, am I to the standard? If I'm not, can you give me comments?' (Trainee #12)

And I think it's more than a coincidence that a lot of the [network] people have been passing in the last couple of years, I think they all passed the sitting I was in, at least the ones I knew. And maybe there's more of their Examiner's writing the questions and they just get a little bit more exposure to the type of and the style of questions that are going to be put into it? Obviously I'm not saying this is intentional, but just exposure to the consultants that are writing the questions is definitely an advantage. (Trainee #10)

You have to figure out who has marked the RACE exam before and then you have to figure out how they like their documentation sent to them, or how they can avoid it. They're happy to give tutes, but reading somebody's written exam is boring and time consuming, so you would select certain bosses and all of that stuff was done more between your interpersonal relationship with that boss, because they're certainly not going to enjoy having fifteen candidates suddenly send them written exams and things like that ... I would print out my off [my answers] and bring it to theatre sessions ... and that would prompt them to be like, 'I don't agree with this, or I agree with this, or this is what they're saying, this is why it's important to know this' and that was very helpful. They would actually give you feedback on your technique. So one of the things that I got told was, 'I don't like long lists'. You read a textbook and there's a list of ten things that are differential so you're like, 'okay, remember those ten things'. And then you'll take it to your boss, 'here are the ten things, I got them all, I remembered, great,' and they're like, 'I don't like lists and I especially don't like lists that are equally weighted, because it tells me you have no idea'. You're like, 'okay, well scrap that textbook way'. So you definitely need the bosses and they're the ones that mark you, so they help. (Trainee #2)

Study Groups

Aside from the occasional trainee that indicated they happily prepared for RACE independently, group study was almost universally utilised by trainees when preparing for RACE. Typically, groups comprised of no more than 4-5 members, as both trainees and Supervisors indicated that larger groups tended to be more difficult to manage. Trainees described how they used study groups specifically to discuss past exam answers, to brainstorm potential new exam questions and share feedback from research or consultants regarding questions they were unsure about. Groups spent time at the commencement of their study period to plan and set a timetable regarding topics and study approaches. Groups held each other accountable by following this set timetable, and therefore functioned as a constant motivator for trainees and helped keep them focused on their preparation.

So there were three of us in my year by the end and we had a study group. I mapped out a sort of curriculum to go over for, based on what someone else had done and then we just ripped through that. So that was kind of like study, but that was very early in the process. And then we just did questions. And one of the group would just send us out five questions per week, [they] had arranged it all and then we would each, five questions per day, and we would do them. And then on normally a Saturday, we would do questions for about an hour, where we each typed into a WhatsApp group for the 12 minutes, and then we were just looking at each other's answers and go, that looks good, that's not good. I'll use that. I'll use that. And then that's what we did. (Trainee #4)

Group study was seen by trainees and Supervisors as critical to their preparation. Not only did it provide general emotional and moral support, but trainees described how group study provided the opportunity for robust discussion and reflection on the adequacy and standard of their own exam answers relative to others. Some interviewees who did not utilise group study to prepare and who experienced subsequent failure recognised this as a critical flaw in their preparation. Although trainees did discuss meeting face-to-face for group study, COVID-19 had rapidly enhanced the use of technologies such as Zoom for group study, which trainees acknowledged had improved the efficiency in conducting group study sessions. In particular, this technology had seen the successful inclusion of trainees from different training networks in study groups as well as connecting trainees on rotations away from tertiary centres.

I hadn't studied with other people to see what level of answer was expected. (Supervisor #1)

I had a really good study group and I think that was probably what made a big difference for me. So there was four of us and I think all the people that I was with were quite bright and that was a big help. And also, we sort of all got along pretty well but we were all prepared to kind of argue our point, I guess. So there was quite a lot of robust discussion about certain things and I think in retrospect, that was probably a very good thing. So I think that was the biggest difference for me was having some people to talk about it and work our way through and try to work out what they're asking. (Trainee #16)

The other thing I did was join a study group. So I joined two other people and we tried to meet on a regular basis … it's always hard to kind of tee up a time that suits everybody but having a group where you can get an idea as to where everyone else is at and as I mentioned before, just that feeling of not feeling like you're in this alone, because I know as weird as it sounds, it kind of helps when you see other people stressing out. (Trainee #7)

Although group study was seen as critical for RACE success, it was not always possible for trainees to find others to study with. Firstly, networks with small cohorts often did not have a critical mass of trainees sitting RACE, and therefore, a study group was not able to be formed. This was a particular issue when trainees may have had only one other person, and given conflicting study styles, had no choice but to study alone. Secondly, trainees preparing for RACE in some networks may be sent to various external rotations which are located away from other candidates. This is particularly relevant in the New Zealand network, where candidates are dispersed amongst different tertiary centres across both the north and south islands. Although Zoom technology has enhanced the possibility of meeting remotely, trainees indicated both the desire and need for colocation with other RACE candidates to enable effective group study. Lastly, some trainees who had periods off training for health reasons or family leave and had subsequently returned reported the challenge of gaining entry to a study group given that they were now with an unfamiliar cohort and therefore did not have close relationships to leverage off.

I think what I missed out on was the opportunity of having a study group. When you take leave, you kind of repeat your year and you lose your study buddies … I asked all the groups, 'Can I join you? Can I join you?' and they were like, 'no, we've already got our thing', which I get that. If you've got your groups and you've got that sorted, that's fine. (Supervisor #1)

I think one of the things about [a small network] is that because we have so few candidates sitting there is never a lot of people in one area sitting. So I know the [big] cohorts, particularly Melbourne and Sydney, tend to have really big, good study groups and things, which I think is definitely advantageous. But in [network], that's really difficult to get started, because there's one, maybe two candidates sitting in a centre. So I think that is a bit of a disadvantage about [network], although more and more things are moving to Zoom and we've all now become so adapted to virtual discussions that hopefully in the future that makes it a little bit easier. (Trainee #9)

Trainees also described challenges entering study groups given their perceived level of motivation and intelligence amongst other RACE candidates. Some trainees indicated that they wanted to study with other high calibre candidates, and therefore opted to study with those who academically excelled and who were seen as high performers in the clinical setting. In this respect, trainees viewed studying with candidates who had recently failed as disadvantageous given the perception that their level of knowledge must be inferior. Other trainees also described how study groups strategically included members who were perceived to provide access to information or resources that may provide an advantage when preparing. For example, it may have been that the candidate had connections to someone in an older cohort who had recently sat and passed, and therefore could provide notes and strategic advice around preparation.

If you're not a highly motivated person or you're somebody that is seen as like, not a good registrar or whatever, it's difficult to get into a study group. We had our study group established and there was five of us … and then anybody who wanted to join after that, like say you failed the first time or anything like that, there was a vote, but nobody would let anybody else in, so it's very difficult. You need to kind of like have those relationships and build on them, so it is good to have studied with the group in prior exams as well. I think one of the things that helped in the study group is if you're somebody who's got a lot of resources that can share, because … maybe they're not the best registrar, but their brother did ophthalmology and they passed and they've got all their past exams or whatever. So getting into a study group is not as straightforward and easy as what it might be in undergraduate or something like that. (Trainee #2)

Teaching and Preparation Courses

Trainees described that teaching was an inherent part of the VTP, yet there were clear variations in offerings across training networks and across basic and advanced training years. While some interviewees described their networks as having a well-developed teaching program, others described having a somewhat less structured approach. There were consequently many concerns expressed from trainees about the equity of access to teaching across networks, but especially pre-RACE teaching in light of the location of Examiners and leading subspecialists in specific training networks. Trainees did comment that there has been a recent shift toward both a national and bi-national teaching program which had helped to address the equity of access issue across all networks. However, trainees felt that more whole of College strategies could be implemented to provide cohort specific teaching across the VTP. One interviewee commented that whole of College RACE cohort teaching would be beneficial for trainees across all stages of the VTP given that in smaller networks, the inherent focus on pre-RACE teaching compromises the educational offerings for basic trainees.

Some of the training networks, they all have access to more RACE Examiners than others and so depending on your network that can advantage or disadvantage you. Why can't they have just everybody on Zoom from whatever time to whatever time every Friday, and one week it might be a leading uveitis specialist, another week it might be [subspecialist], and it's not that [network] ones get to be face-to-face, everybody's online so we've all got the same access. You know, why can't we leverage the experts that we have nationally? We've got the technology. So I think that would be a way forwards and that would also ensure that there's some sort of uniformity of teaching and uniformity of access. (Trainee #12)

So what they've done this year is quite good. They've made teaching a bit more national based, rather than site based because obviously, there's a bit of variability of how good your site is or isn't with teaching. But now they've made it a national. So I think that's quite good. Maybe the next step is to make it a combined Australia and New Zealand teaching program, because it's on Zoom now, anyone can just log in at the time and do a combined one and then that would make teaching a bit more consistent between all sites. Because sometimes it's a bit of the luck of the draw right? If you're at a site somewhere where there's no teaching, you don't see patients or don't see a good variety of patients, you are kind of out of luck. But if we kind of made it a bit more consistent for all the trainees getting the same teaching, doesn't have to be every week, maybe like even once a fortnight, everyone the whole College, all the trainees from Australia and New Zealand get together for a teaching session. Yeah, that might work. (Trainee #5)

I think it would make a lot of sense for a National Teaching Program that split people up by their year group. So you could actually have teaching sessions for the anatomy exam and the pathology exam type things. Because at the moment, particularly in [network] … the teaching sessions immediately after the exam were more kind of for the juniors and more basic sort of teaching sessions and then towards the end of the year, it stepped up to being more RACE preparation stuff and just focused on the exam candidates. But then, with more people sitting in the middle of the year and people failing, all of the teaching has become mostly RACE based stuff and so you do feel for the junior registrars sort of not getting as much attention and more junior education. (Trainee #10)

Interviewees also described variability in access to mock OSCEs, many of which were network-led. Trainees described the inherent disruption to these as a result of the pandemic which meant that everything had moved to online. However, the advantage has been that mock OSCEs had been delivered in the same format as the exam itself, which trainees felt was excellent preparation.

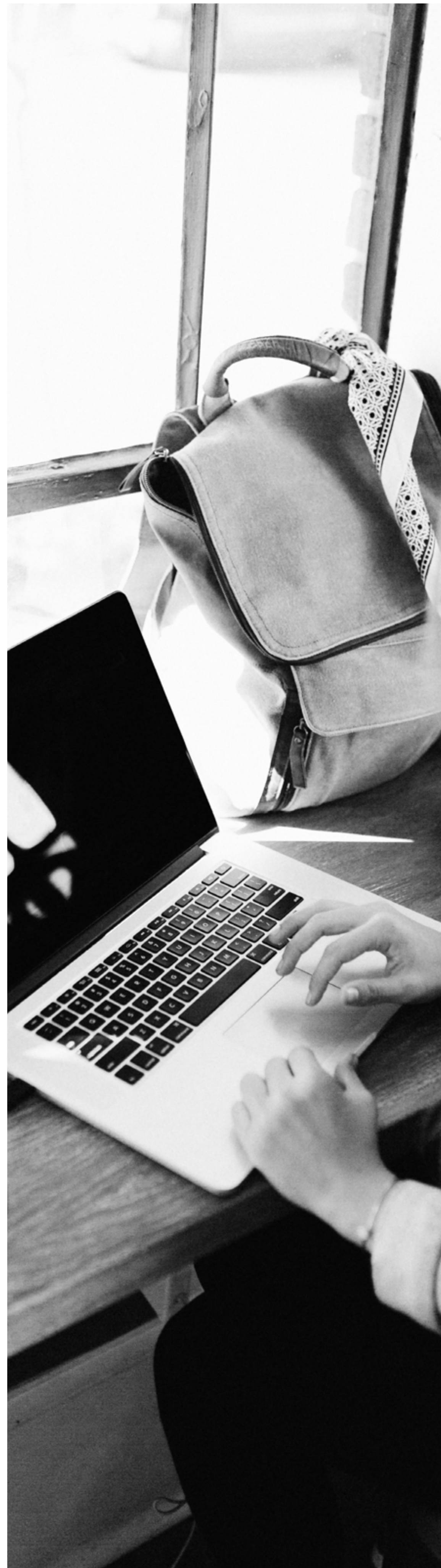
The written was a bit unexpected, but the OSCE, I actually found it quite easy. In [network] we did a lot of OSCE kind of training all the time and really challenging cases as well. And on the day, pretty much almost all the cases we had for the real exam were ones that we've already faced in a practice OSCE or in a teaching session. So we all found it pretty easy to be honest. (Trainee #14)

Trainees also found attending specific courses and conferences useful during RACE preparation. As such, some interviewees highlighted poor whole of College communication strategy about available courses for RACE candidates and the inherent disadvantage to New Zealand trainees regarding courses that are run in Australia.

Something that I did find quite helpful was having lots of courses and things to attend too and like I went to all the courses basically that were on throughout the year during the RACE. So you know, the strabismus course and I did find the practice exams for the OSCE were quite helpful. (Trainee #17)

There were courses happening … [that] weren't necessarily being promoted by the College. One example was that there was a strabismus course shortly before our exam and a lot of the candidates [in my network] didn't even hear about it until shortly before. Then when they reached out to try and find out if they could register, the course was already full, and so they couldn't get in. So it would be useful to ensure these courses are promoted [by the College] to [all] candidates. (Trainee #9)

Of all preparation courses available to trainees, the Dunedin Ophthalmology Clinical Course was almost unanimously viewed as critical for RACE preparation. However, it is important to note that not all interviewees who passed RACE successfully at their first attempt attended Dunedin, with one describing the belief that attendance was not necessary for success. Of those trainees who did attend the Dunedin course, they described the opportunity to develop and refine their examination technique, identify gaps in their learning and benchmark their level of knowledge against other candidates sitting RACE. There seemed to be somewhat conflicting viewpoints as to the optimal timing of attendance at Dunedin. Some candidates attended Dunedin a long way before sitting RACE and reported it as beneficial to have already established examination technique as well as recognising the level of their knowledge prior to studying. However, the majority attended much closer to RACE, usually a few months before. These candidates argued that it was much better to attend after a period of intense study so that they could reflect on where their gaps were and benchmark their performance against others.



I think Dunedin is invaluable. I mean, you're living, breathing, eating, sleeping ophthalmology and when you finish, you just leave thinking, 'what did I even know before? I don't know if I knew anything before. What have I been doing for the last three years?' So not completely, realistically, of course, because you obviously do know a lot going in. But it's just great to consolidate all of that knowledge and information, and have like-minded people pushing you to your limits and having these very senior professors and clinicians talk to you, and really give you tips on how to pass the exam. Not just to pass the exam, but to actually be a good clinician going forward. So I loved Dunedin, I thought it was probably the best two weeks of ophthalmology training, even though it's really intense and really full on, it's really enjoyable because you don't have to wake up and go to work, you are just there to study and learn and learn and learn. I think it helped me so much in passing the exam. (Trainee #3)

Excellent and it's unmissable I guess. I think it sort of solidified and it was good timing I suppose for us to go there because we'd been studying for probably eight months, and then we went to Dunedin after that, which was about two months I think before the written exam. So you kind of had all the knowledge in your head and it was good to plug any gaps, but also confirm that you're on the right track and we sort of knew what was expected and also plug a few holes that you didn't know. (Supervisor #10)

That's another thing that I didn't do. So I heard sort of mixed reviews [about Dunedin]. And I think it's good to sort of make sure that you've sort of covered all the bases and things, but my own personal experience was it wasn't entirely necessary. They're not going to give you what's on the questions and you know I think a lot of it is FOMO, Fear Of Missing Out, like, you're going to get this one tip that like fixes the exam for you. (Trainee #16)

Given that Dunedin was viewed so positively as a support for RACE preparation, several interviewees described their disappointment at being unable to go. This was the result of health jurisdictions denying access to leave that would have allowed trainees the opportunity to attend. Some interviewees who became aware of this from older cohorts reported being strategic in their requests for certain rotations to hence ensure that they were somewhere where it would be more likely that they could be granted leave to attend. Further, others who were able to go indicated that they were not granted any study leave to attend, and therefore had to use their annual leave. Interviewees argued strongly that the Dunedin course should be made mandatory for all pre-RACE candidates and that study leave be universally granted for all to attend.

The third thing they could do is mandate the course in Dunedin, which is the RACE training course because there have been plenty of people from the [network] who have applied to go to Dunedin for those two weeks and been denied because the course wasn't mandated by the College or it's not considered an essential compulsory part of training. I think if they said it is an essential part of training, then I think the networks would have to say, 'okay, you can have the time off.' So thinking back to [year], out of everyone in [network], [they] were the only person to not go to Dunedin and [they] were the only one to fail both components that year. So I think it really goes to show that if the College really wants to help trainees, they just have to protect the study time and the course time. Dunedin is such a brilliant course run by such experts. I think it should be mandatory as part of our training to be honest. (Trainee #3)

Work/Life Balance

All interviewees acknowledged the extensive amount of time and effort that trainees invest in preparing to sit RACE. Across those interviewed who sat RACE in the past five years, the least amount of dedicated time to study was 8 months, through to the lengthiest amount of time which was 2 years. Those studying for longer periods tended to be trainees with family responsibilities which they knew would make it challenging to study closer to the exam. Typically, trainees indicated that once they had sat and passed their pathology exam, they then immediately began to prepare for RACE. Trainees described dedicating at least one to three hours per day to RACE study individually, which was then added to by group study sessions, eye school and any other tutorials being run by their individual networks. Trainees collectively reported an increasing study frequency and intensity over the 12 month pre-RACE period.

> *Oh, about twelve months I think, that's when we sort of started in earnest. You know, you passed pathology and then you start to think about what the next step is, and it might not have quite been the full 12 months, but it was pretty close. And obviously, it kind of scales up the closer you get to the end. (Trainee #16)*

> *Oh, it's pretty hardcore to be honest, but like in terms of quantification, I would say it was basically, in the lead up to the first one, it was like three hours a day for a year and that meant kind of I used to get up at like a quarter past five and just be studying before work, and then trying to get in an hour or so before work, and then doing an hour or two after work. It was just fairly constant. (Trainee #1)*

> *Yeah, about two years before, but not as intense for the first year. I was just taking my time going through things slowly and then more intense in the last 12 months. But I mean, the main reason I did that is because I have children. (Trainee #14)*

To meet the demands of RACE preparation, interviewees described how their lives consisted only of work and study during the pre-RACE period, with extracurricular pursuits ceasing and social lives put on hold. Many interviewees were frustrated at the growing nature of service pressures in the public health system, which meant that study in work hours was impossible. Others described that some rotations had high on call burdens, which further impacted both the time in the evenings, as well as weekends that should have been dedicated to RACE preparation. Given these challenges, interviewees shared the need to be opportunistic in snaring study opportunities as they arose, especially in work hours. One interviewee described that they requested afternoon shifts to allow the morning to study before coming to work. Others reported prioritising study during clinics by allowing basic trainees to shoulder a greater share of the workload and thus enabling them the opportunity to study. Given the impact of work demands on study time, interviewees highlighted the need for dedicated study leave to support preparation. While some training networks seem to offer several weeks off for RACE preparation, other networks offer none, highlighting inequity amongst candidates. Several interviewees subsequently described having to utilise annual leave to help achieve some dedicated time to study.

> *I was put into a rotation that was very, very busy and was very minimally supported and so I went to work, I was on call a lot and I was just studying. So I'd wake up at like 4:30 in the morning, I'd go for a run or go to the gym, I'd study and then I'd go to work. I'd come home, I'd have a quick bite to eat and I'd study and then I'd go to bed. That was my life for a good two and a bit years. (Trainee #8)*

> *I think there's always time, but it's just the equation of what are you willing to give up? What can you give up? I think I used to study very early in the morning was kind of my routine of go to the hospital very early, go to the library, study for a couple of hours before work, and then when I finished, I finished, and that was it at the end of the day. So I mean that's the way I did it. I don't function very well at night. Other people would come home and study at night. I know one of the guys I was with used to finish clinic at five or six and then go across the library and study till eight or nine at night. That would be his routine and I think everyone just had a routine that suited their own life. But yeah, it's hard to find time but there always is time, it's just you've got to give something up. (Supervisor #10)*

> *[Network] is relatively supportive and I got a little bit lucky with the rotations as well, because sort of for the six months for the second half of [year], I had a rotation at the sort of main tertiary hospital at a time when the juniors were pretty good and it was very well staffed. And so, you know, I'd just finish my clinic and go study straightaway and come in a bit late in the morning and study in the morning, and, you know, had plenty of extra time to study. (Trainee #17)*

> *I say if you are sitting your exam, it's better to pass the first time. You don't want to have to sit it again because it does make it harder. So you try to promote the fact that 'you need to go and study now', but there are some trainees that are very clued on and they know how to do that already. I see some of them studying for exams when they're in the clinic, in between patients, they take every opportunity. And some sort of like me, if a patient's waiting they like to pick them up and they see them. It's only after every patient's gone home that they then study and that's very much a personality thing … I always felt that the patients came first and passing the exam came second and so studying time was secondary time rather than primary time. But that changed the second time [I sat]… (Trainee #11)*

> *The only thing I found really tricky was I was on call for six months straight up, on call 24/7. Like there was no weekend off. No nothing. Because some of the rotations, you alternate week on week off, but the ones I was on there was only one registrar there and so you're on call the whole time. So I found that really difficult. There wasn't a point where I could just plan, 'okay, Sunday I'll do all day', because you'd end up being called in and then frustrated with yourself because you like only had two hours today. (Supervisor #1)*

> *Yes, so you get one or two weeks [study leave] before, but you can't prepare for the exam in two weeks. It's funny because you start to use your annual leave for the exams and it's not the healthiest either in hindsight because then you never have any time off. But that's what you learn that you have to do because that's the only time you can dedicate to study during the day. (Trainee #11)*

While trainees were concerned about finding the time available to study in the immediate lead up to the exam, supervisors expressed concern more from the longitudinal perspective, with 12 months perceived to be insufficient to allow for thorough RACE preparation for some candidates. This was especially the case for trainees who had already failed examinations within the basic training years, which worked to reduce the focused preparation time available in the VTP before being eligible to sit RACE. Supervisors felt that overall, there were too many examinations in the basic training years, which consequently distracted trainees from focusing on the core knowledge and skills of clinical training which was perceived to lay the foundation for RACE. They felt that adequate RACE preparation required dedicated study and training for at least two years, which was prevented by the placement of ophthalmic pathology and other exams needing to be resat. Supervisors also perceived there was an inherent advantage for trainees who had completed the Masters of Medicine (Ophthalmic Science) and were therefore better prepared to sit earlier exams leaving them able to focus on RACE preparation sooner than other candidates.

> *The minute they get on, they start studying for another exam which are these pre-RACE exams, pathology, physiology, optics, anatomy. And so, and I've heard this from almost every one of my colleagues, the first year registrars, second year registrars, they're not disinterested in learning about what they're going to do for the rest of their lives, but they don't have time. They have to study for all these exams while they're working. And that has, I think, had a real impact on the training because essentially you had a full-time clinically-oriented junior doctor from day one and now they are part-time clinically oriented for the first two years and then they get these first exams out of the way and then they think, 'oh, okay, finally, I've done that. Oh, okay, now I can study for the RACE.' So I think that does make a material difference into how we look at this historically. I think that the current system detracts from clinical training and that may well have a bearing on the experience of the candidate's doing RACE, the supervisors trying to teach RACE preparation, and therefore the assessment and the outcomes. (Supervisor #5)*

> *Realistically what's happening is you've got the registrars really having one year minimum, but some of them that's their maximum, of one year after they've passed all their other barrier tasks of actually focusing in on exam performance and getting their exam done. A lot of these people, let's be honest, they've got families, they've got kids, they've got other sort of life events that they're sort of going through, so a year just with exam preparation for that candidate is not enough. But your ideal candidate has gone and done all the barriers within the first 12 months and then they've got two years that they're focusing on getting their exam skills up. They'll do fine. But the one that struggled to get through all their barriers, they're going to struggle to get through the [RACE] exam first time. (Supervisor #9)*

Wellbeing

Given the duration and intensity of preparation, interviewees almost universally described the RACE preparation period as being the single most physically, mentally and emotionally challenging time of their educational journey. They described feeling immense pressure in response to how high stakes this examination was for their future and that of their family, as well as how failure would impact further on themselves and their loved ones. In particular, the arbitrary 'three strikes and you're out rule' was viewed as immensely anxiety inducing. This was because most trainees had invested lengthy amounts of their time as medical professionals in the world of ophthalmology and subsequent failure on the RACE examination would leave their careers destroyed.

> *It's not until you get to this final point in your career and you basically put a huge amount of stress on a person and their family to sit one exam. (Trainee #8)*

> ***I think that most people aren't aware of how anxiety inducing the process is … it's a very exquisitely traumatic experience in the lives of all the trainees that go through whether they minimise it or not. (Trainee #6)***

> *It's a pretty painful experience only because the preparation is so intense over a fairly long period of time. So you know, it's the longest period of time that I've ever prepared for any exam in my life and I've been sitting exams now, I don't know, my whole life basically. (Trainee #7)*

> *It is so high stakes in that most people now are not twenty five year olds going through the exam, they're in their mid thirties, most of them have families, they're working full time, they have working partners who are often also studying for exams … and just to give you a sense, so in Queensland and New South Wales and Western Australia, people might have done somewhere between three and even five ophthalmology years before getting on ophthalmology. So then they've done like nine years, somewhere between six and nine years of just ophthalmology. And then theoretically, you get kicked out at the end and all you've done for the last nine years is ophthalmology. You don't know how to use a stethoscope anymore, read an ECG, and it's like exceedingly rare that they kick people out, but it is [a possibility]. It adds a certain frisson of excitement to your third sit. (Trainee #4)*

With the need for work and study to occupy every spare moment of each day, there were clear impacts to both physical and mental health for trainees during the pre-RACE period. In terms of physical health, interviewees collectively described having limited time to devote to exercise or eating well during the RACE preparation period. This led some to experience weight gain and poor physical health. Others however continued to prioritise daily exercise as part of maintaining a sense of wellbeing. One trainee who had experienced failure described the importance of prioritising self-care during work hours to promote more efficient study. This interviewee described for example how taking breaks during the day, eating a good lunch, leaving clinic on time, and relying on basic trainees to take on more work enabled the preservation of energy for study later in the evening.

> ***But my physical health definitely was impacted. I wasn't able to keep up a good eating and exercise routine. Definitely no. We call it the RACE coat where you just get like a coat of fat. (Trainee #2)***

> *I also play competitive [sport] and take that very seriously. I kept that going. I go to the gym, probably four times a week, I kept that going. I would say that I was told by people who had done the exam before me that you need to keep doing things like eating well, exercising, socialising. You cannot forget why you're doing this. Otherwise, you'll just go mad sitting in a dark room with a light on studying the whole time. (Trainee #3)*

> *I said 'okay, I need to focus on passing the exam', I made more of an excuse to say, 'hey, I've got to go now. It's five o'clock, I've got to go and study', or 'I won't stay back to see the rest of the patients. I'll let the other doctors do that.' Or even making sure I have a good lunch, like … not tiring myself out so much during the day so that I would have enough energy to focus after hours. Whereas sometimes, you'd try your best during the day and then you'd run on low just to do the study and it's not as efficient. (Trainee #11)*

Mentally, interviewees indicated that they were generally able to handle the stress that occurred during the preparation period before their initial RACE sitting but described how it was a time of intense mental strain. Interviewees described this time as all-consuming and requiring intense selfishness, where partners, family and friends had to constantly demonstrate flexibility to support their study needs. Several interviewees commented on the subsequent impact on personal relationships as a result. Despite this impact, trainees reported the absolute importance of physical and emotional support from friends and family, together with colleagues who were also preparing for the RACE who understood exactly how they were feeling. Other mechanisms that trainees reported as helpful for managing the ongoing stress and pressure included daily exercise where possible, eating well, outsourcing help when needed (e.g., home delivered meals, cleaning, childcare), engaging in group study and sharing the journey with others, and using mindfulness techniques. Recognising the need to take a break from study to support mental and physical health was also emphasised during the preparation period, but trainees shared that this often proved counterproductive by adding to their stress. Others shared the usefulness of establishing boundaries around the amount of time they were willing to devote to study. They felt these boundaries were an important mechanism to prevent potential mental illness from developing.

> *My mental health stayed okay and I think that's probably because I was studying in a group. That kind of thing helps. (Trainee #2)*

> *You take bit of a break because you know you need a break, but every time while you're taking that break, you're always feeling guilty thinking 'I should be studying'. (Trainee #19)*

There are a few times where I felt like that, but that's when I had to kind of step back and just put things into perspective. I think when you reach that point, you really have to have a break. And you have to look after yourself and you also have to make sure that you're not neglecting other parts of your life that are important. I agree that you have to make a lot of sacrifices during those 12 months, but I don't think it's right for you to put everything on hold during that year. You just have to be smart and opportunistic about the way that you study, and you need to set a limit for how much you are going to study. And you say to yourself, I'm not willing to go further than that. And if I fail, then I fail, but at least I didn't go overboard. Because I think when you do, that's when people are in danger of kind of having a breakdown before the exam … when you go in thinking to yourself I have put everything into this, that's, for me anyway, I think that's too much pressure. (Trainee #7)

My personal relationship suffered with the partner I was with at the time. And so it took a lot of time to rebuild that, but that was more surprising to me how much that affected that. But I don't think it affected my individual health, well, as far as I know, not that much, maybe a little bit, you gain a bit of weight but you sort of get it off when you pass. But yeah, I think personal relationships definitely suffer … the time spent, there's nothing that can sort of replace that. But exams are sort of the gate to getting more time to, so it's 'do you want to pass the first time and spend the time now'? or 'do you want to drag it out'? (Trainee #11)

Given the notable impact of RACE preparation on wellbeing, one of the issues described by interviewees was that they were already feeling burnt out from two years of exams and training before commencing RACE preparation. Trainees described how this occurred because of inadequate access to study leave to help support sitting earlier summative exams, with trainees subsequently using their annual leave to devote to study. Trainees further highlighted the inadequacy of study leave applied specifically to RACE. Although trainees described mostly being offered one to two weeks off for the exam, many highlighted the gross inadequacy of this time frame given the high stakes nature of the assessment. This meant that most utilised their annual leave during the RACE preparation period to ensure they had dedicated time to focus exclusively on study immediately prior to the exam.

For my first year, we had seven exams or something, and all of my annual leave was used towards that. So there's no break and then burnout starts. And then you start again, and on and on and on. Ridiculous … there should be much more study leave applied for a College which loves to assess with exams. And that goes for all the exams, really. Look at [network]. [Network] has a huge amount of study time, a lot of mandated time away. You shouldn't have to use any annual leave because you need a break on the other side. (Trainee #6)

I did my exam and I think I was given about five days off, plus the two days of the exam and that was my week of leave for the exam. I remember thinking, 'well this is probably the biggest exam I'll ever do in my life, I don't think five days is the right amount. I mean, surely I can get a second week?' And I know that in [network], they're given up to sort of four to six weeks almost, they get a lot more time off. We got very little … I sort of know people from all around the country now from doing the exam and things like that and a lot of them were like, 'I'll be off for two weeks before' and I'm thinking, 'oh, I've got five days plus the two days of the exam, which don't count as study days because I'm doing the exam.' So I remember thinking that was a bit disappointing. Now, I know that's not a College thing. It's got very little to do with the College. I think the only thing that the College could do would really emphasise that point to the networks who are delivering the training that yes, we understand that these registrars are fulfilling a service role within your health precinct, but they need more than five days to study for a big exam. They're nervous. They're already scared of the exam. So I think that was one thing. (Trainee #3)

Readiness to Sit

Given the pressure and intensity that accompanies the pre-RACE period, most trainees attempted to minimise its impact by sitting RACE at the first available opportunity. All interviewees described their compliance with the necessary formality of submitting their intention to sit documentation to their relevant Director of Training (DOT) for approval. While some candidates reported having a short interview with their DOT in response to their submitted paperwork, others did not. Certainly, where supervisors had concerns about trainee readiness, they indicated that they did have a discussion with the candidate and encouraged them to consider delaying their sit to allow for further preparation. One interviewee described an example of how this advice had been well received by a trainee, and with an additional six months of preparation went on to experience success at their first RACE sitting. However, Supervisors largely described that trainees ignored their advice to delay and indicated their continued intention to sit anyway. For those interviewees who had experienced failure, there was concern that there may need to be increased rigour in the approach to assessing trainee readiness for RACE. This was because none of the interviewees who had failed RACE had received any feedback from either their DOT or consultants that they should delay sitting the examination. Both a trainee and Supervisor outlined that an interview between the sitting candidate and the DOT would be a worthwhile proactive exercise to validate the due diligence of trainees in preparing for the RACE, and therefore circumvent some of the initial experiences of failure.

I had to get a special permission to sit early as I was a few weeks shy of the three year mark, but I felt ready enough and I … had plenty of time to study. People said to me 'look, two schools of thought – you sit early and often, or you sit once and done'. I was quite nervous about it, but then so many people encouraged me just to get on and give it a go that I was like, 'okay, if you all think it's a good idea, I'll give it a go'. And so I was able to pass the OSCE at that point, but I didn't pass the written and it was quite demoralising, obviously, failing the first round. (Trainee #13)

Well, all I did was print off that form and fill it in and send it to them and they emailed it back to me, there was no actual real discussion. (Trainee #14)

I can't help but wonder whether there is an issue with the way the decision is made that candidates are ready to sit the exam in the first place. I think there needs to be a more personalised approach to that. (Trainee #9)

[Discussion] should be before the first sit, right, because we don't want them to get in this position in the first place. It's putting the cart before the horse if you're doing it after they've failed, you want to have that interaction with them while they're on the path leading up to it. (Supervisor #8)

Before you sit the RACE, you have to be signed off by your Director of Training as competent enough to sit the exam, like not just anyone can sit it, they have to sign you off. Interestingly, when [they] went to [their] Director of Training, [their] Director of Training told [them] up front, 'don't do the exam in the next sitting, you're not ready for it, you are going to fail it.' And so [they] deferred [their] exam and sat in [month] and passed both exams first go. So it was really interesting, because I think if RANZCO says to the Directors of Training, the best way of getting people through in the first attempt they sit it, which is not necessarily the earliest time they can sit it, is to actually make sure they're ready for it. Because it's very easy to say, 'okay, you want to take the exam, okay, you're the end of third year, you meet the criteria, tick, go and sit it.' But they don't know if they're actually ready, because they haven't necessarily had feedback from the other people who supervise them, the term supervisors from other terms. And so I think it's worthwhile if RANZCO suggests to all Directors of Training that every time you have people approaching you saying, 'I want to sit race', you sit down with them for about 10 minutes and actually make sure they're ready … interestingly, after somebody fails, the College ends up notifying Director of Training who then speaks to the trainee, but by then they've already failed once. I think it's a bit of a vicious cycle. Once you fail first time, you lose confidence and you're more likely to continue failing. So I think if they did just a 10 or 15 minute interview, one on one, Director of Training and the trainee who wants to sit the exam, and I think if RANZCO says, 'well, we absolutely need to see that you've done the due diligence', because you're actually optimising your trainees chances for success in the first attempt, because we know you've sat them down and actually had a chat with them about how is their study progressing? Do they have a plan for it? You know, because I mean, speaking to some of the people who unfortunately didn't pass or people who passed but they're just superhuman freaks of nature, they were just like, 'oh, I didn't really have a plan. I just sort of read the book and just went into the exam.' But the rest people who do that aren't going to do so well and the rest of us need a lot more work and sort of planning. So I think if the Director of Training was to do an interview with every trainee just before they actually sit for the first time, they'd have a much better idea as to how prepared that individual trainee was and the likelihood of actually passing on the first go. (Trainee #3)

Although more scrutiny may need to be given to assessing a trainee's readiness to sit RACE, interviewees highlighted that trainees at risk of failing RACE should be identified, monitored and appropriately supported well before and into the pre-RACE period. Supervisors described that some trainees are flagged after failing their initial summative examinations as basic trainees, or after failing a training rotation. However, Supervisors advised of the very real possibility that some trainees performing sub optimally and therefore potentially at risk of failing RACE were not being adequately identified through formative assessments. Not only did Supervisors describe the difficulty of providing constructive feedback to trainees around clinical performance due to concerns around bullying and harassment, but failing a trainee on a rotation was considered a very real challenge given the significant paperwork required to validate concerns. Supervisors also highlighted the subsequent workload created by the remediation process when failing a trainee, which served to further disincentivise them from truthfully completing work-based assessment reports. In this respect, there was belief from interviewees that some trainees are likely to be passing rotations despite poor performance and therefore remain eligible to sit RACE. This was of concern to all given the belief that RANZCO should ensure that poor performing candidates never manage to reach the opportunity to sit RACE. One interviewee suggested that remediation may need to be College led to address workload issues for Supervisors and ensure trainees receive the support they need to succeed.

I think the College should be stepping up and not letting a candidate get to this final hurdle if there are genuine concerns about their safety as an ophthalmologist. (Trainee #9)

The problem is that when a consultant fails a trainee, it's then up to the consultant to basically create weekly remediation sessions … but the problem is that everyone is so busy … so from the consultant's perspective, most people would rather say, 'oh, I can't deal with all the remediation, they are just a pass and then it's not my problem anymore'. And every consultant says that on every rotation because it's so much extra work. So I think the motivation of actually addressing the problem early on is not there because it cuts so much into personal time. So I don't know how that can be improved, but certainly I think that's an issue and that fails to highlight the problematic trainees early on because everyone just pushes them through and then they get to the RACE and then they fail the RACE, but they haven't been up to scratch for two years … in all fairness I think the trainees deserve to know early when they're not meeting the standard. They should know in first year and second year that they're not up to scratch. We shouldn't allow the trainees to get to the RACE and then fail because they've been sub-standard for the last three years. (Supervisor #3)

Maybe it should be that the remediation should be more run by the College, by maybe someone, I don't know, 'Trainee Support Officer' … but someone who actually has the time and gets paid to kind of do that work because the consultants all start at 7.30, then they operate, then they consult all afternoon, then they get home at seven o'clock and then they have their Zoom meeting with the trainee after already working 12 hours to do the remediation. And that's I think where the problem sort of arises, whereas if the remediation process was predominantly driven by the College so that there would be less, I guess, effort on the behalf of the consultants then that may be beneficial … (Supervisor #3)

Relationships

Finally, it was evident from all interviews conducted that relationships both within and across networks, together with network culture, were critical during the pre-RACE period for promoting success on the RACE. Firstly, relationships amongst trainees within their own year cohorts were fundamental in allowing study groups to form, which were critical to preparation success. Secondly, relationships with other advanced trainees who have just sat RACE and who were therefore a contemporary source of information regarding the examination, the types of questions asked, the format of the examination, how best to prepare, and who could provide notes and resources for exam preparation, were also necessary. These post-RACE trainees were functioning as walking RACE 'how to' guides in the absence of any other formal preparation guidelines. However, relationships with basic trainees were equally critical to establish during the RACE preparation period, as it may be necessary to call on these colleagues to shoulder a greater workload in clinics and allow candidates increased opportunities to focus on studying. Further, it may be that trainees have periods of time off training, which means that they return to training with the cohort below which can pose challenges in finding a study group.

So there's a good culture in [network] amongst the registrars themselves, that like you scratch my back, I scratch yours, so I'm a junior registrar, I know you're sitting your exams in a couple of months, so I'll step up and do a lot more of the clinic and give you time to sort of go off to this tutorial, or go off to this teaching session, or take some time off from the clinic so you can prepare a bit more. And then when it's my go, I know you'll be through and you'll hand me your notes or give me some time so you cover me when I need to do my exam. So there is a good culture. (Supervisor #9)

When I first started training I didn't even know who the other registrars were … and then we're all spread at different hospitals, we rarely cross paths with other registrars in your year. It makes it really difficult to know other people and find study groups. So I did struggle from that perspective. (Trainee #14)

While relationships within each training network underpinned successful preparation, some interviewees also described an inherent advantage of having connections with trainees and Supervisors in other training networks. It was acknowledged that there are training differences across networks in terms of access to training opportunities, which meant that having close relationships would allow the sharing of resources. Also, techniques are known to differ across networks, and therefore, the inclusion of candidates from other networks in study groups would capture these differences when preparing examination answers. One interviewee described that a whole of College 'get together' for specific cohorts would be an excellent way to develop relationships and support future study and progress through the VTP. Finally, interviewees also described the importance of having both within network and cross network connections with Supervisors, and in particular, current Examiners, who were able to support successful RACE preparation by helping to develop examination technique. Several interviewees therefore raised concern regarding the unequal distribution of Examiners across training networks, which limited the opportunities for some candidates to develop these relationships. Even if Examiners are available in each training network, one interviewee described having to reach out to unfamiliar Examiners in other networks after having failed multiple times to gather extra guidance on examination technique before heading into their final RACE attempt.

> *It might be good to have a bit more kind of interaction between the different states in terms of preparation so that we're one whole community and one group of registrars training … maybe something earlier on in training where everyone from all the states kind of get together and then we're allowed to have time to attend. Like teaching sessions or something would be good to meet other trainees at least in your year level so you can start kind of relationships with these people early and help each other study and learn and so forth. (Trainee #14)*

> *So my approach to the exam was finding a really good study group, finding an extra study buddy outside of the state so I can get a different perspective on how maybe they approach certain problems or certain clinical entities in a different state or territory and that way I could sort of get the best out of the [state] training knowledge as well as the best out of the [state] training knowledge. (Trainee #3)*

> *And then for the third sit, I guess what I did differently was I just got in contact with people I didn't know that I knew were actual Examiners and just sort of said, 'hey, I know you're an Examiner, can you please help me out because I failed it twice now. I don't know why I failed because the feedback has not been that great. Can you just help me and go through my questions to see whether anything is blatantly missing from my questions?' I was really desperate at this point because I just wanted my life back and I just wanted to get on with my life. (Trainee #8)*

RACE

This RACE section pertains to interviewees experience sitting both the written and clinical examinations. Analysis of interview data subsequently yielded overarching initial sub-themes of final hurdle examination, discriminating candidate competency, factors contributing to examination success and failure, and predicting performance on the RACE. However, further sub-themes were identified for factors contributing to examination success and failure related to both trainees and the examinations themselves. For examinations specifically, sub-themes included feedback, online format, generalist standards, ambiguous questions, marking criteria and examination development.

Final Hurdle Examination

Although there were mixed opinions about the construct and validity of the RACE, interviewees were unanimous in their support for a final hurdle examination to ensure the safety and competency of graduating ophthalmologists. RACE was subsequently described by those who had gotten through as a 'necessary evil', with several interviewees explaining that the examination acted as a strong motivator for them to learn, especially about the potentially rare and unusual pathologies they may encounter. With hindsight, interviewees therefore acknowledged that the RACE was highly beneficial for their learning and training, and provided a solid foundation for their future specialist career. For those fortunate to have undertaken fellowships overseas, they recognised their knowledge and skills as far superior to international ophthalmology graduates. In fact, interviewees reported that the quality of graduates from the RANZCO training program was well recognised internationally in terms of both the breadth and depth of trainee knowledge, partly of which can be attributed to the RACE. To preserve this reputation, interviewees highlighted the importance of continuing to maintain the high standard expected to pass RACE.

> *After being on the other side of the RACE exam, I think you appreciate that sort of all that knowledge is forced on you to learn because it does make the job easier. I remember once someone saying, 'get well-trained and you'll have an easy life'. And I think that it's a hard time, but it certainly pays off afterwards, both for your own sanity and also your patients benefit from you being better at what you do. And if there wasn't the exam, I don't know that I would have learnt things as thoroughly and I think overseas training programs just require you to submit case reports and discussions and things and I definitely wouldn't have learned as much as I learnt if the exam wasn't there. I could easily have taken shortcuts and although it's hard, I think being on the other side, it was worthwhile. (Supervisor #10)*

> *I can also see how having a big final exam is a good way of really upskilling your knowledge. If you never learn about those rare random, esoteric things, you'll never have a chance of picking them in clinic or at least knowing that something's wrong. So I can see how it's a valuable tool that way. (Trainee #17)*

> *Well, if you never know it now, you'll never learn it and that's the point I think. If you're not pushed to the standard, it's essentially you'll use that for the next thirty years of your practicing life, and sure you'll add little bits and pieces of continuing professional development, but if you don't get the systems right at the start, well it won't be right ever. (Supervisor #6)*

I think generally Australian and New Zealand ophthalmologists are so well regarded in the rest of the world, we don't want to lower the standard to just allow people to get through and then affect that. (Trainee #9)

Discriminating Candidate Competency

Despite the general support for an assessment process to ensure that the standard of a competent general ophthalmologist is met, many interviewees shared their concern that the RACE itself was not overly successful at times in discriminating between clinicians who were safe and those who weren't. Supervisors reported being shocked at times by certain candidates who failed the examinations because they were highly regarded, safe and competent within the clinical setting. Conversely, they were equally surprised by the passing of candidates who were felt to be 'weaker' than others, leaving them to question whether relying on the outcomes of a single examination process was optimal in determining which candidates meet competencies.

> *It's difficult as there are many unexpected outcomes. Due to a combination of the subjective element of the exam, candidates may perform well in practice and this may not reflect in their exam performance. (Supervisor #2)*

> *We get them to do practice examinations and practice essays etc, so you've got a lot of that going. But there are many different supervisors and so we all have only a limited view of what our candidate is doing, even when we know them quite well. To some extent the RACE can be an eye opener, which does point to the deficiency of any single examination barrier, is that there are candidates who got through and you think, really? Like, okay, I wouldn't have picked them. And there are people out there who sailed through the exam process and yet I would not have confidence in them treating my family. So you get both extremes … I think there needs to be an awareness of the limitations of this sort of approach and an avenue for candidates who are actually really, really good, but this is just not the best way to evaluate for them and to evaluate that type of proficiency. (Supervisor #5)*

Factors Contributing to Examination Failure

With the potential misalignment between the quality of the candidate and RACE performance, unpacking interviewee experiences of RACE yielded information on possible explanatory factors underpinning both trainee failure and success. These were a combination of both trainee factors and examination factors including the component examination designs, delivery and development.

Trainee Factors

Interviewees provided insight into reasons why trainees, including good trainees may in fact fail RACE. Firstly, interviewees discussed the possibility that trainees had simply not put sufficient effort into preparing. Their knowledge may not be up to the level expected, or they may not have had sufficient time in the clinical setting to hone their skills or knowledge. Secondly, it may be that the trainees have put the effort in, but this effort has been misguided, and they have focused on knowledge learning instead of examination technique which is critical to success. Thirdly, there are also personality factors and performance elements, where trainees may lack confidence or find themselves experiencing performance anxiety which results in an unexpected failure. Further, interviewees acknowledged that they usually perform better with one examination construct than another. For example, apart from a few interviewees, most described their natural tendency to feel more confident and perform better on clinical examinations compared to written. Finally, there is the final element where some trainees simply do not do well in examination situations despite being highly intelligent, well prepared and safe within the clinical setting.

> *The people who I studied with who didn't pass, certainly you could tell they weren't up to the same level as your colleagues that did. I sort of like studied with a core group of three people and occasionally some other people who had failed previously would join and they definitely weren't as across things as we were. We were all saying 'I can see why so-and-so didn't pass because their knowledge wasn't quite up to scratch' and that's kind of been a theme a couple of times. (Supervisor #10)*

> *Another group would just be not prepared, so I mean they just haven't really done the work and haven't come to the tutorials and haven't really had enough time to prepare, so they're just ill-prepared or unprepared. (Supervisor #9)*

> *The person who got the medal in the first sitting, I distinctly remember because I studied with [them]. I sort of looked at what [they] were doing and [they] were doing exams from a year before. We usually start studying for the RACE about 8 to 12 months prior, that's sort of how long we prepare for, and I remember thinking, 'I'm still going through the material', and I said, 'have you read this all the stuff?' And [they're] like, 'no, I'm just doing the exams.' And so I remembered that after [they] passed and I had to do another one and [they] got the medal. What did [they] do that I didn't do it? And [they] had practiced questions from day one. (Trainee #11)*

> *I think that people just get really clammed up. You know, people have a lot of performance anxiety and that drives a lot of the failure. (Trainee #6)*

> *Personally, I tend to perform better in OSCEs than in writtens. I always have done since medical school. So the OSCE, I knew it was going to sit better with me than the written and, yeah, it definitely felt better. (Trainee #1)*

> *One of our standout doctors, [they] just don't do exams well, but [they] are someone that I would be happy to operate on my mum tomorrow, I'd be happy for [them] to work in my practice, but [they] just don't do exams well. (Supervisor #5)*

> *A colleague failed the RACE exam [multiple] times and got through who is an extremely intelligent, wonderful ophthalmologist who would receive referrals from ophthalmologists for second opinions and tough stuff, you know, very high achieving and clearly passes the pub test well and truly for an ophthalmologist, but just the exam was a real bugbear. (Trainee #6)*

Examination Factors

Interviewee experiences regarding RACE shed light on a range of examination factors which may provide insight into trainee RACE performance. These insights related to feedback, online format, generalist standards of assessment, ambiguous questions, marking criteria and examination development.

Feedback

Although there were certainly exceptions to this rule, there was general agreement that trainees seem to perform better on the clinical examination compared to the written. Interviewees highlighted that an important advantage of the OSCE relative to the written was that it allowed for feedback to be provided by the Examiners. This was seen as critical to success, as trainees were able to be prompted back on track if they had misunderstood the question asked or had gone off on a tangent not desired by the Examiner.

> *The written has one key difference to the clinical and that's there's no one to right the ship if it's going awry. It's a true thing. Like, in the clinical, they'll ask you a question and if you say something stupid that you may actually think, 'oh, God, why did I say that? That's the dumbest thing I could have said', someone will stop and say, 'hang on a minute, are you sure about that? What about this scenario?' and then you go, 'oh, hang on a minute, I'm talking absolute garbage and this person, this Examiner is trying to help me out'. And I found that pretty much always, if you knew what you're talking about but you were just heading off into the woods, they were very quick to redirect you, bring it back, keep you on point, keep you on topic and get you answering the questions appropriately. In the written, it's a free for all. If you go off into the woods, you are going to spend the entire 9 or 10 minutes writing that essay on the wrong thing and then they'll just look at it and say, 'wow, he didn't even answer the question. Fail.' (Trainee #3)*

Online Format

Interviewees described that in recent years, both the written and clinical components had been moved to an online format. The written occurred in semester 2, 2018 whereby the examination was adapted to a Moodle based assessment. Interviewees subsequently described the challenge with needing to have both typing speed and accuracy in order to respond to questions within the specified time frame. As such, most interviewees described having incorporated typing courses into their preparation approach. Another interviewee also detailed the impact of technological issues on examination performance. This trainee accidentally hit delete during the online examination resulting in the loss of their entire examination answer.

> *I wasn't very good on the computer, typing. So the first thing I did was actually a typing course. So before I started my study for the RACE exam, when I finished my primaries, I went off and did a one week most boring typing course ever. And then I spent a few months doing that, learning how to touch type in the evenings, just like 15 minutes. So that was the first thing I did. And I think that made a big difference, because there's a huge time pressure and if you're not a touch typist, I don't know how you would do it. (Trainee #2)*

> *We had been given warning a couple of years beforehand that we would be sitting an electronic exam, which was quite helpful actually. So I guess our study regimen was very different to others in that we knew that whatever we had to do at the end of the day would be typed and so we really sort of worked towards that. (Trainee #6)*

> *The answers were actually quite different, I guess, in a different format, you can type out a lot more very quickly. So I think that actually was quite telling during the actual delivery of the written exam as well. One of my exam questions for example, I just sort of hit tab and space and then deleted my whole answer and then sort of had to scramble to refill it in and probably missed a few bits and pieces as well as a result, but that's sort of part of it I guess. (Trainee #6)*

Interviewees described that the clinical examination was transitioned to an online format in 2020 in response to the COVID-19 pandemic. This sudden change was seen to present with some advantages, with the online format offering the opportunity for the clinical exam to be standardised across all candidates. Interviewees also felt that it was easier to prepare for the online OSCE, with practice examinations being held in an almost identical format to that of the actual examination. However, there was a general view that the online OSCE failed to assess clinical reality and was in fact much easier to pass than the traditional face-to-face version given that it had removed the performance element. There was also concern that the online OSCE was more closely aligned to the written component, which therefore advantaged trainees who were more skilled with written technique. Other negatives regarding the online OSCE related to poor images presented, which were often difficult to interpret as well as the perceived unnecessary time pressure, with stations feeling too rushed to share the depth of information required. There were opinions from some interviewees that the traditional face-to-face OSCE format should return as soon as practically possible.

> *I'll be honest with you, I really didn't like the virtual exam even though it makes it easier to pass. I don't think it's a good way of really kind of testing our knowledge. It's very pressured, time pressured and very fast paced. You're just trying to see the image properly. It's very artificial, just giving you one image and saying, 'tell us the examination findings?' I don't know, I didn't enjoy it very much. Not that you're supposed to enjoy an exam, but I didn't think it was a good reflection of the real-life ophthalmology. (Trainee #7)*

> *I think they're just too short, the stations, you just feel like you're rushing through them and I don't see why they couldn't allocate just a tiny bit more time … you had a minute or two by the time you've described all the images and got to the diagnosis to talk about management which is meant to be the core of the exam. I'm sure people would run out of time to even get to management. (Trainee #18)*

> *So an online OSCE is very similar to a written exam because you're presented with an image, not a real patient, but just some data and then you just work through, so unfortunately at the moment the OSCE is in an online environment, it's very much like the writtens, and I think that's why the pass rate's been stellar … but in the traditional OSCE, when you have a real patient and you're examining a real patient, that's a very different skill set and so eventually we will get back to that, with real patients, and I feel that that's a very important exam to actually test examination skills of a real patient and actually assess their examination technique and also from then on, examine their ability to draw conclusions from what they've found, investigations and then management. (Supervisor #9)*

Generalist Standard

Most interviewees perceived the clinical examination to be a fair and reasonable examination. When compared to the written component, it was felt to better reflect clinical reality, be pitched more at a generalist standard, contain a greater number of 'bread and butter' cases, and clear unambiguous questions. However, interviewees did still share criticisms regarding the OSCE, with some exams felt to present a disproportionate number of rare cases not encountered in training. There was also concern that subspecialty Examiners were responsible for assessing stations in their own area of expertise, which trainees believed led to expected responses being well above that of a generalist ophthalmologist standard.

> *I think the OSCE is a much better exam. I don't think it's a great exam, but I think it's a much fairer exam, like you have candidates who are like good ophthalmologists get through the exam. So no international people used to get through the written until they'd studied with the local cohort and got told all the special code words and all that stuff, but they'd get through the clinical because they know how to do ophthalmology, which tells you something about the written and something about the clinical exam. (Trainee #4)*
> *I think there's always going to be a couple of things that you may not have seen clinically, but at the same time, in general, I thought it was a good reflection. All of the questions I could have imagined someone walking into the clinic with a similar problem and although it may not have been the exact same diagnosis, you would have to have had the approach to it. So I think that that was reasonable. (Trainee #9)*

> *There were probably five out of the thirteen stations of the RACE exam that we figured out we've never seen before and I've never seen it since, very rare stuff. And there is a selection bias from the Examiners and those who feed the Examiners for really good cases and they are things that get us all excited, but they're not necessarily appropriate exam substrates for the candidates. (Trainee #6)*

> *There might be a station about retina and normally, there wouldn't be a retinal specialist sitting at that station. It's supposed to be someone who isn't their specialty. But … I knew everyone, all the supervisors, what their subspecialties were and the vast majority were sitting their subspecialty area station. And so there's this higher level of scrutiny that gets applied and there were a couple of Examiner's, two or three that were really harrowing, and unnecessarily very disruptive in the way that they sort of interrogated us. I don't think it's unreasonable to have some clinical questions thrown at you that may be provocative or probing, but when you're sort of saying, 'oh, you do the ptosis surgery before you do the corneal transplant? Are you sure about that?' Yeah, this sort of like emotive kind of manipulation, we are already completely fried. I've never sat anything more harrowing in my life … there's never been anything more disconcerting than the RACE exam and I saw that reflected in the faces of very paralysed trainees going through that horrible process. And that was so unnecessary. (Trainee #6)*

Although some interviewees felt the written was a fair and reasonable examination, most believed that it also failed to assess candidates at the standard of a competent general ophthalmologist. Interviewees described that in recent years, the examination has increasingly focused on esoteric conditions or complex cases which require subspecialist ophthalmic knowledge or general medical knowledge. Trainees highlighted that many of the rare conditions presented in the written exam had not been encountered in the training setting, and therefore, the exam was felt to be testing their approach to potential patients requiring ophthalmic care rather than their real-world clinical knowledge . Interviewees also described how the tone of the written examination had changed recently without warning. Given that trainees had utilised past examinations to prepare, this sudden change in the type of examination questions had left trainees and supervisors equally shell shocked after sitting and concerned about the future direction of the examination.

If you learnt it from the perspective of what would you do as a competent general ophthalmologist, that's not what's being tested in RACE. I guarantee you if you showed that exam to the majority of competent general ophthalmologists, they would not pass. (Trainee #17)

I think what they're doing out of those eighteen essay questions, I'd say fourteen or fifteen I'd seen in the flesh and the other three, I had to really dig deep and work on basic principles and come up with a reasonable answer. And I think that's what they're pretty much going for, they expect you to absolutely answer perfectly the simple straightforward things that you'd see day to day in the clinic and then once in a while, you're going to be thrown a really odd curveball and they want you to go back to basic principles and say, 'well, I haven't seen this exact scenario, but based on this, I would do this. Based on this, I would do that', and so on and so forth, and sort of work your way through it and come up with a reasonable, if not perfect answer. (Trainee #3)

I think it has to come back to the core competencies and not try and play clever with esoteric, abstract, academic knowledge that none of us even have. So I think it needs to get back to basics and it needs to be following the same ethos that the OSCE does, which is you are not being examined to be the next chair of Harvard Medical School, right. You are being examined to be a competent suburban ophthalmologist and that's the standard to which you will be assessed … So I think if you wanted to bring the written back to its aim, it needs to be for a generalist ophthalmologist, and that needs to be printed and stuck on a big sign board and at every committee meeting I reckon. That might bring it back to basics. (Supervisor #5)

I think it was the one in the middle of last year, or maybe even the last one, when all of a sudden the tone and the emphasis of the exam changes completely and you are getting obscure general medicine questions that you didn't think you'd have to look at since medical school or being an intern. Then all of a sudden, the candidates get shocked, they're reeling from it, and we're shocked as well because all of a sudden it's like, well, I don't know anymore, right? I give up. I thought you did all the right stuff. You did all the past papers, we went through them, you answered the questions. And then they come up with about three or four really left of field questions. One you can expect, and fine, you need that to figure out who's going to get the gold medal etc. But to have a bunch of them, very esoteric, and we looked at those questions, we said that has no clinical relevance, right, I couldn't have answered that question. I don't see how you would have been expected to answer that question without resorting to a senior colleague or getting some specific second opinions from an expert in the field. So this is really obscure stuff. And there were a few of those. And so when something like that happens, it does shake our confidence in being able to advise the candidates and it does shake our confidence in the system, in the RACE. So certainly that last one, that really threw a lot of people and we were all going what's going on here? I thought we were getting to more consistency, more transparency, more accountability, more predictability, and yet you do this. So, you know, what's the game? (Supervisor #5)

Ambiguous Questions

Another concern with the written examination specifically was that interviewees described how written questions were poorly constructed and often ambiguous, leaving them unsure of what exactly the questions were asking. This was seen as less of an issue in the clinical as trainees were able to receive feedback from Examiners which then prompted them to redirect or provide specific responses. Some questions on the written examination were also described as lacking specificity. For example, trainees reported failing a question because they did not include four differentials for a particular condition, and yet the question itself did not ask for four differentials to be provided. Interviewees described the critical importance of understanding the exact meaning of written questions, as unlike the OSCE where feedback could be given to gently guide the candidate back on track if they had misinterpreted or misunderstood the question, the written has no such mechanisms. Consequently, interviewees described their experience of failing questions on the written component that with hindsight they recognised they could have answered correctly had they clearly understood what was being asked.

Basically there's a 'guess what I'm thinking and I don't know what you're asking for', so you either get lucky or you get unlucky. And it shouldn't be that way. I guess the questions, you shouldn't be feeling 'I don't know what you guys are asking me'. (Trainee #19)

Normally, you should be able to come out of an exam and know what you got wrong and kind of recognise after the exam, 'oh, I should have thought about glaucoma for that patient'. But in this exam, that wasn't the case. It was there was something they wanted, but you have no idea what it was. And that was pretty much right through the whole ophthalmology exam sort of spectrum. (Trainee #6)

I'll just give you an example. In my exam, there was a question and it said, 'list five causes of night blindness' and so I listed five causes of night blindness and then in the Examiners' feedback afterwards it says, 'if you didn't mention medication as a cause, you failed'. Now, if you said, 'list five causes of night blindness, including any medication which can cause night blindness', you know, then I will give you a medication, but you asked, 'list five causes of night blindness', not 'the five most important causes', not 'the five most common causes', but just five causes. So it's those kinds of just like, crazy things that just drove me wild. (Trainee #4)

There was a question in the written that I realised I had answered wrong because I hadn't understood what they were asking. I just couldn't get it and I know I had the knowledge there and that was one of the ones that you go back over and you're like, 'ah, like that's what they were asking, of course that's what they're asking'. And I do that in my postoperative spiel. I say that. I can't believe that that's what they were asking. So that was very annoying. In the practical you've got somebody there, so if you don't get it, then they will reword it or whatever. For me it wasn't a problem in a practical, but in the written there was at least one question that I know that I answered wrong, not because of my knowledge, but because I didn't understand what they were asking. (Trainee #2)

Marking Criteria

In addition to the poorly constructed questions resulting in variable interpretation, interviewees also highlighted that ophthalmology was a subjective profession which meant that in many situations, there was no one right way of answering a question or approaching a problem. In this sense, there was feedback from interviewees that the marking criteria for the written RACE specifically was overly prescriptive and did not account for the variable yet safe and evidence-based approaches to management. Interviewees reported that the Examiners seemed to be looking for 'key words' in responses, with answers lacking these subsequently being described as 'not satisfactory', despite the comprehensive, safe and accurate nature of the answer provided. Interviewees highlighted their frustration at the subsequent disconnect between the examination and clinical practise, with the need to answer RACE questions in a certain way, and then conduct themselves differently within the clinical setting. There were concerns that answering RACE questions with subspecialist knowledge should not result in failure where the answer reflects current best practice. Interviewees expressed the belief that answers should receive part marks and credit, even when they include subspecialist knowledge.

> *The other thing I think that's also happened is that the marking scheme has become very prescriptive … the College has thought for transparency, they have to have this very prescriptive thing. The problem is that I think it means that some people fail, even though they might have been able to convey that what they were doing was right and safe. (Supervisor #6)*

> *A fantastic subspecialist had a question about an orbital floor fracture and a resulting strabismus problem and [they] gave this beautiful exam answer which was exemplary, but didn't mention that some pain might be an indicator that there would be a fracture there which was a red flag. If the kids got a blow to the socket, do we really need to clearly say that if the child has pain then they could have a [fracture]?' The rest of that exam answer being so exemplary should be well and truly enough to override that small omission. Do you know what I mean? There's not much discretion in answers and I wish that there was because that's really unfair. (Trainee #6)*

> *Well, I think if an Examiner is proposing a question, then they should come with the latest evidence-base around that question … If there's a red flag or whatever, then what is the evidence-base for that? The key points that they're making in the marking should be substantiated by something, not just what this small group of people decide because there is evidence out there. And if there's not and it's a controversial area, then the marking should be adjusted accordingly … if they have a plan, it's sensible, but not in agreement with what the Examiner group thinks, but it's actually something that there is no right answer for but it's a reasonable plan, they could get marks. (Supervisor #4)*

> ***One [consultant] made the comment that 'well, I hope you know that what you did write is what I want you to do when you see a patient with this even though you failed. So you might have to write something different [to pass], but if you do see a patient with this, please do what you wrote'. (Trainee #15)***

> *I understand it's a game, so you've just got to play it, but it is a bit of a waste of your time learning the 'RACE answer' to a question and learning the 'clinical answer' to a question. What you would do in real life is not what you would write down in the RACE exam. (Trainee #17)*

> *One of the techniques that I had described to do a certain procedure was not on their marking scheme, although it was a recognised technique … it's been described in the literature, that's what people do at my centre, but that was not an accepted thing in their model answers … and so that made me lose a lot of faith in the whole system saying, 'man, these people don't know what they're doing' essentially. (Trainee #8)*

Interviewees also expressed their frustration that a marking rubric was not supplied as part of the written examination process. This lack of transparency regarding the marking criteria and trainees' awareness of the need to provide 'key words' and information which may not be specified (e.g. multiple differentials) was described as the key driver for trainees feeling like they had to 'cover all their bases' when answering questions. However, in doing so, interviewees described receiving negative feedback from Examiners that their answers showed a lack of perspective and real-world knowledge. Other interviewees described that they had focused on determining which Examiner was likely to mark the question and therefore wrote their answers according to the practices subscribed to by that Examiner. Given all of these issues, interviewees indicated that it may be best to incorporate some alternative question types such as multiple choice which remove the subjective element to marking.

> *At the end of the day you need to pass this exam and you just have to give them what they want, so maybe cover all bases and write all that, just write it down anyway and hopefully they will say, 'well, this person knows but maybe it's open to debate', but then you get the Examiner feedback saying … 'candidate shows poor perspective with this or that. It shows they have good book work but lacks real life knowledge'. (Trainee #19)*

> *I'm finding that the way to pass the written exam is to know who writes the exam, and to give them the answer that they would want. That is the way to pass the exam rather than what you sort of been taught on a day to day basis. Correct. That's the end line really. (Trainee #11)*

> *I wish there were multiple choice questions. The thing about multi choice is that it gives you an objective way to mark the paper. It's either A, B, C, or D, there's no leeway … I think with essays there's a bit more subjectivity and perhaps less transparency to how you mark something. If you don't like the way the trainee has structured the answer or written something, they maybe borderline or fail. Whereas with multi choice, it's either A, B, C, or D … that's the good thing about that. Whether or not it really tests understanding, or whether it's like a one in five chance to get it right is another thing. So maybe that's why they don't do it, but other Colleges have done it quite successfully. I mean, the College of Physicians have got multi choice. I think General Surgeons have got multi choice, GPs have got multi choice. So I think there's a role there. (Trainee #5)*

Examination Development

Given the concerns raised around the level to which the examination was pitched, the choice of esoteric cases, poorly constructed questions and variable answers, interviewees questioned whether the examination development process was working effectively. Firstly, interviewees expressed concerns that the Examination Committee may be disproportionately represented by subspecialist Examiners, who may not be best placed to set or recognise generalist level standards. Interviewees were also concerned that the age and experience of most Examiners may lead to a shift away from contemporary, evidence-based knowledge. In this respect, interviewees highlighted that the inclusion of Fellows who had recently sat RACE would be advantageous in the examination development process. Secondly, there was concern expressed that Examiners may not be required to produce their own answers to written questions which would therefore illustrate the potential ambiguity in interpretation and variability in answers. Finally, the integrity of the committee process due to the interference of strong personalities was also raised as a potential issue in the examination development process.

> *I think it should still be a mix. I mean, I don't think the generalists are really across the evidence-base. I don't think there's a lot of academic people involved in it because they're sort of busy. I think it's probably good to have a mix, but it's probably more important to have people that are up to date. (Supervisor #4)*

> *Some of the written questions were the things that I remember we struggled with, trying to work out exactly what it was they were after. And I don't know what the way around that is. My sense is looking at the ones that were difficult is that probably whoever had written the question, they circulate it amongst the Examiners who are all kind of, I think the majority of them are sort of tertiary, quaternary subspecialists kind of thing, and they send it to them, but maybe they need to send it to some recent trainees, recent Fellows and get their opinion on what they think, that would be one thing that I think would probably be useful. (Trainee #16)*

The other issue is that the Examiners show each other the questions with the answer. So they read the question and they read the answer and then they go, 'yeah, B follows A, that makes total sense'. But what they should do is show them the question, get all the experts opinions and then say, 'oh, look, two thirds of you failed, because my answer is a very specific interpretation of the question.' So if you're getting the question viewed independently, of course, it seems like it follows directly because [they] have read the question and the answer, one after the other, but you haven't assayed the full interpretation of what the community thinks about how to interpret that question. (Trainee #4)

So I think 80% of the exams are generally quite good. But every few years, you just get this one that's just, what on earth were they thinking? That's the response. When I talked to my candidates the day after that exam, I was just shocked, we were all shocked. Even the people who had just sat six months previously were shocked. So that's clearly a failure of the system to have not picked that up at the time that the exam was being set. I don't know where the checks and balances went. I don't know what happened in those committee meetings when they were deciding the questions. Did someone have a disproportionate influence where other people were feeling intimidated? Was the common sense in the room being sidelined for whatever reason? We've all been in those committees, we know what it's like, right? Someone gets a bee in their bonnet and everyone just follows because they don't want to say it. (Supervisor #5)

Predicting RACE Performance

Given the complex interplay of both trainee and examination factors that can contribute to RACE performance, Supervisors highlighted that it wasn't always possible to predict who in fact would be at risk of failing the examination prior to sitting. Certainly, they recognised that there was no way to predict those who may succumb to on the day performance issues, or those candidates who may not respond well to the RACE examination construct. Interviewees also highlighted a degree of 'luck' in sitting, with the examination itself potentially varying unexpectedly in difficulty, design and focus. However, Supervisors did indicate that it was possible to pick which candidates may fail because of being unprepared, lacking in examination technique or confidence. This was readily evident in clinical situations where trainees would be grilled by consultants or in practice OSCEs. Secondly, lack of technique was evident when trainees would provide written answers to past examination papers, as it was clear that they had not sufficiently developed the technique required to answer a question logically and succinctly.

As a Supervisor, people who haven't passed who I'm trying to teach or I've done teaching sessions with, I've sort of felt like well you're not at the level that I remember being at. But I guess I've only had exposure to sort of [a couple] of people who have failed repeatedly, and I felt they probably didn't meet the standard even before the exam went, and you sort of think well I can see why. I felt at the time, they certainly weren't as committed study-wise and didn't seem as up to scratch. So I guess when they didn't pass it wasn't surprising. (Supervisor #10)

Recently somebody gave me some [practice answers], and they're very safe clinically, like on call when I'm with [them], no problem there. [They] gave them to me and I wrote back and I said, 'you've just got to get the technique. You need to work out what they're asking for and then make sure you're checking all the things that they don't want you to miss.' And I was like, 'oh', I didn't say it to [them], but I thought, '[they're] not going to get through, even though [they're] very safe'. (Supervisor #1)

The written was a lot more challenging than expected and compared to past papers. I had done all of the past papers online since I think 2012 and I did all of the questions … maybe I'm biased but I think it was the most challenging one that had been up to that point. Some of the other people had also fed back, like other registrars that had sat just before us, they're like, 'oh, I read that paper, it's like so hard.' (Trainee #14)

Post-RACE

This section presents the results of the analysis to identify sub-themes relevant to the post-RACE period. Sub-themes of the post-RACE period encompass the experience of RACE failure and the impact of failure on career progression, psycho-social consequences of RACE failure, experiences of feedback from the RACE panel, Directors of Training and consultants, the need for greater transparency in RACE marking and the communication of results, and trainee experiences of remediation.

Experiences and Impacts of RACE Failure

There was consensus among all interviewees that ophthalmology trainees are among the highest performing individuals, with distinguished academic records and exemplary career progression. Failing RACE was described as a unique experience for trainees, the vast majority of whom had never failed an exam prior to RACE. Despite the shock and psychological distress associated with failure, interviewees also noted that failure does have some positive impacts on the individual. For example, it was suggested that failure precipitated a period of self-reflection which resulted in personal and occupational growth. Interviewees recognised in particular that experiencing failure helped develop compassion and empathy for sitting trainees, with several motivated to help support future cohorts given their own negative experiences.

… to get into ophthalmology, you're the best of the best of the best, never failed anything, you know, duxes of Colleges. We're high achieving people and so when you fail, it utterly just wrecks you. (Trainee #12)

For these doctors, it's usually the first exam they've ever failed in their lives and so that's a huge impact on their self-esteem and their confidence and so dealing with that is very hard. So part of our role is to just sort of say 'look, the standard is high. This is not a reflection on you as a person, but it's just an examination process that is really trying to make sure that we've got people of the correct standard, and that standard is high'. And so, they're going to have normal reactions to an adverse event, but they just really need to go beyond that and get some confidence back … (Supervisor #9)

I've never failed a written exam before in my life leading up this and I've done multiple degrees … and I've been through a lot of stress in my life and I've never failed anything before. And this is the first time I've ever failed anything which is look, it's probably good for me in a way. (Trainee #8)

I think that it's really important for the candidates that fail to understand that it's no reflection on them. I think that's so important and it's so much easier for someone that has not failed to say that. I make it well known that I failed … I'm not a great clinician, but at least I'm on the other side and so when I talk to people that haven't passed on their first or their second sitting, [I tell them] that 'I managed to get through it and I wasn't brighter than anyone else. I managed just to get through it. I don't know how I got through it. So just keep at it, you will get through it'. And I think that that just makes them feel better because they know that someone that has actually failed is telling them that rather than someone that sat on their first go and passed and had no idea what they did right. So if I could be of support to those doctors, I would be more than happy to be supportive to them because I understand the frustration that goes with it. (Trainee #8)

A common comment made by interviewees was the fact that failing RACE did not necessarily reflect a lack of clinical knowledge or skills. It was noted that individuals who were perceived to be high calibre trainees sometimes failed RACE for seemingly inexplicable reasons. It was also suggested that failing RACE results in better clinicians as those sitting RACE for a second time were more likely to address the gaps in their knowledge to ensure success at their subsequent RACE attempt. Even if their additional knowledge was not tested during their successful RACE attempt, it was recognised that a broader knowledge of rare conditions enhances their ophthalmology expertise.

> *I think that's the worrying thing about it for all of us if when you're sitting is that you hear that X person failed their RACE, like, they're clearly brilliant, and so there's always that kind of random element … I know for a fact that if I had failed and come back a second time, I think I would have been a better doctor for it. There were things that I knew that I was a bit under done coming into the exam and the luck of the draw, they didn't get asked, or if they got asked, I knew enough to kind of just scrape through. Whereas if I had of gone back a second time around, I would have known that I've really got to do this, this, this, this and this, and I would have come back much better prepared and confident I think. (Trainee #16)*

If I knew what I knew the second time, I would have passed the first time and I would have studied more efficiently but I don't think I would have been as good an ophthalmologist as I am now. Because I know that I learned everything at that point in time. So I actually feel that even though I don't think it was efficient for the exam, I do think it was efficient for my career. (Trainee #11)

Two interviewees who failed RACE on at least one occasion commented that their failure was partially explained by personal, family or health reasons. Both of these interviewees emphasised the importance of being able to take temporary leave from the training program to focus on their personal lives and recuperate. Both returned to successfully pass RACE at a later date.

> *And so then I took a break, I got told I could take a break. My issue at that time was that I had, and I don't know why I had this feeling, but it had never been explained to me that I didn't have to sit the next time around, I could take longer if I wanted to. It was only when I went to the progress committee and they're like, 'why don't you take a break?' (Supervisor #8)*

Whilst access to temporary leave was viewed as critical for some trainees, the continuation of training positions after failure was seen as equally important. One participant commented on the importance of continued training to ensure your skills remained current and that you could continue to earn an income while preparing to resit.

> *Our [location] … they're very kind. They try and look after you, they treat you like a part of the family. So they do their best to try and keep you in a job so you can feed yourself but also sort of so you don't disappear out of ophthalmology and get yourself rusty. (Trainee #19)*

Interviewees who failed their first RACE attempt commented that losing their original study group made it challenging to study effectively for their subsequent RACE attempt. The loss of their original study group meant most of these trainees had to study alone for their next RACE, which they viewed as disadvantageous. Other interviewees commented that they sought ad-hoc support from colleagues or friends who had previously passed RACE. One trainee stated that friends located in different states who previously passed RACE formed a 'virtual study group' to support the trainee's preparation for their second attempt.

> *I was locked out, but I had a beautiful couple of friends who got through the first time and they just marked my questions… So they're just like, you've got to get through, just send me your questions. And so that's how I got through the second time … but we kind of had that virtual study group originally and they just held on to me and got me through … the thing is when you don't pass and everyone else in your group does, you lose your team because they're not going to continue to study with you. They're finished. (Supervisor #1)*

There was widespread acknowledgement that multiple RACE attempts incur a substantial financial burden upon trainees. However, one trainee commented that there was inequity in funding for exams, with one network purportedly paying for trainees to sit exams whereas trainees in other networks had to self-fund exams.

> *You know, exams are expensive as well. They're not cheap. They're an expensive undertaking. In some networks, I know in [location], I've learned that everything's paid for them. So they sit it three times, then all their exams, all their College fees, everything's paid. But for me sitting it or whoever, whichever other system in [location], you're paying big bucks for these exams, you're paying big dollars. And when you fail, it's not just the psychological [impact], you're like, well, now I've got to pay for the exam again. (Trainee #8)*

Psycho-social Consequences of RACE Failure

Interviewees emphasised that a depressive episode post-RACE, referred to as the 'post-RACE blues' was ubiquitous among trainees, even trainees who passed RACE at their first attempt. The 'post-RACE blues' was considered a psychologically and physically unhealthy training exit experience, resulting from burnout following the all-encompassing study required for RACE. It was also acknowledged that the 'post-RACE blues' are a symptom of physical withdrawal from a high adrenalin state and that the experience for many trainees is similar to a depressive episode.

> *I think that there's a lot to be said about the lead up to the exam and what's involved, how incredibly all encompassing it is … it is a really huge undertaking and then there's this huge adrenaline build-up for six weeks before the exam where everyone is very heightened, things often fall apart a little bit, there's a bit of fraying at the edges, you all come together for the exam, have a pretty harrowing experience, come out the other end with some relief that it's over, but what is very rarely talked about and which is kind of, well sort of talked about in the traumatic psychological literature, is this sort of post-adrenalised low that happens afterwards. And every one of my colleagues went through that … I thought, 'oh, my life is back, I can go and do all this and that and get back to this and that'. Everyone was just in this sort of, we've got a name for it, we call it the post-RACE blues. And it's sort of like a depressive episode almost and people just sort of curl up on the couch and watch Netflix for about three months afterwards and most people begin to re-emerge with earliest inklings of being motivated to work in the field again, but most people are just completely burnt out. And so it's a really unhealthy exit as well. (Trainee #6)*

Nearly all interviewees who failed RACE described experiencing an acute type of traumatic stress disorder in response to failure. Furthermore, for individuals who had never previously failed an exam, failure had a devastating effect on their confidence at their next attempt.

> *After I walked out of the written exam feeling like I completely bombed out, I just kind of said to myself, I can't do this anymore, like I don't think I can do it. I don't think I can do it again kind of thing. (Trainee #19)*

I failed it, it felt like the end of the world. I felt so embarrassed as well ... I struggled so much with this, like I couldn't talk about this without crying, but I've tried to put it behind me. (Trainee #15)

> *… not to mention the devastating effect it can have on your psyche going, 'oh my God, I haven't passed, what am I going to do?' … once you fail first time, you lose confidence and you're more likely to continue failing. (Trainee #3)*

> *It was only after I passed my clinical that [a consultant] said to me that [they] thought I was going to fail, because compared to when [they] were practicing with me the first time, I'd lost all my confidence … and so clinically, I think I felt prepared, but also didn't come across prepared because I'd lost a lot of confidence after failing my first written. (Trainee #8)*

Failure also had serious consequences for the physical health of trainees, due to all-encompassing study interrupting sleep, healthy eating and limiting opportunities for exercise. One candidate who had to re-sit RACE described how failure destroyed their health.

> *And then the second time around, everyone thought I would pass because everyone passes their second time round and then I failed it by two questions. And it was like, how does that work? I worked so hard for that second time, like I worked hard for the first time, but it's not like you want to sit a third time right? So yeah, it's been pretty tough … it totally destroyed my life and my health. It's been pretty hard feeling like I've given up all of that for nothing … (Trainee #15)*

Some trainees expressed feelings of stigma and shame due to RACE failure. One trainee commented that they felt consultants judged them as having 'something wrong' with them for failing. Another trainee likened failing RACE to being stuck in mud and suffocating to death. This trainee felt that consultants had little empathy for their distress as they had forgotten how difficult it is to pass RACE.

> *… there's kind of this feeling, well, this is what I felt was that (a) I passed it eventually so there must be something wrong with you if you can't. (Trainee #15)*

> *Like a lot of senior colleagues say, 'look, it took me twice or three times to pass as well'. But then you have people who just pass, so then the stigma of that as well, the shame and like 'oh, you're still here?'. It's all good for senior colleagues or the Examiners to say, 'you know, we've all been there been through it', but I don't think they know, because everything in hindsight is easier. When you're deep in that mud, thinking you're just going to sink and you're going to suffocate to death, I don't think they know what that feels like. (Trainee #19)*

In the longer term, it was common for interviewees to describe ongoing post-traumatic stress disorder (PTSD). Some commented that they were 'scarred for life' by the experience and were unable to talk about RACE without crying. It was also acknowledged that the trauma of RACE affects emotional wellbeing in unexpected ways and that psychological distress could emerge at unexpected times and in surprising settings. For some trainees, their ongoing PTSD necessitated professional psychological intervention.

> *I think some people are scarred for life by it. (Supervisor #8)*

> *… clearly people are scarred. I remember the consultants, saying some people, like you know, 20 years down the track, you can still see that it was a horrible experience for them. (Trainee #16)*

> *… just yesterday I was saying to a friend 'oh tomorrow, I have to talk about the exam again, but maybe I'll be able to do it without crying'. (Trainee #15)*

I'll say this to you because it's just my lived experience and part of the reality of it. But after that I had a form of PTSD. It's taken quite a bit of psychotherapy to undo … I developed anxiety disorder which was caused for no good reason. (Trainee #12)

> *I think that there's a huge cohort of highly sensitive people in ophthalmology particularly … I think there's a lot of really interesting attachment styles, which I sort of notice in a lot of colleagues and I think that's also part of this sort of response to the trauma in a way, it's a real avoidance mostly, a lot of avoidant attachment styles, and a lot of minimisation and sort of walking away and not really dealing with the emotional burden of what's going on. And then once it's happened, it's like numbed out to history, and it's only when it's here in the supermarket, do you know what I mean? That's when it comes down. As they say, your emotional brain is not a digestive system. Things that go down eventually come back out. (Trainee #6)*

> *And then I sat RACE for a [number] time, they deemed that I was okay to sit it for a [number] time, I didn't need to take any extra time off. And leading up to the [number] exam, I had to seek it to see a psychologist, because of obviously the distress and everything associated with the exam itself … I thought there's no point self-diagnosing, I'm going to go see someone, so I spoke to someone that had dealt with examinees that had failed in the past, and how it affected their life and how to get basically back on the bandwagon and keep going … I still have PTSD. I still dream about it. And, look, it's life. And I do believe that what doesn't kill you makes you much stronger, so it gave me sort of a perspective on life. And I think the one good thing about it was the support I had from certain people, and I would not have needed had I just passed and to have that support was amazing. But if I think if I can get any of my colleagues to not go through it, I would so much prefer that, because it is so, it is such a difficult time, just mentally and psychologically, because all of a sudden you're not good enough as a clinician, you're not good enough as a doctor, that leads to a lot of questions. And especially most people that find themselves in the position probably have not failed before. (Trainee #8)*

The psychological toll of RACE failure was noted as being potentially devastating for trainees. One participant commented that trainee suicides have occurred within other Colleges and that RANZCO was fortunate in not having had a trainee suicide to date. Mental health support infrastructure was described as being critical to help prevent suicides in the future.

Yep, there has to be support. They're very lucky and I don't say this lightly … this is a real issue about the Colleges … RANZCO are extremely lucky they haven't had a suicide yet. (Trainee #12)

Several trainees and supervisors commented on the need for post-RACE mental health support. Trainees believed this should be available to all candidates but it should be proactively encouraged amongst candidates who fail. It was also suggested that a post-RACE de-brief session should be organised to provide candidates with a psychologically supportive environment to discuss their experiences.

> *Like if there was something there, RANZCO could go, 'go and access this support that we have at RANZCO for people who've failed and they can help you assess where you went wrong, and where you can move on and get better from'. I don't know. There's nothing there at the moment. (Supervisor #1)*

> *And then I think from the College's perspective, if candidates fail, I think there needs to be more support and more intervention at that stage as well. So I think it's not only getting them ready for the exam, but what do we do if they don't pass. (Trainee #8)*

> *It's the unpacking afterwards as well, I think. I remember that immediate afterwards is that you really want to talk about it but also you don't, because you've got to come back the next day. Some people will just disappear and there's not really a chance to kind of sit down and formally unpack the whole experience which is interesting because you're sort of straight back to work. (Trainee #16)*

Lack of Feedback and the Need for Greater Transparency

A major theme among trainees and Supervisors was the inadequate feedback after RACE. It was common for interviewees who failed RACE at least once to express uncertainty or confusion about the reasons for their failure due to the absence of specific feedback. Where feedback was received, it was often described as 'generic' and unhelpful. Participants widely criticised the lack of feedback identifying which specific questions were failed, the reasons for failure and constructive advice on how the question should be answered. Trainees described the additional frustration of not being able to review their transcript to help identify and validate reasons why they failed given they could not remember how they had answered the question.

> *One of the biggest issues we've had is that the feedback [they've] had from the College, after each written exam, has been close to zero. So they give you a bit of 'you didn't do well on this paper, you didn't do well on this paper', but there's nothing specific … and so I think that's been a real shortcoming … (Supervisor #5)*

> *… it's only after you fail twice they give you some form of written feedback … and so you're left in this lurch of saying, 'well, I failed but I have no idea why I failed.' (Trainee 8)*

> *I think it's really unfair to give someone a mark but not ever give them feedback to tell them why they got that mark. And I know that there's the general feedback … but I can't remember what I wrote in the exam …. and there's no way coming out of either of those exams that I could guess which questions I'd passed and which ones I'd failed … and then to get a fail but not understand why, it just makes it really, really hard to go back and try and learn for the next time around when you don't know what you're aiming for and not to be ever given an exam transcript to see what I did right. (Trainee #15)*

The absence of detailed feedback on the reasons for failure was seen as damaging to trainees' and Supervisors' confidence in the RACE system. Several trainees commented that the absence of exam feedback and review of examination papers would be unacceptable for a secondary or tertiary level exam, let alone such a high stakes exam as RACE. Furthermore, the lack of standardised feedback to all RACE candidates was considered antithetical for a training institution such as RANZCO.

> *Every time we'd talk to this candidate, I'd say 'what did you get?' And [they] would show me what [they] had got and it was like a one liner; a one liner for something that's decided [their] career. So, apart from being unhelpful, I think it actually impairs the confidence that we have in the process, but also the candidate's confidence in the system. It's like, well, if that's all I'm worth to you, if this is all it is, well clearly, you don't care about me. (Supervisor #5)*

> *It is astonishing to me that we as a College are able to get away with the most farcical examination process in the entire world for such a high stakes examination. We don't get feedback unless you fail and even if you fail, you get terrible feedback … you can't do that for high school students, let alone for an examination like this. (Trainee #4)*

They don't give you feedback, they don't provide you with your past papers because officially they say the decision of the Examiner is final and no discussion will be entered into full stop. That's what they say … I don't think that's like the heart and soul of what a teaching institution should be about. (Trainee #19)

Whilst a lack of feedback on RACE was a common experience, it was not universal. One interview participant noted that reading Examiner feedback and concentrating on addressing the issues raised helped one of their peers succeed in a second RACE attempt.

> *One [person], [they] went through and read all the Examiner feedback, and the first thing [they] did for the first three months was analyse what the Examiner wanted. That was the approach [they] took, rather than going through the core material and the knowledge, the concepts. Yeah, which I thought, 'oh interesting approach'. (Trainee #19)*

With experiences of examination feedback overwhelmingly poor, interviewees reported receiving support from other sources such as their DOTs, consultants and colleagues who recently passed RACE to help guide their further preparation. For several trainees who failed their first RACE attempt, their efforts focused on sourcing feedback from DOTs and consultants in their local network to understand and hone the correct technique using past examination questions. This detailed feedback, where they learned to recognise the red flags in exam questions, to identify where they went wrong, and how to rectify their approach to answering questions, was vital for success at their subsequent RACE attempt.

> *When there were candidates that failed, the Director of Training in [place] would then go through the exam questions with the candidates to try and pick up where they went wrong and what could have been done differently. I think that's really valuable. (Trainee #9)*

> *I did get other people to mark them, particularly when I sat it the second time, I got lots of different people, just getting ideas, and there is a skill to it in regards to the red flags and making sure you hit this. It's why they put in a sixteen year old female because they wanted to make sure they weren't pregnant before you treated them, like you know, all the little things that you don't realise the first time you do it. So that was really helpful… it was working out what was required for each question, what were the tricks. They call it the red flags which if you don't get, you don't get through. So I just ran it by some of the Examiners in [location] so I got them to look at some but I also got other people as well. (Supervisor #1)*

Interviewees widely acknowledged the need for greater transparency in the communication of examination standards and examination results. Greater transparency was recognised as essential for improving trust in RACE. Interviewees suggested that marked exam papers should be provided to all RACE candidates and that DOTs should also be provided a copy to identify areas of knowledge that require remediation. It was also suggested that a non-ophthalmologist could provide oversight to ensure exam marking moderation so that all papers were marked consistently. There was also the suggestion that barring candidates from contacting Examiners to discuss their results (requiring candidates to sign a document stating they would not approach Examiners) was not constructive and that a representative of the examination board should be available to discuss results with trainees.

> *If I had one thing that I could do to change the validity of the RACE exam it would be to say that you need clear, transparent, open standards for the written examination and your feedback has to be clear and detailed so the candidate knows what they did wrong. Because if they don't, they'll just do the same thing again and again, and again. And so that I think has been the real issue that we've been dealing with … (Supervisor #5)*

> *What I would do is I would provide support for those who don't get through and transparency when people fail. These are adult people, let them see their manuscripts … let them talk to the Examiners because the Examiners aren't gods, but at the moment they're treated like gods and their word is absolute. If someone fails, the Examiners should be required to answer that person why they failed them … (Trainee #12)*

> *If you're interested about educating candidates and providing standard for that, then why not give the papers and answers to the Clinical Director and let them go through it and then provide your feedback and say 'this is why you got that wrong', rather than they don't know why you got it wrong, either. I don't know what I got wrong and I don't know why I got that question right. So maybe provide it to the Director of Training. (Trainee #19)*

Interviewees believed that improved RACE transparency should encompass the immediate implementation of detailed, constructive feedback to be provided to all candidates after the exam, not only to trainees who fail. It was widely acknowledged that feedback is important to the learning process and is critical for identifying gaps in knowledge, not only for those who failed but also for those who passed so that they can identify areas which require improvement to ensure safe clinical practice in the future. Constructive feedback was also seen as a way to help address the psychological trauma of RACE.

> *I get it that they want to be guarded about what they say so they don't get sued, but on the other hand, it really doesn't help you pass if you don't know what you didn't do well. (Trainee #17)*

So, the single first thing I would do is I would give feedback, even to people who passed. You could pass the exam and have failed both your glaucoma stations and not know that you are dangerously bad at glaucoma, and you would just go off into the world having no idea that you failed all your stations in both your clinical and your written, but you got through the exam because that's only 1/9th of the exam. (Trainee #4)

There's been no guidance, close to no guidance from the College about what actually the approach is. And so I think that's been a real shortcoming … for those who struggle, you really need clear direction and guidance and you need feedback to tell you how to do better. And our experience has been for the past, at least three or four years, that feedback has been completely inadequate. (Supervisor #5)

Feedback is extremely important because that's how we learn. Like, if you're going to give a candidate a fail, you have to give them feedback immediately, soon after the exam so that they know where they've gone wrong, why they've failed because if you don't do that, we don't learn. You know, that's how kids learn. Don't do that son, because you're going to get burned, or whatever. Whereas this is like, okay, three months later, you tell them that they've failed and you just tell them what question they failed. Now, they're just going away thinking to themselves, what did I forget to write? What have I done wrong? And then it's only if you fail twice, they give you some form of written feedback, which makes, there's just no feedback. And so therefore, you're left in this lurch of saying, 'well, I failed, but I have no idea why I failed.' … So now, I don't know what I've done wrong, how I can improve my next time? So I think in any area of life feedback is really important. If you're trying to produce good surgeons, good ophthalmologists, they need feedback. Without feedback, those questions I failed, I don't know why I failed. So I might see a patient and make the same mistake which is really silly. So I think it's got to be a bit more transparent. (Trainee #8)

I think genuinely not getting through should be a learning experience, not a negative experience, it should be a positive experience and that would help with some of the psychological trauma … talk them through, that will not only help the psychological impact, it'll also help them academically because then they'll know where they went wrong. (Trainee #12)

Remediation Experiences, Policies and Procedures

For candidates who experienced multiple RACE failures, a range of remediation experiences were discussed. One trainee reported that they received accommodative, personalised and constructive support from the TPC. In stark contrast, another trainee commented that the remediation process felt punitive, unsympathetic towards the difficulties experienced by the trainee and did not support them to succeed. This trainee considered the training system itself to be the cause of their failure but felt that the TPC blamed the individual rather than addressing the structural issues of the training program. Another interviewee had a different perspective, noting that the remediation mechanisms are effective at identifying the weaknesses of trainees who fail. However, these meetings may not be seen as helpful by trainees. This Supervisor commented that they did not know if the TPC meeting with a trainee changed what the trainee knows. Some trainees also reported that they were the ones that initiated contact with the TPC after experiencing multiple examination failures because they wanted the College to know how committed they were to passing RACE.

I felt like I had been supported by the College … but it feels like it's not getting out there to the trainees that the College can be very supportive. And I do feel that maybe that personal interaction and checking up on them is possibly lacking these days … (Supervisor #8)

I mean there are mechanisms that happen when people aren't up to scratch and if they fail the exams and there's meetings … I don't know that it does a lot of good because I think it just highlights a problem and people know if they've failed. I don't know if meeting with them changes what they know. (Supervisor #10)

Although trainees were frustrated at the lack of feedback after their initial sit, those trainees who went on to experience multiple failures conveyed even greater disillusionment at examination feedback processes after meeting with the TPC. Trainees reported that their interactions with the TPC were unhelpful at best, with the advice given seen to be generic and somewhat patronising given that it failed to acknowledge the level of experience trainees had with academic endeavours. This led some trainees to comment that the TPC appeared out of touch with the current demands of RACE and how best to advise candidates to prepare for success. One supervisor commented that there are currently people within RANZCO who are passionate about training and assessment and who want to improve the trainee experience. However, some trainees expressed clear mistrust of College processes and the disbelief that they have the trainees' best interests at heart.

I don't know what they call themselves, the Board of Examiners or what they were, but I think they were so far removed from RACE and exams, it was not helpful. It was actually more frustrating talking to the people that hadn't done RACE for 20 years who were trying to tell me how to do RACE … they just wanted to tell me stuff that anyone that has studied for exams would have known, try to get into a study group, try to get into good study habits, just stuff that was just like telling maybe a year ten kid how to study. And I was just like, 'well, that was a useful hour and a half of my time' … like, you're telling me stuff 'that you should eat and sleep better'. Well, I sort of know that. Right? Like, I think I know that by now … that was just like, what am I doing this for? (Trainee #8)

I still had an interview with people from RANZCO to talk about why I might have failed the exam and I honestly found the whole thing just ridiculous … I guess I wanted to do the interview, not because I thought they were suddenly going to become this wonderful organisation that cared about my learning, but because I just wanted to show that I am serious about trying to pass this thing. But I was told, for example, that I should go to the local university to get some tips on how to sit exams. And it's just like, for real? Like, I know that you're just nice people employed by RANZCO, or not even employed probably, but like going out of your way to try and help me, but that's ridiculous. Like, I've sat more exams than most people at a university now anyway. And this is not a university exam. Like a university exam, you have past papers with a transcript and you can go and ask your tutor for things. So yeah, I was not very impressed. (Trainee #15)

There were calls for the 'three strikes and you're out' policy to be replaced with a policy that takes into account personal circumstances and training considerations. It was noted that in practice trainees are offered additional attempts to pass RACE, and that the policy should reflect what happens in practice. It was also noted that it is unfair to impose remediation plans upon trainees that do not have a right of review.

I'm sure anyone who's fallen foul with a three strike rule would have a very different opinion on it and that's I think that one thing, changing that would probably alleviate some stress for people. I thought when they changed it from unlimited to three, I thought that's really hard, I'd hate to be lining up for my second attempt knowing you've only got one more and certainly lining up for the third would just be incredibly anxiety provoking. But I think somewhere between it, I don't know how many, five, six? I think with that many attempts, if you still can't get it then that's probably a reflection on you more than the exam. (Supervisor #10)

I've known plenty of people who haven't got through on their third time and I haven't heard of anyone who has not been offered an extra go. I've heard of someone who turned them down and said bugger off. (Supervisor #8)

Discussion

According to the Department of Health (2016), ophthalmology, like all other medical specialist Colleges, experiences some degree of trainee failure in their final high-stakes examination toward the end of the VTP. However, minimising the number of trainees who fail is of critical importance to the trainees, Colleges, health jurisdictions and the federal government, all of whom have invested significant time and financial resources into achieving success. For medical specialties such as ophthalmology who are expected to experience a workforce shortfall in the coming decade, there is added pressure to ensure as many trainees successfully attain graduate competencies in the minimum timeframe to ensure a well-resourced, fit for purpose workforce to meet anticipated future need. The impetus for this study was therefore the concern by RANZCO that an increasing number of trainees were experiencing failure on the RACE, more specifically the written examination toward the latter half of the last decade. Proactively, RANZCO wanted to explore the possible mechanisms for why candidates were increasingly experiencing failure to ensure appropriate supports and strategies were in place to promote success amongst future candidates.

The first phase of this study saw the analysis of historical RANZCO RACE data, which included both recent trainee RACE performance data and historical RACE candidate survey data, collected biannually following each sitting of both the clinical and written examinations. This data illustrated trainee performance on both the written and clinical examinations between semester 2, 2017 and semester 2, 2020, the time at which RANZCO was particularly concerned that the number of trainees failing the written component of the RACE appeared to be increasing. This data showed considerable variability in overall pass rates for both the written and clinical examinations across the seven semesters. However, no discernible longitudinal trends of either increasing or decreasing performance in written and clinical examinations were found across that time period. Even so, it was evident across all semesters that trainees experienced greater success with the clinical examination compared to the written, and that the number of trainees experiencing success in the clinical examination had improved over the time period studied.

With trainee performance on the written examination not showing a similar upward trend to that of the clinical examination over the same period, it may be that changes made in the delivery of this component of RACE toward the latter half of the last decade contributed in some way to trainee failure. Namely in semester 2, 2018, the written examination was adapted to an online Moodle based assessment. This subsequent format change may partially explain some degree of increased failure through changes in examination construct and the role of typing speed and technological prowess in achieving success. With time, it is likely that these initial teething issues have been resolved, with trainees acknowledging the importance of computer literacy in examination success and subsequently ensuring it forms part of their preparation strategies. Anecdotally, RANZCO has reported overall improvement in RACE performance on both the written and clinical examination in more recent sittings. This undoubtedly reflects some degree of trainee adaptation to the online format together with steps already undertaken by the College to address issues that have arisen based on trainee feedback.

However, with such diverse and varied examination experiences and performance over the past few years in general, more is needed to understand exactly what drives trainee success and failure, and hence ways in which RANZCO and the broader ophthalmic community can actively support RACE candidates to achieve standards of competency on their first RACE sitting. Based on the RACE feedback survey data combined with in-depth interviews with recent RACE candidates and Supervisors, this study has identified three overarching meta-themes which encapsulate strategies to promote examination success: a) preparation is the key to success; b) fairness, equity and transparency; and c) support, feedback and guidance. Each of these meta-themes are unpacked in the sections below with subsequent recommendations made to address each area in the hope to improve overall trainee performance on the RACE.

Preparation is the Key to Success

Although trainees are inherently motivated to pass RACE, this study has observed that some are misguided in their preparation approach, which can promote examination failure. For some, this involves the misconception that RACE is like any other university examination and therefore preparation aligns with a knowledge-based study approach. However, RACE is in itself a complex examination construct, with the single best preparation mechanism for passing being the development of examination technique. Largely, clinical technique is developed through guided practise and honed through day-to-day clinical training. When combined with attending tutorials, mock OSCEs and taking extra opportunities to present patients to Supervisors in rotations, this leaves candidates reasonably well prepared. However, written technique is harder to develop and must largely be self-driven, although support from study group peers was a critical factor in refining written exam technique. The single best mechanism is for candidates to practise writing answers to past examination papers, supported by robust discussion in study groups and approaching consultants for feedback to discern the adequacy of responses.

With past examinations being the single most utilised and important preparation mechanism to develop written technique, trainees expressed frustration that they are no longer released. Even more so, trainees described the inconsistency in the provision of model answers and Examiner feedback from which they can base their written technique development, leading to uncertainty around how to successfully answer questions. Trainees therefore described their reliance on developing 'excellent' or 'satisfactory' level written answers based on feedback from their study groups or consultants. However, this study observed that both pathways can promote failure on the RACE. As one interviewee described, relying on study groups to critique examination answers will only be a sound approach if the group members themselves are of high academic calibre. Otherwise, the feedback that you receive from group members to critique your own answer may well be from those who are writing 'not satisfactory' answers themselves. This raises particular concerns for candidates who have failed RACE and who are often left to form study groups with other candidates who have also failed. With poor written technique a common reason for RACE failure, this very well may lead to the situation where the 'blind are leading the blind'.

Trainees also report seeking feedback from consultants on the adequacy of answers to practise questions, especially in situations where study groups are unsure. However, this study consistently noted consultants and Supervisors varied in their opinions on how best to answer questions, some of which directly contradicted advice already given by Examiners in model answers and feedback. This left trainees feeling they had no choice but to directly contact Examiners themselves for feedback to discern exactly how certain questions should be answered. With some training networks having limited access to current Examiners, this left some trainees feeling at an outright disadvantage to others in developing written technique. Further, this situation is likely compounding the workload for Examiners who no doubt receive an array of individual requests from trainees across all networks seeking clarity on how best to answer RACE questions. This workload could be alleviated by ensuring that model answers are released for all past examinations, together with marking rubrics to help trainees and Supervisors understand what Examiners are looking for when marking questions. Further, whole of College training sessions that focus specifically on written examination technique and delivered by Examiners would be highly beneficial for trainees, especially those who find themselves isolated from study groups, or Examiners or consultants with contemporary RACE knowledge.

Aside from technique, group study also appeared critical for optimal preparation. Group study enables trainees to have robust discussion regarding examination answers, benchmark their performance against one another and provide support, motivation and accountability for study efforts. However, group study should be supplemented by independent study efforts where trainees undertake a variety of additional strategies to prepare for the examinations. These efforts should include reading textbooks and relevant evidence-based literature, attending tutorials, practising past examination questions, reviewing curriculum standards, attending courses and mock examinations, and most importantly, being proactive in seeking opportunities for feedback from consultants regarding both clinical and written technique. This independent focus, when combined with group study, forms a strong knowledge base that can be consolidated at the Dunedin Ophthalmology Clinical Course. Trainees described that the Dunedin course is timely after a period of study to help benchmark their preparation efforts against the rest of the RACE cohort, together with filling gaps in their knowledge, engaging in mock examination practise and collecting important tips and tricks regarding sitting RACE.

All interviewees in this study described the all-consuming nature of RACE preparation, where trainee lives are effectively paused and consist of little else but work and study. With some trainees studying up to two years, this prolonged intense commitment not only impacts them physically and mentally, but also their personal relationships. Unsurprisingly, most trainees therefore harbour an underlying RACE philosophy: 'do it once, do it well'. In this sense, many trainees voluntarily began studying well before the typical 12-month period because they knew family commitments or other life events would prevent them from devoting as much time as they should to study in the period closer to the examination. Trainees therefore need to be cognisant of the challenge ahead and take steps to pace themselves accordingly to foster wellbeing. With interviewees identifying the counterproductive nature of leave during the RACE preparation period, trainees would benefit from a period of annual leave before they commence their study to ensure they begin the process in optimal physical and mental health. Further, trainees need to develop a manageable long term study strategy to pace themselves over the potentially lengthy RACE preparation period. Trainees described that setting boundaries around daily study limits, being opportunistic in work hours around study and adopting flexible study schedules helped maintain balance. Thirdly, trainees must focus on self-care, with exercise, adequate sleep and good nutrition all foundational for effective study. Consciously choosing to prioritise study efforts over work is one way to enact self-care. For example, leaving clinics on time and fostering greater responsibility amongst basic trainees will enable valuable in work hours study opportunities, as well as ensuring the preservation of energy levels for after work study. Finally, as RACE draws closer and preparation intensifies, this study observed that on call demands act to limit study opportunities. Networks may need to consider strategically placing trainees in rotations immediately prior to RACE with reduced on call commitments, together with providing increased opportunities for study leave, to help support their preparation.

Fairness, Equity and Transparency

Although there were mixed opinions regarding RACE, it was generally described as a 'necessary evil', given that it motivated trainees to acquire both a breadth and depth of knowledge and skills that served as a solid foundation for future ophthalmic practise. With Australian and New Zealand trained ophthalmologists highly regarded on the international stage, there were strong opinions that the high standard of the RACE needed to be maintained rather than reducing the pass rate to address the recent lower performance in RACE. Although many saw that RACE failure as reflective of trainee skill, knowledge and preparation, there was also acknowledgement that trainees who prepare well and are highly regarded in the clinical setting do fail RACE. This left some interviewees concerned about the reliance on a single assessment mechanism to determine graduate competence, particularly if that process lacked fairness, equity and transparency. In this sense, there were opinions that work-based assessment should play some role in the final high stakes assessment to capture those trainees who do not perform well under structured examination conditions.

General concerns regarding the fairness of RACE emerged in this study from both survey and interview data. Firstly, survey data observed variability in responses across semesters regarding the perceived appropriateness of examination difficulty and the relevance of cases to clinical or theatre work. For example, all trainees surveyed in semester 1, 2018 reported that they believed that the clinical examination was pitched at the appropriate level of difficulty and yet this fell to 69% in the subsequent semester 2, 2018 sitting, which was the lowest figure recorded across all semesters. The written examination survey feedback equally reflected fluctuation in perceived difficulty, with the lowest overall proportion of trainees (58%) reporting SEQs were pitched at the appropriate level of difficulty in semester 2, 2019, followed immediately by the highest overall proportion (96%) in the subsequent semester 1, 2020 sitting. This same seesaw pattern was observed in the proportion of surveyed candidates who perceived relevance of cases to clinical or theatre work in both the clinical (69% to 100%) and written (42% to 91%) examinations, and certainly explains why some interviewees felt a degree of 'luck' in their initial RACE success given the level of examination difficulty in the specific semester in which they sat. This variability suggests a need to improve the consistency of RACE over time for different cohorts of trainees. In response, RANZCO has recently introduced (semester 1, 2022) the Angoff rating system as a method to help accommodate for examination difficulty in the standards expected for performance each semester and it is hoped that over time, this will help create a more consistent and fair examination outcome for trainees. There were also concerns that RACE may not be a fair exam raised in both the survey and interview data given that it appears pitched more at the subspecialist rather than generalist standard for which the VTP aims. This concern was exemplified by trainee examination experiences with a heavy emphasis on the inclusion of rare, esoteric cases of which trainees had limited clinical experience, together with the assessment of OSCE stations by subspecialist Examiners in their own area of expertise. Concerns regarding examination fairness also centred on the inclusion of ambiguous questions which were open to interpretation. While the immediate Examiner feedback in the clinical examination largely resolved this issue, several trainees reported experiencing failure of at least one question on the written component due to not understanding what the Examiners were asking, as opposed to a lack of knowledge. This ambiguity was perceived to be a key driver of examination failure given the prescriptive yet obscure marking criteria that sought 'key words' in answers to be deemed 'satisfactory'. Without knowing what the Examiners were asking, trainees were left to 'hedge their bets' when answering in the hope to provide Examiners with some of the key words needed for a pass. However, this inevitably perpetuated failure, with Examiners failing such answers for perceived 'lack of perspective'.

The overtly prescriptive marking criteria was also perceived to be contributing to increasing failure rates amongst trainees. This study heard of examples where trainee answers citing current evidence-based practises taught in clinics across different networks were failed by the Examination Committee. Trainees therefore perceived a degree of disconnect between clinical reality and RACE, with trainees describing having to learn a 'RACE' answer that differed from what they would do in the real world. Further, there were instances where Supervisors and consultants outrightly disagreed with the model answer or Examiner feedback, leaving trainees confused. Many interviewees reflected that this encapsulated the 'greyness' of ophthalmology, where it was perceived that there may not be one right answer but several ways to safely manage a clinical situation. There were hence calls for greater transparency regarding the marking criteria to understand how marks were awarded. In particular, Supervisors wanted reassurance that answers were current, evidence-based and considerate of the variations in management taught across network settings. Some interviewees argued that it may be best to avoid questions for areas that lack consensus and promote more valid assessment by including other standardised assessment techniques such as multiple-choice questions.

Although RANZCO has detailed the very rigorous process with which it approaches examination development, the collective concerns from trainees, and to some extent the supervisory community, were that this process may lack adequate rigour. Even though the Examination Committee comprises a mixture of subspecialists and generalists, there is concern that here maybe disproportionate influence by some members when developing questions and determining the benchmark for 'satisfactory' performance. Further, there is also concern that the process of question development may fail to assay the different ways questions may be interpreted. Finally, there is also concern that the Examination Committee may lack contemporary RACE knowledge. The inclusion of Fellows who have passed RACE within the last five years was suggested as a possible way to inject some contemporary ideas into the Examination Committee. Even so, external moderation may be important to pursue to ensure that the necessary checks and balances are indeed yielding an examination that has both validity and reliability in assessing the competency of advanced trainees.

Along with fairness and transparency, this study also observed inequities in the current delivery of training and RACE preparation that require improvement. Firstly, there is inequity across training networks with regard to access to teaching, with networks also varying in their delivery of tutorials and mock examinations specifically for RACE. Secondly, there is inequity in access to Supervisors, consultants and Examiners who have contemporary knowledge and expertise in RACE. This means explicit guidance on preparation approaches is lacking for some trainees. Thirdly, it is concerning that some trainees face difficulties forming study groups for RACE. Trainees from smaller networks lacking a critical mass of sitting candidates, trainees returning from periods of leave and trainees who had previously failed RACE all faced challenges finding a study group. Additionally, the highly competitive nature of trainees also led to the exclusion of some candidates from partaking in study groups. RANZCO may need to consider strategies to develop whole of College relationships to help support trainees to connect both within and across networks and ensure that all have access to a study group during the pre-RACE period. Fourthly, there is inequity in access to training courses such as the Dunedin Ophthalmology Clinical Course. While not all interviewees perceived the Dunedin Ophthalmology Clinical Course to be necessary, all who attended indicated its worth in supporting preparation. Given that some candidates were denied the opportunity to attend by their employer, making this course (or similar) a mandatory component of the VTP may be of value in supporting equity of access to all pre-RACE trainees.

Guidance, Feedback and Support

While the RACE feedback surveys assay trainee opinions on the examination construct and delivery, they do not gather information about the personal impact of RACE on trainees nor the response to failure. In fact, these surveys are completed by trainees well before they are informed of their examination performance. The in-depth interviews conducted as part of this study therefore offer rare insight into the experiences of trainees both before, during and after having sat RACE, and the subsequent impact for those who experienced both success and failure. Examining this collective experience has identified that there is a clear role for guidance, feedback and support throughout all stages of the VTP in order to promote success in the RACE.

In the words of one interviewee, RACE is 'exquisitely traumatic' for all advanced trainees, regardless of eventual examination performance. Not only must trainees weather an intense build up over such a prolonged period of time, but this culminates in a lengthy and difficult examination process, which some find deeply distressing. Many describe returning to work without any formal debrief after such a lengthy and difficult examination process, with some perceiving a sense of failure for several weeks regardless of eventual examination performance. The very real psychological impact of RACE must therefore be recognised irrespective of examination performance. Although most trainees begin to return to normal functioning a few months after completing the examination, the subsequent psychological and physical impacts of RACE can be longer lasting and highlight the importance of encouraging trainees to prioritise self-care, formal counselling and psychological support after RACE if needed to help restore mental health. This holds particularly true for trainees who experience failure. For many of these high achievers, this is their first taste of failure and for some, it can be deeply unsettling. Not only do these trainees experience shame, humiliation and judgement from their peers, but they are left questioning their own abilities and competence as an ophthalmology trainee. Without psychological intervention, this loss of confidence can result in subsequent failure on resits, regardless of how well they re-prepare, and therefore needs to be promptly addressed.

Along with support, feedback and guidance are also critical during the post-RACE period to promote success. With trainees only having three attempts at RACE before potentially being excluded from the VTP, interviewees reported the additional psychological stress and hence motivation to pass on subsequent sits. However, unanimous concerns were raised from trainees, together with Supervisors, regarding the lack of opportunity to learn from their examination mistakes given the generic and scant feedback provided regarding initial examination performance and the fact that examination manuscripts were not made available to reflect on what feedback had been provided. In many cases, this left trainees and Supervisors unable to discern examination deficiencies, leaving trainees to resit RACE after further, potentially misguided, preparation. While some subsequently passed their second sit, others again experienced the compounding trauma of a second failure. At this point, trainees described the escalation of their distress, shame, humiliation and frustration through the subsequent involvement of the TPC. Although the role of the TPC is to unpack examination experience and provide specific guidance and feedback to trainees on their performance and strategies for redress (RANZCO, 2018), experiences of interviewees in this study found interactions with the TPC largely unhelpful in promoting RACE success. Specifically, trainees described that the feedback provided by the TPC was generic in nature and somewhat patronising, with suggestions provided failing to reflect or consider the trainees previous lengthy academic experience and success, together with the already significant investment made in attempting to pass RACE. Further, the connection and advice from the TPC came a little too late for most, with the very real possibility of being excluded from the VTP looming. This consistent lack of remedial guidance at all stages of examination failure was seen as a critical flaw in promoting RACE success. If RANZCO is committed to supporting trainees pass RACE, then it is vital that comprehensive and detailed feedback on examination performance be provided to all trainees who experience failure and their supporting supervisory team after their initial RACE sitting. This should include visibility to examination manuscripts to help contextualise examination feedback with performance. This immediate responsiveness would allow trainees and Supervisors to develop focused remediation plans that ensure specific attention to examination deficiencies. When combined with appropriate psychological support, these focused remediation plans would undoubtedly provide trainees with the best chance of passing their second and subsequent sits and possibly circumvent some of the very real trauma responses associated with repeated failure.

While feedback, support and guidance are critical after the RACE examination, these processes tend to be reactionary. This study observed clear opportunities for strengthening feedback, support and guidance mechanisms before trainees sit RACE which may circumvent some of the initial failure currently experienced. For example, this study found that not all trainees were aware of the unique construct of RACE, the level and intensity of study commitment required, optimal approaches to exam preparation or the role of examination technique in achieving success. This naivety meant that some trainees failed RACE through misguided preparation rather than a lack of effort. Guidance from the very beginning of the RACE preparation period would therefore be beneficial to develop trainee understanding of examination design and what to expect, and hence effectively guide their study efforts and approach to learning. Supervisors in this study also stated that in many cases they could anticipate trainee failure on the RACE. Certainly, Supervisors reported recognising when a trainee was performing poorly in clinics, had knowledge and skills subpar to their peers, or were not applying themselves sufficiently to study. Further, they also recognised the need for some trainees to develop greater confidence with their presentation skills for the OSCE or hone their written technique. In this sense, there are very real opportunities for Supervisors to use formative assessments to share their concerns with trainees, identify appropriate mechanisms to address deficiencies and guide their preparation efforts long before they attempt to sit RACE. Unfortunately, Supervisors shared their current difficulties with truthfully assessing trainee performance during term rotations considering the contentious line between perceived bullying and harassment. Further, they acknowledged that identifying 'at risk' trainees meant remediation plans which added significantly to their personal workload. With Supervisors subsequently disincentivised from failing trainees despite concerns, formative assessment approaches, including performance management and remediation, may need to be strengthened to ensure that Supervisors feel comfortable conveying their apprehensions regarding trainee performance and meaningfully change RACE preparation.

This study observed a final opportunity to provide guidance, feedback and support before sitting RACE occurred at the time when trainees submit their 'intention to sit' paperwork to their relevant network DOT. Although the Examinations Policy stipulates that trainees should have a formal meeting with their DOT to discuss readiness to sit RACE, this study observed very few trainees having formal conversations with their DOT regarding their suitability for sitting. Therefore, while there may be due process in place, this may need strengthening to ensure policy is enacted. As described by one interviewee, having the DOT formally interview trainees in the months immediately preceding their intended RACE sit and evaluating their due diligence with respect to preparation, supervisory feedback from recent rotations, and their general mental health and wellbeing would promote initial success by providing clarity around whether it was in fact in their best interests to sit. Although Supervisors report that trainees often indicate a desire to sit regardless of being told to wait, trainees must be cognisant that they only have three opportunities to sit RACE before potentially being removed from the VTP. Rather than wasting one of those opportunities through a lack of preparedness, delaying their initial sit and allowing a longer period to adequately prepare may serve them well in achieving initial success, as illustrated in this study.

Limitations

Both the historical RACE candidate survey data and interview data were derived from motivated respondents who self-selected to participate. The findings of this study therefore cannot claim to be representative of all trainees who have sat RACE in the past five years (or longer for survey data) or Supervisors who have supported them to prepare and succeed across Australia and New Zealand. Further, it may be that those trainees who had a negative RACE experience were more motivated to participate in an interview or to return a RACE survey, in turn skewing the results negatively. It was therefore reassuring to observe that the response rate for the RACE survey following the written examination was over 80% for six of the seven semesters for which data were available, suggesting a relatively representative proportion of sitting candidates shared their views. Further, the purpose of this research was to capture as many issues and concerns as possible relating to RACE, and therefore this skewed view may have acted favourably in this study context. Unfortunately, the time lag between sitting RACE for some candidates and the voluntary nature of participation in interviews for this study meant that only small numbers of participants were included from both the trainee, and to a greater extent, the supervisory group. Increased participation may have provided further insight into other issues and challenges specifically in relation to training and supervision that were not identified as part of this research. Ensuring that all motivated participants were included, and that participants were representative of all training networks across Australia and New Zealand, helped to address this potential limitation of the research.

Another limitation of this study was that survey data was historically collated by RANZCO, and it was noted that over time, changes have been made to RACE candidate feedback surveys. In some cases, previous survey questions have been removed as they were considered no longer relevant, and in other instances others have been added, leaving gaps in available data over the time period studied. It was also noted that while several of the survey questions asked about the same thing, the wording had changed from negative to positive (e.g. 'The examination was harder than I expected' to 'The examination was easier than I expected'). This required the results from some questions to be transposed to allow for direct comparisons between results from semester to semester.

Recommendations

The RACE is a necessary high stakes assessment of the VTP to ensure the competency and safety of trainees before they progress to their final year of training in which they will practise with increasing autonomy in preparation for unsupervised practise upon completion of the VTP. These examinations are the impetus for trainees to acquire deep clinical knowledge and skill which serves as a solid foundation for their future ophthalmic career. With the potential for some trainees to fail RACE and the subsequent lag this causes in workforce growth, supporting trainees to achieve success on their initial attempt at RACE is critical.

Given that RACE is unlike any previous tertiary examination, there is an overall need to cultivate awareness and understanding amongst the training cohort regarding RACE design, development, construct, preparation strategies, progression pathways and its overall impact on health and wellbeing. Trainees must be cognisant of the inherent differences in preparation needed for examination success, with whole of College approaches necessary to develop trainee relationships, timely and focused preparation strategies, and ultimately, examination knowledge and technique. RANZCO therefore needs to develop whole of College education strategies to ensure timely delivery of pertinent information for pre-RACE trainees. Mandating the Dunedin Ophthalmology Clinical Course (or similar) and working collaboratively with the University of Otago to deliver this intensive as part of the VTP will also foster a whole of College approach to providing all trainees with the opportunity to benchmark preparation, develop skills and knowledge, and receive timely guidance on examination strategy. Attention should also be paid to mental health, wellbeing and work/life balance for all trainees as they prepare for RACE by ensuring health jurisdictions are cognisant of the need for study leave and networks allocating pre-RACE trainees to rotations with reduced on call demands prior to the examination. Finally, Supervisors and Directors of Training must also play a critical role in RACE preparation through providing appropriate feedback, guidance, support and education for all pre-RACE trainees, but especially those perceived 'at risk' and who are anticipated to experience failure.

This study observed that the RACE design and development process may contribute to trainee failure. There is a need for greater consistency in the proportion of rare and difficult cases included in each examination. This will ensure fairness of RACE across chronological cohorts of trainees. Establishing mechanisms for external peer-review of examination development would also be invaluable. The progressive exploration, development and adoption of alternative evidence-based assessment constructs would also improve the rigour of RACE, as would the development and maintenance of an Examination Committee that broadly encompasses both a breadth and depth of clinical knowledge and experience. RANZCO must also acknowledge the role of work-based assessment in supplementing RACE performance in ensuring trainees achieve graduate competencies. It is understood that the pandemic disruption created unforeseen safety considerations with the clinical component of the RACE that have largely been addressed successfully through virtual examination delivery. However, returning to traditional face-to-face format for the clinical examination as soon as practically possible will be vital to ensure that trainees achieve graduate competencies in a real-world context.

Finally, this study has provided insight into the psychological distress and trauma suffered by RACE candidates, especially those for whom failure is a unique experience. Establishing pathways for trainees to immediately access both formal counselling and informal debriefing with peers will be a valuable opportunity to support psychological health. RANZCO must also acknowledge the critical role of detailed feedback in helping trainees learn from their failure and successfully adjust preparation strategies for their subsequent sit. This feedback must occur after initial experiences of failure given the very real distress of being excluded from the VTP after three RACE attempts. By maintaining and evaluating trainee RACE feedback, RANZCO can continue its iterative approach to improvement by understanding the subsequent impact of initiatives adopted on trainee experiences and perceptions of RACE.

Based on the findings, together with stakeholder engagement completed as part of this study, several recommendations have been developed. These recommendations are aimed at improving trainee preparation (pre-RACE), examination experience (RACE) and the after-effects of both success and failure (post-RACE). These recommendations are largely the responsibility of RANZCO, together with the Commonwealth Government Department of Health, Training Networks, Directions of Training, Supervisors and health jurisdictions. RANZCO has already implemented a number of important initiatives to address some of the issues raised in this study and this momentum should be encouraged.

Pre-RACE	• Affirm the principles of the RANZCO Trainee Progression Policy (May 2018) and purpose of the Trainee Performance Support Policy (2019). Review both policies in light of the findings and recommendations arising from this study.
	• Maintain and strengthen formative assessment processes for trainees in both basic and advanced training years of the VTP. Explore additional ways in which Supervisors can be supported (and the burden shared) in the assessment of trainees.
	• Consider developing a program to assign a study adviser/study coach (professional mentor) to each trainee as they enter the VTP. This professional mentor would follow the trainee from acceptance into the VTP through to completion and provide guidance on assessment and preparation for the RACE as well as career advice.
	• Develop and provide trainees with a 'RACE' orientation pack at least 12 months before being eligible to sit the examinations. It is envisaged that the orientation pack would include prescriptive information and guidance around:
	  ○ Timeline for RACE preparation (e.g. >12 months)
	  ○ Illustrative study schedule (daily/weekly/monthly)
	  ○ Effective study strategies and techniques (e.g. group study, past examinations, seeking and responding to feedback, preparatory courses)
	  ○ Examination design and process
	  ○ Post-RACE pathways following success and failure
	  ○ Self-care strategies and support mechanisms whilst a trainee (e.g. EAP counselling, achieving work/life balance)
	• Develop as part of the RACE orientation pack a 'checklist' for trainees of requirements to be completed during the pre-RACE period (ensuring due diligence to preparation). This checklist would form the basis of discussion with the Director of Training at an interval no more than 3 months prior to assess 'readiness to sit' (see *recommendations for possible activities to be included in this checklist).
	• Offer a virtual whole of College RACE information and preparation course to all pre-RACE trainees at least 12 months before being eligible to sit. This session could be led by current Examiners and trainees who have recently sat and passed RACE to describe the RACE experience, how to approach study and successful examination technique.*
	• Establish virtual whole of College RACE teaching sessions (e.g. tutorials, mock OSCEs), facilitated by generalist and subspecialty Supervisors/Clinical Tutors/Examiners throughout the pre-RACE period.*
	• Encourage trainees to enrol in touch typing course if typing speed and accuracy is poor and to explore alternative ways to facilitate written responses to long and short answer exam questions.*
	• Release recent examination papers, together with model answers, Examiner feedback and marking rubrics, to allow trainees the opportunity to better develop their written examination technique.
	• Mandate the Dunedin Ophthalmology Clinical Course (or similar) as a pre-RACE component of the VTP. Investigate alternative ways of delivering this course by adopting approaches such as 'blended learning' and the 'flipped classroom' to allow for offsite delivery of content to trainees and thus focus the face-to-face intensive on practical (hands-on) and interactive problem solving activities.*
	• Ensure all trainees who submit 'intention to sit RACE' paperwork have a face-to-face meeting with their relevant network Director of Training to assess 'readiness to sit' prior to the examination. Trainees would produce their checklist from the RACE orientation pack demonstrating due diligence in preparation.*
	• Review and disseminate guidelines to all Fellows and consultants on how to better support pre-RACE trainees.
	• To continue to explore, rollout and evaluate technology mediated reporting formats to improve 'handover' of trainees from one rotation to the next.
	• Strengthen mechanisms for advanced trainees to be identified prior to commencing each rotation so that Supervisors can adequately prepare and adjust performance expectations depending on trainee progress towards sitting RACE.
	• Strengthen reporting formats to include a traffic light system to denote trainees who present as 'at risk' for RACE failure during rotations. Trainees identified as 'at risk' would have a remediation action plan and additional supports as required.*

	• Ensure all Supervisors and Clinical Tutors train for and participate in annual continuing professional education relevant to their role (including how to effectively performance manage, bullying/harassment etc).
	• Provide an updated curriculum and associated resources to guide RACE preparation.*
	• Advocate to employers for:
	  ○ the need to approve study leave for trainees (up to the level of their entitlements) in the 6 months leading up to RACE.
	  ○ releasing trainees to attend a RACE preparatory course.
	  ○ the allocation of trainees to rotations with a reduced on-call burden in the 6 months prior to sitting for RACE.
	  ○ For trainees to ensure they schedule a period of annual leave prior to commencing their pre-RACE preparation period to allow them to commence their preparation year in optimal physical and mental health.
	  ○ Communicate zero tolerance of bullying, harassment and abuse to trainees, Supervisors and Examiners and address cases where bullying, harassment and abuse has occurred in accordance with RANZCO's Code of Conduct and Antidiscrimination, Harassment and Bullying Policy.

RACE	• Ensure the Examination Committee includes a mix of generalists, subspecialists, academic ophthalmologists and recent Fellows (who have sat RACE in the last ten years) to garner contemporary insight into examination questions and answers. • To ensure a generalist standard for written examinations, establish a secure external (independent) peer review process that includes generalist ophthalmologists, recent Fellows, an international expert and an educational advisor. • Ensure consistency in the proportion of rare and difficult cases included in each examination. • Progressively develop and test a multiple-choice question database for all examinable areas of the curriculum. Introduce other evidence based assessment strategies that could be incorporated into RACE such as key feature questions. • Regularly review and change the balance between long and short answer questions and introduce a multiple choice or key feature question component to the written examination. • Consider the introduction of a summative work based assessment component to the RACE and the weighting of each component (e.g. 40% clinical: 40% written: 20% work-based assessment). • Continue to administer the written component of RACE online (and invigilated) but augmented by more interactive and technologically enhanced components. • Re-establish the face-to-face clinical examination (OSCE) component at a suitable time post-pandemic. • Consider increasing the time provided at each OSCE station, the weighting given to assessment tasks and how the introduction of work-based assessment may reduce the pressure on candidates and provide for some flexibility in this component of the RACE. • Ensure a balance of Examiners who are generalists and subspecialists (for both written and clinical components). • Ensure that subspecialist Examiners do not assess OSCE stations in their own field of expertise. • Retain a record of all trainee written examination papers to help support the development of targeted remediation plans for those trainees who fail. • Invite Examiners from other specialist medical Colleges to observe and provide feedback on the RACE examination process.

Post-RACE	• Maintain and strengthen a reporting-back mechanism on individual and collective exam performance to Examiners and network Directors of Training. • Immediately contact all trainees post-RACE by text message and email providing the contact details of the College counselling support service (EAP). • Offer an online post-examination debrief session for all sitting trainees (group session) to be facilitated by a RANZCO official (not an Examiner). This debrief would offer the face-to-face opportunity for trainees to share their overall feedback regarding the examination process in much the same way that the survey collects feedback. • Disseminate relevant information to all sitting trainees regarding post-RACE pathways for those who pass and those who fail. This would include information regarding the real or perceived use and application of the 'three strikes and you're out' rule. • Ensure that all trainees who fail one or both components of their first attempt at RACE are provided with a face-to-face meeting, ideally with the Chief Examiner and relevant network Director of Training, to provide detailed feedback on all components of the exam and identify strategies for improvement. Use the trainee's actual written examination manuscript to exemplify deficiencies where possible to target remediation effectively. • For Directors of Training to ensure that a remedial action plan is developed for any trainee who fails (which must be followed and signed off to be eligible for a re-sit) and enable them to join an appropriate study group. • Review guidelines and application of 'extenuating circumstances' examination rules. • Maintain and collate post-RACE survey data from trainees and seek to improve the quality of these data where possible through regular review of survey questions and trial of new data management systems.

Conclusion

The RACE is a necessary high stakes hurdle assessment of the VTP for ophthalmology to ensure the competency and safety of graduate ophthalmologists. These examinations are the impetus for trainees to acquire deep clinical knowledge and skill which serves as a solid foundation for their future ophthalmic career. Supporting trainees to achieve success on their initial attempt at RACE is critical not only for trainees who invest significant time, effort and financial resources, but also the Commonwealth Government Department of Health, RANZCO, health jurisdictions and the broader community who depend on timely additions to the Australian ophthalmic workforce. This study has identified several ways to promote success on the RACE. Firstly, ensuring trainees are cognisant of both what and how to study for this unique examination, together with ensuring their due diligence is key to successful preparation. This preparation is then naturally supported by an examination process that represents a fair, valid and transparent assessment of trainees at the level of a competent general ophthalmologist. Finally, ensuring support, feedback and guidance regarding preparation and performance is offered to trainees right from the very beginning of their RACE preparation through to achieving RACE success will ensure the best possible outcomes for all. Several recommendations have been made to support these approaches, which if enacted, will improve the preparation and examination experience for ophthalmology trainees. Ultimately, promoting success will pave the way for timely completion of the VTP and hence more ophthalmologists practising in Australia in the future.

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Appendices

Appendix A
Checklist of best practice principles for specialist medical training programs

Principle	Reference
Supportive organisational culture and promotion of a quality learning environment	
• There is inspirational leadership, a welcoming environment, a sense of belonging, support for stress management, and promotion of best practice in teaching and patient care to enable positive clinical learning environments • There is recognition that workplace incivility, aggression and occupational stress, including high workload and role ambiguity, are barriers to learning, performance and wellbeing and there are mechanisms in place to minimise these	(Siggins Miller Consultants, 2012)
• There is a safe, supportive and appropriately resourced work environment • Trainee supervision is acknowledged and valued by the workplace	(Health Workforce Australia, 2011)
• Staffing levels allow time for supervisory activities	(Health Workforce Australia, 2013)
• Protected time is provided for supervisors and trainees for educational activities	(The Tri-partite Alliance (RACP; RACS; RCPSC), 2014)
• The training organisation has current documented policies and processes relating to training and assessment • The training organisation regularly engages with the College and with professional organisations	(Australian College of Rural & Remote Medicine, 2020)
• The training site is accredited for training	(The Royal Australian College of General Practitioners, 2021)
• There is a supportive organisational culture and attitude towards supervisory practice – supervision takes place, is valued by the organisation, is seen as an essential part of staff support and development, supervisors are provided training and protected time for supervision	(Rothwell et al., 2021)
• There are clear, impartial pathways for timely resolution of professional and/or training-related disputes between trainees and supervisors or trainees and the College	(Australian Medical Council Specialist Education Accreditation Committee, 2015)
• The workload and study load for trainees is manageable, and staffing levels facilitate the provision of adequate study leave and supervision • All training positions comply with safe working hours, specifically ensuring that trainees are not required to undertake continuous on-call shifts for extended periods • There is a framework to promote the wellbeing of trainees and to deal with issues of discrimination, bullying and sexual harassment	(Australian Medical Council Specialist Education Accreditation Committee, 2016)
Effective supervision	
• The core set of knowledge, skills and attributes required by a quality supervisor is defined	(Health Workforce Australia, 2011)
• Supervisors have a dual role of ensuring patient safety while promoting trainee professional development. Supervision has three functions – managerial/administrative (normative), educational (formative) and supportive (restorative) – which should be overlapping and flexible	(Nancarrow et al., 2014; Siggins Miller Consultants, 2012)

Principle	Reference
• There is a balance between supervision and autonomy to maximise both patient safety and resident education • Any conflicting roles that the supervisor may have e.g. acting as both trainee line manager and assessor, are identified and addressed	(Weallans et al., 2022)
• Supervision occurs in an open, supportive, safe environment so that trainees feel comfortable to talk about personal, professional and ethical issues, with time to reflect on practice and to receive feedback • Supervision is scheduled for a regular time and place when protected time is available • Supervision is flexible and includes unplanned discussion time to support emerging needs and ensure trainee well-being • Feedback is constructive and timely • There is a positive supervisor-trainee relationship based on trust • Ideally, the trainee should be offered a choice of supervisor • Training is provided for supervisors, including in cultural awareness, listening skills and problem solving • Supervisors are familiar with professional guidelines, the role, purpose and responsibilities of supervision, ethical standards and where to signpost trainees who have needs outside of their remit (e.g. mental health support) • There is agreement and clarity about the purpose of supervision • Supervisors that are line managers are trained to manage individual staff development needs alongside the needs of the organisation, which at times may be in conflict (tension between education and service delivery). Ideally there are two different supervisors – a clinical supervisor and an educational supervisor; one to monitor trainee performance (protecting the organisation and patients), the other to facilitate trainee development and provide support	(Rothwell et al., 2021)
• All trainees are provided with the support that they need	(UK Standing Committee for Quality Assessment, 2018b)
• Supervisors are: approachable; facilitate learning; knowledgeable about their own area of practice; aware of their own limitations. They model good practice in their own interactions with patients and other professionals; adapt supervision style according to the needs of the trainee; are inclusive and aware of their own unconscious biases; actively seek professional development to keep supervision skills up to date; are able to provide pastoral care where needed; and are appropriately supportive to a trainee who is having difficulties in their personal or professional life	(Health Education England, n.d.)
• Supervisors establish rapport with trainees, have demonstrated clinical competence, are organised, good communicators, possesses strong leadership and management skills, act as role models, are culturally sensitive and use a consistent approach • Support is individualised- supervisors are alert to the prior experiences of trainees and the additional needs that less experienced trainees may require • Consideration is given to different forms of supervision, such as group supervision or peer mentorship	(Siggins Miller Consultants, 2012)
• Supervisors are not overburdened with a large number of trainees • Meetings are conducted at the start of the program with supervisors and trainees to introduce the program, clarify guidelines and expectations	(Barnett et al., 2013)
• Appropriate supervision is matched to the trainee's competence and the context of the training post	(The Royal Australian College of General Practitioners, 2021)

Principle	Reference
• There is an initial meeting between supervisors and trainees at the start of term to outline learning goals and identify and support required	(Reid & Pearce, 2020) (Jessup et al., 2021)
• Supervisors are equipped with the latest evidence-based principles of medical education • Supervisors are mentored by other supervisors	(Reyna et al., 2021)
• Supervisors are trained in providing high quality feedback and to support trainees in using feedback to plan for learning • Trainees requiring support attend a mid-term meeting to receive feedback on progress • Supervisors have an understanding of the expected performance standards for trainees at different levels • Supervisor training leads to the attainment of continuing professional development points	(Reid & Pearce, 2020)
• Supervisor competence is evaluated by peers and by trainees	(Weallans et al., 2022)
The provision of high quality feedback for learning	
• Effective feedback is: a process; criteria-based; requires multiple forms and sources of data/evidence; desired by the recipient; timely; responsive to the learner; frequent; future-focussed; reciprocal; involves skilful interaction; and is multidimensional (engages the leaner in more than one way)	(Ossenberg et al., 2019)
• An educational alliance is established- a respectful, friendly teaching climate fostering trust and openness to feedback • Trainee objectives are reviewed to guide focus • Feedback is provided as a two-way conversation, facilitating joint reflection • The trainee has the opportunity to clarify questions, trainee perspectives are actively explored and the supervisor is open to revision of the original message • Feedback is provided regularly and in a timely manner after performance • Feedback is provided face-to-face in a private space without distraction • Opportunities that suggest trainee receptiveness to feedback are harnessed, such as active help-seeking • Emotions are addressed first – trainee thoughts/feelings are elicited before giving feedback • Trainee self-assessment is sought and addressed • Feedback is provided for the benefit of the trainee • Statements are included about what was done well and areas for improvement • Suggestions for improvement are provided • Feedback is specific, based on first-hand observations wherever possible • Feedback is focussed on behaviour rather than personality • Feedback is linked to performance standards so trainees can identify any gaps • Descriptive language is used rather than judgemental, evaluative language to reduce trainee defensiveness • The trainee's view of feedback is explored, including understanding of, emotional reaction to, and agreement with the feedback • A written improvement plan is developed that is goal based, specific and with enough information for it to be actionable	(Weallans et al., 2022)

Principle	Reference
Comprehensive and contemporary syllabus and training program	
• The program is well-designed, provides a high-quality experience for all trainees and enables the trainee's achievement to be reliably assessed	(UK Standing Committee for Quality Assessment, 2018b)
• The program reflects the latest educational and evidence-based practices and promotes professional, ethical and reflective practices	(Reyna et al., 2021)
• Educational expertise; clinicians with experience in medical education and educationalists, is used in the development, management and continuous improvement of the program	(Australian Medical Council Specialist Education Accreditation Committee, 2015)
• The curriculum is based on outcome statements which define what is required to become a beginning and competent Ophthalmologist • Program goals, content, structure and assessment, based on the outcome statements, are evident, constructively aligned and reinforce each other • The curriculum structure is horizontally integrated (in any one year of training), vertically integrated (throughout the program skills) and accounts for spiral learning (concepts introduced early in the program are revisited with increasing complexity as the program proceeds)	(Prideaux, 2017)
• The curriculum includes formal learning about research methodology, critical appraisal of literature, scientific data, evidence-based-practice, reflective practice, clinical audit, quality improvement and critical appraisal	(Australian Medical Council Specialist Education Accreditation Committee, 2016)
• The program includes training in cultural competence	(Australian Medical Council Specialist Education Accreditation Committee, 2015)
• The curriculum is developed to meet the needs of society and the health care system • The program is structured so that there is progressive sequencing of core competencies – to support learner progression of competence • Trainee progression is competency-based, not time-based • There is flexibility in the program to allow for different rates of progression among trainees • Individualised learning plans are used to help learners identify strengths and weaknesses and to tailor learning • Learning experiences resemble real-world practice • Clinical teaching emphasises learning through experience and application, not solely knowledge acquisition	(Misra et al., 2021)
• The majority of teaching and learning is work-based	(Prideaux, 2017)
• Training is practice-based, involving the trainees' personal participation in appropriate aspects of health service, including supervised direct patient care	(Australian Medical Council Specialist Education Accreditation Committee, 2016)
• The program encourages learning through a range of teaching and learning methods including self-directed learning, peer-to-peer learning, role modelling, working with interdisciplinary and interprofessional teams	(Australian Medical Council Specialist Education Accreditation Committee, 2015)
• Diverse learning opportunities are provided, including direct patient care • There is access to learning materials, appropriate resources and facilities, including the availability of human resources to address shortages • There is effective communication and collaboration between the trainee, workplace, and training organisation • Learning opportunities are provided to bridge the gap between theory and practice	(Siggins Miller Consultants, 2012)

Principle	Reference
• Trainees are exposed to a broad range of clinical experiences, including working in rural and regional locations and in Indigenous communities • There is opportunity for and tools to support interprofessional and interdisciplinary learning	(Health Workforce Australia, 2013) (Australian Medical Council Specialist Education Accreditation Committee, 2016)
• Trainees have access to educational resources, including information technology applications, required to facilitate learning	(Australian Medical Council Specialist Education Accreditation Committee, 2016)
• There is consistency in education and training across jurisdictions and training sites	(Australian Medical Council Specialist Education Accreditation Committee, 2016)
• Training is equitable across different training locations- the College negotiates with the health services to ensure learning requirements for training rotations are met	(Prideaux, 2017)
• There is a philosophy of coproduction and learner-centredness – trainees are actively involved in self-reflection and their professional development, with agency to seek feedback and to help determine what approaches to future learning would be most helpful	(Misra et al., 2021) (Englander et al., 2020)
• Trainees have the opportunity to achieve standards beyond threshold level	(UK Standing Committee for Quality Assessment, 2018a)
• Trainees are provided the opportunity to communicate with other trainees • Trainee progress is reviewed at a minimum each six months	(Australian College of Rural & Remote Medicine, 2020)
• Trainees have access to a mentor who has no formal role in the trainee's assessment or employment	(Australian Medical Council Specialist Education Accreditation Committee, 2015)
• Trainees have access to a mentor who provides: advice and feedback on how to balance work, study and life; help to build a network of contacts both within and outside the trainee's workplace; perspective on long term career planning; and an outlet to discuss concerns	(The Royal Australian and New Zealand College of Ophthalmologists, 2021)
• Trainees have access to a mentor for personal and professional support during their training program • There is protected study time to enable trainees to attend didactic teaching sessions • Training terms are of six months duration- terms of shorter duration may be disruptive to training and patient care • An online e-portfolio is used to enable real-time monitoring of a trainee's progress • Trainees have access to up-to-date texts and journals, and teleconferencing/video facilities • There is opportunity for peer-to-peer learning, including journal clubs and study groups • The program allows for part-time, interrupted and other flexible training options • There are clear guidelines for trainees and trainers to enable a transition into training from periods of extended leave that ensures patient safety • Trainees are given more responsibilities and independence as their clinical and surgical skills increase • There is early identification of trainees who are not meeting outcomes of the program and appropriate support measures are put in place	(Australian Medical Council Specialist Education Accreditation Committee, 2016)

Principle	Reference
• For trainees experiencing difficulties, underlying causes are considered, which may relate to competence, lifestyle, extrinsic factors, psychological and the work environment • Supervisors monitor trainees for early warning signs of stress including: disappearing; low work rate; anger and rage; insight failure; career problems; odd behaviour; rigidity; and bypass syndrome • Trainees are given the opportunity to bring a support person to performance management meetings • Performance management incudes self-assessment from the trainee that provides an explanation about the difficulty they are experiencing	(The Royal Australian and New Zealand College of Ophthalmologists, 2018)
• There is early identification of trainees experiencing difficulties • Mentoring and personalised remediation is provided for trainees experiencing difficulties • Rich, meaningful and timely feedback is provided after all assessments to all trainees, which is used to contribute to trainees' learning. This includes the provision of feedback to trainees who pass high stakes exams, as well as those who do not pass, identifying strengths and areas for improvement • Trainees are provided guidance on the use of feedback to direct their learning • Trainees are supported to use feedback to enhance their learning • There are robust data collection systems, such as e-portfolios, that support data collection and flexible, easy access to data to support learning, mentoring, feedback and decision-making	(Reid & Pearce, 2020)
• Remediation redirects the learning pathway of the trainee with personalised guidance – it is not punitive	(Sindhu, 2020)
• The process of remediation involves the trainee identifying areas of need and plans for action in consultation with a mentor	The process of remediation involves the trainee identifying areas of need and plans for action in consultation with a mentor
• The curriculum is regularly reviewed	(Sindhu, 2020)
• The curriculum, program and assessment are compared with other relevant programs	(Australian Medical Council Specialist Education Accreditation Committee, 2015)
• There is regular monitoring and evaluation of the training program and assessment processes, including consideration of external expertise and trainee feedback. Monitoring is ongoing and pre-emptive rather than reactive	(UK Standing Committee for Quality Assessment, 2018b)
• There is comprehensive monitoring and evaluation in place to ensure that the program is meeting its goal of producing competent Ophthalmologists –information is sought from graduates and employers about graduate competence, performance and career progression, satisfaction with training and preparation for practice • The curriculum is monitored by seeking regular feedback from stakeholders, including trainees, supervisors, directors of training • There are mechanisms for the curriculum to be responsive to proposals for change arising from the findings of monitoring and evaluation and from changes in clinical practice	(Prideaux, 2017)

Principle	Reference
• There is consultation with and input from internal and external stakeholder groups, including health departments, medical and other health professions, Indigenous organisations, lay representatives, when defining the purpose, curriculum, graduate and program outcomes, and ongoing monitoring of the program • There are regular and safe processes for supervisors, trainees and stakeholders to provide feedback about program delivery and development • The outcomes of program monitoring and evaluation processes, including goals for improvement and actions taken, are reported back to internal and external stakeholders	(Australian Medical Council Specialist Education Accreditation Committee, 2016)
Fair assessment processes	
• Assessment processes are fair, consistent and transparent	(Siggins Miller Consultants, 2012)
• External, impartial, independent expertise is sought to ensure good practice in learning, teaching and assessment, alignment with standards, areas for enhancement and to inform continuous improvement. This includes external expert review of the training program and assessment processes, identifying good practice and making recommendations for enhancement of policies and procedures	(UK Standing Committee for Quality Assessment, 2018a)
• Expert groups are used to regularly critically question the examination method used • Examiners receive regular Examiner training	(Swing et al., 2009)
• Regular (bi-annual) training sessions are conducted for assessors	(Barnett et al., 2013)
• Learning and assessment is founded on clear, effective and manageable competencies	(The Tri-partite Alliance (RACP; RACS; RCPSC), 2014)
• Assessment is aligned with the overall curriculum structure and incorporate systematic and responsive feedback	(Prideaux, 2017)
• There is an overarching plan that specifies a competency framework that maps to the curriculum and assessments and that is explicit about how aggregation of assessment data occurs	(Reid & Pearce, 2020)
• The purpose of assessment – formative, summative or both – is made clear to trainees and assessors	(The Tri-partite Alliance (RACP; RACS; RCPSC), 2014)
• The goals of assessment are to motivate trainees, engage in accurate, timely, fair processes to generate information about trainee competence, provide progressive feedback on performance to ensure learning is ongoing, maintain professional standards to promote the highest quality patient care and public health	(The Royal Australasian College of Physicians, 2016)
• There is combined use of different assessment methods (triangulation) to enable coverage of the necessary competence spectrum	(Thiessen et al., 2019)
• Multiple assessments by many evaluators with different tools are used throughout training, such as written and oral exams, 360-degree evaluations, portfolios, journal clubs, and direct observations of clinical examinations, operative performance and phone encounters	(Lee & Carter, 2004) (The Tri-partite Alliance (RACP; RACS; RCPSC), 2014)
• Assessments sample across all four levels of Miller's (1990) pyramid of assessment of clinical competence, with emphasis on the highest level – performance in practice	(Misra et al., 2021)
• Assessment is programmatic – high stakes progression decisions are made by a committee and are based on multiple trainee assessments, including low stakes and high stakes assessments which provide usable trainee feedback and a longitudinal profile on the trainee's development	(van der Vleuten et al., 2018) (Sindhu, 2020) (Reid & Pearce, 2020)

Principle	Reference
• Assessment strategies demonstrate reliability, validity, acceptability, educational impact and cost-effectiveness • Assessment is aligned to the workplace and related to day-to-day practice	(The Tri-partite Alliance (RACP; RACS; RCPSC), 2014)
• Examination includes workplace based assessments to assess performance, ability and skills in authentic, real life situations, with real patients rather than actors performing simulated scenarios	(Barnett et al., 2013)
• Workplace based assessments, which address the highest level (performance in practice) of George Miller's (1990) framework for assessment of clinical skills, are included whose purpose is both formative and summative. Credible work-based assessment methods include the Mini Clinical Evaluation Exercise (Mini-CEX), Case-Based Discussion (CBD), Direct Observation of Procedural Skills (DoPS), Multi-Source Feedback (MSF) and Entrustable Professional Activities (EPAs)	(The Tri-partite Alliance (RACP; RACS; RCPSC), 2014) (Prideaux, 2017)
• Direct observation of trainees with real or simulated patients should form a significant component of the assessment	(Australian Medical Council Specialist Education Accreditation Committee, 2015)
• Summative decisions about grades and progression are made by expert groups	(Misra et al., 2021)
• All high-stakes decision-making involves a committee and is credible, defensible, transparent, clearly documented and continuously reviewed • High stakes decisions are preceded by intermediate assessments that provide diagnostic feedback to the trainee, recommendations for improvement and an indication of the likely outcome of high-stakes decisions given current performance development • Aggregated assessment information is sufficiently robust to inform high-stakes decisions and provides high-quality feedback for trainee learning	(Reid & Pearce, 2020)
• For candidates who fail an exam, feedback is provided on the components of the examination in which the candidate was unsuccessful	(The Australiasian College of Dermatologists, 2018)
• Feedback is provided to candidates who pass as well as those who fail, as this may provide important formative information on which to base further continuing professional development • Exam feedback is given to help the candidate to understand and interpret the overall exam pass/fail result. It indicates the specific areas of content or skill, weakness or strength • Feedback is provided in written form and confidentiality is ensured • The need to provide more detailed or extended feedback is considered for candidates whose performance is regarded as very poor and for those who fail an examination or component of an examination on more than one occasion	(Academy of Medical Royal Colleges, 2015)
• There is a formalised process for feedback to be provided to Examiners from the trainees they have assessed	(Barnett et al., 2013)
• The criteria and methods used to make assessment judgements are made explicit • Policies relating to special consideration in assessment are easily accessible. These outline reasonable adjustments for trainees with short- or long-term conditions and circumstances which may affect assessment performance • There is an appeals process that provides a fair and reasonable opportunity to challenge decisions. The appeals committee has some members who are external to the College, as well as impartial internal members, and there is a requirement for written reasons for decisions to be issued	(Australian Medical Council Specialist Education Accreditation Committee, 2015)

Principle	Reference
• There is an accessible, timely, fair and transparent mechanism for trainees to request reassessment of College decisions	(The Royal Australian and New Zealand College of Ophthalmologists, 2016)
• There is external review of examination standard setting methods and statistical analysis to evaluate assessment quality, consistency and fairness	(Australian Medical Council Specialist Education Accreditation Committee, 2016)
• There is ongoing evaluation of the assessment program	(Reid & Pearce, 2020)

Appendix B

RANZCO letterhead
Address
Email contact
Telephone

DATE

Dear [NAME],

I invite you to participate in a short interview and contribute to an evaluation of the RANZCO Advanced Clinical Examination (RACE). The interview will be conducted by a researcher from the University of Tasmania.
The aim of this research is to identify the causes for success in RACE and determine how RANZCO could provide additional support to trainees preparing for RACE.

The primary objectives of the evaluation are to determine:

- Why is the pass rate for RACE written dropping so substantially compared to clinical?
- What are the barriers faced by trainees in preparing for RACE?
- How did the trainees who passed in their first RACE attempt prepare for the exams differently to those who required multiple resits?
- For the trainees that failed RACE at least once, how did they prepare differently for the attempt they passed?
- How can post supervisors and training post networks help trainees prepare for RACE?
- How can the post supervisor and RANZCO support trainees who are the sole trainee in their site help prepare for RACE?

We are inviting RANZCO trainees and Fellows who have sat RACE in the last five years and Supervisors of advanced trainees soon to sit RACE to participate in confidential one-to-one in-depth interviews. The interviews will be conducted via telephone or zoom. With the consent of interview subjects, the interviews will be audiotape recorded. Participants will be provided a copy of their interview transcript to check for accuracy. No identifiable information will be recorded about participants.
A full description of the research is provided in the study information sheet.

If you would like to participate or if you have any questions about the evaluation, I encourage you to contact RACEstudy.team@utas.edu.au

Yours sincerely
Dr Tony Barnett
Director, Centre for Rural Health, University of Tasmania

Appendix C

PROMOTING SUCCESS IN THE RANZCO ADVANCED CLINICAL EXAMINATIONS (RACE)

CONSENT STATEMENTS

Before we start, can you please confirm that you have read the study information sheet?

Do you have any questions about the study or the interview?

Do you consent for your interview to be audio recorded?

We will email your interview transcript to you for checking prior to the study data analysis phase.

Appendix D

Promoting Success in the RANZCO Advanced Clinical Examinations (RACE)

Pre-amble:
Introduction, thank you for agreeing to participate, purpose of the study, verbal consent, audio record interview, invitation to check transcript and add/revise statements

Opening Question:
Could we start by you telling me little about your experience of the RACE exams – both the clinical and the written components?

Prompts for trainees:

- Do you feel that you did better on one exam (e.g. clinical) than the other? Why was this?
- How closely do you feel the exam questions and stations reflected your training experiences at the time? Were you able to draw on your clinical experience as a trainee to help answer questions?
- How did you prepare for these exams? Overall, what impact did this have on your wellbeing and 'work-life' balance?
- Do think there are aspects of the RACE that could be improved? What might these be? (e.g. format, duration, timing, balance between very short, short and long answer questions, level of difficulty, relationship to clinical practice, understanding the questions/expectation of the Examiner)
- Did your Director of Training or supervisors give any advice on how to answer the questions in the written paper? What did they suggest?
- What should be done (including by RANZCO) to better support trainees preparing for RACE?

Prompts for supervisors:

- What do you think are the reasons for some trainees struggling to pass RACE?
- Have you noticed any differences between trainees who pass RACE and those who fail?
- Would you be able to identify trainees as being more likely to fail before they sit the exam and, if so, what do you think are the more common issues?
- How are trainees being supported by their trainee peers, post supervisors and training networks to help them prepare for RACE?
- How can trainees preparing for RACE be supported better?
- What should RANZCO do at a federal level to support trainees to better prepare for RACE?

Appendix E

RANZCO ADVANCED CLINICAL EXAMINATION (Virtual OSCE) CANDIDATE SURVEY
S1 2022

Examination Date - 26 March 2022

Dear Doctor,
Thank you for your time and for providing feedback about RANZCO's Advanced Clinical Exam (RACE).

Detailed feedback is extremely valuable in assisting RANZCO to ensure that training and assessment activities are as efficient and effective as possible, your feedback also helps support RANZCO's learning culture of continuous improvement.

If you have any questions about this evaluation, or would like to provide additional suggestions separately, please do not hesitate to contact myself directly.

Barnabas Graham
Senior Manager Assessments and Examinations
bgraham@ranzco.edu

---

*Candidate type:
○ Trainee ○ Specialist International Medical Graduate (SIMG)

---

*If you are a trainee, indicate the Training Network you are with:

○ SEH ○ POW ○ VIC
○ SA ○ QLD ○ WA
○ NZ ○ N/A- SIMG

*Please select the number beside each statement that most accurately reflects your view:

1. Indicate your level of agreement with the following statements

I was satisfied with the reasons for the RACE OSCE being run in a virtual format

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree

I received adequate notice about the RACE OSCEs being run in a virtual format

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree

RANZCO staff adequately explained the process and logistics of the virtual OSCE prior to the exam

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree

The Chair and/or the Examiners in Charge adequately explained the process and logistics of the virtual OSCE prior to the exam (Candidate Briefing Evening)

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree

There was a seamless transition from one exam station to next

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree

The examination covered all scenarios adequately

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree

Amplifying comments:

---

*2. Did you experience any IT related issues during the virtual OSCE? If so, please specify the nature of the problem and indicate the Cliftons Venue you attended (e.g., Sydney)
○ Yes ○ No

Amplifying comments:

*3. The exam related closely to the RANZCO Clinical Curriculum Performance Standards

Please select the number beside each statement that most accurately reflects your view

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree

Amplifying comments:

*4. It was easy to discover what I needed to learn to pass the exam

Please select the number beside each statement that most accurately reflects your view

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree

Amplifying comments:

*5. The exam was pitched at an appropriate level of difficulty for a trainee who has completed at least three years of training on the RANZCO VTP

Please select the number beside each statement that most accurately reflects your view

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree

Amplifying comments:

*6. The exam process ran smoothly (for IT-related issues, please respond in Question 2)

Please select the number that most accurately reflects your view

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree

Amplifying comments:

*7. The OSCE tasks were clearly phrased and unambiguous

Please select the number that most accurately reflects your view

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree

Amplifying comments:

*8. The images used were of a good quality

Please select the number that most accurately reflects your view

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree

Amplifying comments:

*9. The Examiners communicated in a way that helped me to demonstrate what I know

Please select the number that most accurately reflects your view

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree

Amplifying comments:

10. The Examiners were polite and non-threatening in their interactions with me

Please select the number that most accurately reflects your view

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree

Amplifying comments:

*11. The exam tested my ability to evaluate clinical cases and to present my assessment and management of these cases

Please select the number that most accurately reflects your view

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree

Amplifying comments:

*12. The OSCE tasks related closely to my experience in clinics and theatre

Please select the number that most accurately reflects your view

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree

Amplifying comments:

*13. It was easy to complete the OSCE tasks in the allocated time

Please select the number that most accurately reflects your view

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree

Amplifying comments:

*14. Please indicate below how much time you spent in preparing for this examination

Months

Years

*15. Please select from the following list the strategies that you used in your preparation for the exam

- ☐ 1. Read the Clinical Curriculum Performance Standard
- ☐ 2. Attend a mock examination organised by my own training network
- ☐ 3. Attend a mock examination organised by another training network
- ☐ 4. Attend a preparatory course organised by my own training network
- ☐ 5. Attend the Dunedin Ophthalmology Clinical Course
- ☐ 6. Study with RANZCO trainees who are sitting the same examination
- ☐ 7. Study with RANZCO trainees who have passed the RACE
- ☐ 8. Other (Please specify)

*16. Suggestions for improvement / additional comments

Appendix F

RACE Written Examination - Semester 1 2022

If you are a Trainee, please circle the Training Network you are with and indicate your year of training:

○ SEH
○ POW
○ VIC
○ SA
○ QLD
○ WA
○ NZ

What is your current year of training

-----select--------

---

1. The examination related closely to the RANZCO Clinical Curriculum Performance Standards.

Please select the number that most accurately reflects your view

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree

Amplifying comments:

---

2. The examination process ran smoothly.

If you experienced any IT-related issues, please specify the nature of the problem, and indicate the Cliftons Venue you attended (e.g., Sydney) in the amplifying comments below.

Please select the number that most accurately reflects your view

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree

Amplifying comments:

---

3. The Short Essay Questions (SEQs) in both Papers 1 & 2 were clearly phrased and unambiguous.

Please select the number that most accurately reflects your view

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree

Amplifying comments:

---

4. The SEQs related closely to the work I encounter as a trainee in clinics and theatre.

Please select the number that most accurately reflects your view

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree

Amplifying comments:

---

5. The SEQs in both Papers 1 & 2 were pitched at an appropriate level of difficulty for a trainee who has completed at least three years of training (FTE – Full Time Equivalent) on the RANZCO VTP.

Please select the number that most accurately reflects your view

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree

Amplifying comments:

6. It was easy to complete the SEQs in the allocated time.

Please select the number that most accurately reflects your view

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree

Amplifying comments:

7. The Very Short Answer Questions (VSAQs) in both Papers 1 & 2 were clearly phrased and unambiguous.

Please select the number that most accurately reflects your view

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree

Amplifying comments:

8. The VSAQs in both Papers 1 & 2 related closely to the work I encounter as a trainee in clinics and theatre.

Please select the number that most accurately reflects your view

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree

Amplifying comments:

9. The VSAQs in both Papers 1 & 2 were pitched at an appropriate level of difficulty for a trainee who has completed at least three years of training (FTE) on the RANZCO VTP.

Please select the number that most accurately reflects your view

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree

Amplifying comments:

10. It was easy to complete the VSAQs in the allocated time.

Please select the number that most accurately reflects your view

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree

Amplifying comments:

11. The images used in the exam were of good quality.

Please select the number that most accurately reflects your view

① Strongly Agree

② Agree

③ Disagree

④ Strongly Disagree
④

Amplifying comments:

12. From the list below, please select the strategies you used in preparing for this exam.

- ☐ 1. Read the Clinical Curriculum Performance Standards
- ☐ 2. Practice past examination papers (online at RANZCO's LMS)
- ☐ 3. Read the Examiner's reports for past exams
- ☐ 4. Attend a mock examination organized by my own training network
- ☐ 5. Attend a mock examination organized by another training network
- ☐ 6. Attend a preparatory course organized by my own training network
- ☐ 7. Attend the Dunedin Ophthalmology Clinical Course
- ☐ 8. Study with RANZCO trainees who are sitting the same examination
- ☐ 9. Study with RANZCO trainees who have passed the RACE
- ☐ 10. Other (Please specify)

13. What resources/references did you use in studying for this examination?

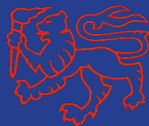
14. Please indicate below how much time you spent in preparing for this examination

Months

Years

15. Any further suggestions for improvement to the examination.

Submit



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