

Australian Journal of Primary Health

Supporting complex care in general practice via an eConsultant model of care: the Australian specialist perspective

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Received: 14 November 2022 Accepted: 11 April 2023 Published: 15 May 2023

Cite this: Petre J et al. (2023) Australian Journal of Primary Health, **29**(5), 455–462. doi:10.1071/PY22243

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ABSTRACT

Background. Accessing timely specialist physician advice and guidance is of critical importance to both Australian GP specialists (GPs) and their patients. The traditional method of referral, triage and subsequent face-to-face (FTF) consultation is facing challenges from an ever increasing volume of referrals and the needs of underserved populations. In response to such issues, electronic consults (eConsults) have been successfully used internationally to provide GPs with a means of asynchronously accessing specialist physician advice and guidance within 72 h. Few studies have addressed the potential impact of eConsults from the view of the non-GP specialist receiving the request, and none specifically related to specialist adult medicine physicians. The aim of this study was to determine the perceptions of current Royal Australasian College of Physicians (RACP) adult medicine Fellows towards establishing an eConsult model of care within their own clinical practice. Methods. Semi-structured interviews were conducted with 14 RACP adult medicine Fellows between December 2019 and February 2020. Purposive and snowball sampling strategies were used to recruit physicians of differing ages and gender from diverse specialties and healthcare settings. The data were subjected to a descriptive thematic analysis. Results. We describe five key themes of relevance to study participants: (1) improved access to non-GP specialist care; (2) the business model in relation to remuneration and time; (3) enhanced GP-Physician relationships; (4) impact on physician work-life balance; and (5) the need for a structured model of care. There was broad consensus that a significant number of outpatient referrals to adult medicine physicians would be more appropriately addressed in primary care with support via an asynchronous eConsult arrangement. RACP Fellows agreed this could improve access to timely specialist advice, place downward pressure on outpatient FTF clinic waiting times and reduce unnecessary patient travel. Conclusion. These findings identify the drivers and barriers to the establishment of an Australian eConsultant model of care from the adult medicine physician's perspective.

Keywords: advice and guidance, digital health, eConsult, eConsultant, eHealth, eReferral, online consult, Telehealth.

Introduction

The function of the primary–secondary care interface is of critical importance to overall health service delivery both in Australia and internationally. The traditional method of referral, triage and subsequent face-to-face (FTF) patient consultation is being challenged by the increasing demands of the modern healthcare system. Increasing demand for non-GP specialist services is driven principally by the international trend towards longer life, the increasing prevalence of chronic disease, and the concomitantly increasing complexity of its management (Australian Institute of Health and Welfare 2018). From the Australian perspective, there has been a 13% increase in referrals from GPs to non-GP specialists over the decade between 2006–07 and 2015–16, from 5.4 per 100 problems managed in 2006–07 to 6.2 in 2015–16 (Britt *et al.* 2016).

Data from the Commonwealth Fund (Bureau of Health Information 2016) suggests that the traditional FTF method of delivering primary–secondary care is struggling under the

weight of increasing demand. In Australia, 28% of patients waited longer than 4 weeks to access non-GP specialist care, and 14% of patients waited more than 2 months (Bureau of Health Information 2016). Australian Bureau of Statistics (2018) found that 22% of Australians felt they waited for longer than an acceptable time for their specialist appointment. Delayed access is most pronounced in rural and remote Australia, given the largely metropolitan distribution of non-GP specialist services. Delay in accessing secondary care is associated with deteriorating health and an increased likelihood of avoidable hospital attendance (Australian Institute of Health and Welfare 2018). Inefficient communication between GPs and non-GP specialists is also a problem, with 12% of Australians stating their specialist did not receive basic information or test results from their GP, and 16% reporting their GP was not informed of their specialist visit (Bureau of Health Information 2016).

Healthcare services internationally have responded to these issues by using innovative technology to improve the delivery of primary–secondary care. Electronic consultations (eConsults) provide a method for GPs to access non-GP specialist care in a way that is timely, convenient to both provider and patient, and potentially of educational value to GPs (Liddy *et al.* 2018).

eConsults are defined as an asynchronous provider-toprovider communication over a secure electronic medium, which involves sharing patient-specific information for the purpose of gaining decision support or guidance regarding a patient's care (Liddy *et al.* 2018). Synchronous videoconferencing platforms (e.g. teleconferencing) require the GP, the non-GP specialist and usually the patient to be available simultaneously. eConsults have the advantage of convenience when compared to teleconferencing, as providers can connect during periods of clinical downtime.

Existing data are supportive of the eConsultant model of care. Liddy *et al.* (2018) conducted a systematic review of the outcomes of eConsults in 2018 from the perspective of the 'Quadruple Aim Framework', which examined population health outcomes, per capita healthcare costs, patient experiences and provider experiences, finding overall favourable results (Liddy *et al.* 2018). Most of the existing international data on eConsults are from North America and Canada, with no evaluated Australian models of care at the time of data collection.

Internationally, eConsult services across adult physician specialties are well established. Endocrinology (19%), haematology (9%) and cardiology (9%) represented the top three adult physician specialties accessed by overall proportion (Liddy *et al.* 2018). eConsult physician services are provided at major North American healthcare organisations such as the Mayo Clinic, Kaiser Permanente, the University of California, San Francisco (UCSF) healthcare network, and the Veterans Administration (Vimalananda *et al.* 2015). There is hence an imperative to further investigate an adult medicine physician eConsult service within Australia.

The purpose of this qualitative study is to investigate the perspectives of practicing Australian adult medicine physicians (RACP Fellows) with regard to the eConsultant model.

Methods

Design

We conducted a descriptive qualitative study using semistructured interviews to explore Royal Australasian College of Physicians (RACP) adult medicine Fellows' views concerning the feasibility of an eConsultant model of care within the Australian healthcare context.

Participants and setting

Adult medicine specialists with fellowship of the RACP, or an international equivalent, were recruited to participate. Sampling used a combination of purposive and snowball techniques to ensure inclusion of both public and private practitioners across diverse geographic locations with representation of differing age and gender (Table 1). The study investigators liaised with key stakeholders from The University of Queensland (UQ) and the RACP to identify specialist physicians from across Australia suitable to participate in an interview. RACP Fellows had a minimum of 5 years post Fellowship, and were of notary standing within their specialty (e.g. director of a clinical unit). Fellows were primarily engaged in clinic work, and were directly involved in outpatient clinical work where referrals are received by GPs. RACP Fellows were recruited by email invitation, with follow-up phone calls as required. Twenty Fellows were identified in consultation with UQ and RACP, of which 14 were interviewed. Participation was voluntary and no incentive was offered.

Data collection

Interviews were conducted via telephone. An interview guide developed to include key issues from the literature provided a semi-structured framework for questioning and explored three broad areas: (1) the need for an adult medicine physician eConsult service in Australia; (2) the foreseeable benefits of an adult medicine physician eConsult service for patients, healthcare providers and the broader Australian healthcare system; and (3) the perceived barriers to establishing an adult medicine physician eConsult service in Australia. All interviews were conducted by one researcher (JP), a RACP Adult Neurology specialist in training. Interviews continued until no new ideas emerged. All interviews were audio recorded with consent and transcribed verbatim. The duration of each interview was approximately 60 min.

Data analysis

The interviews were conducted between December 2019 and February 2020. Transcriptions were coded using an inductive

	Age (years)	Gender	Location	Time since fellowship (years)	Medical specialty	Prior digital health use	Current primary source of remuneration
I	67	Female	Qld	20	General medicine and geriatrics	Yes	Public
2	52	Male	Qld	22	Endocrinology	Yes	Public
3	65	Male	Qld	34	General medicine	Yes	Public
4	63	Male	Qld	38	General medicine	No	Public
5	41	Male	SA	11	Cardiology	Yes	Public
6	-	Male	Vic.	_	Rheumatology	Yes	Private
7	65	Male	Qld	38	Endocrinology	Yes	Public
8	66	Male	SA	33	General medicine and rheumatology	No	Public
9	63	Male	WA	30	General medicine and cardiology	Yes	Private
10	-	Female	Qld	_	Palliative medicine	-	-
П	66	Male	WA	26	Infectious diseases	Yes	Private
12	-	Female	Qld	13	Haematology	No	Public
13	52	Male	Qld	17	Geriatrics	Yes	Public
14	-	Male	Qld	-	Infectious diseases	Yes	Public

Table I. Participant characteristics.

–, not available.

process and analysed thematically. The analytic process began as soon as the data collection commenced, with field notes written immediately after each interview. Two authors (JP, CJ) with experience in qualitative research familiarised themselves with the data by reading and rereading the transcripts, then coding the transcript data independently. Following the initial independent coding, the two coders meet several times to discuss, revise and clarify the codes with the final themes derived through a consensus approach.

Ethics approval

The study was reviewed and approved by The University of Queensland Human Research Ethics Committee (UQ HREC – 2019002454).

Results

Interviews were conducted with 14 adult medicine Fellows. Nine were from Queensland, two from Western Australia, two from South Australia and one from Victoria. Three of the non-GP specialists were female, and their age ranged from 41 to 67 years (Table 1). Provision of characteristics other than gender, location and medical specialty was on a voluntary basis.

Themes

Data are organised under five key themes.

Theme I: improved access to non-GP specialist care

There was uniform agreement among interview participants that a well-implemented eConsult service would improve access to specialist adult medicine physician care. As a primary mechanism, the eConsult was viewed as a simple, cost-effective and efficient method of enhancing communication between GPs and non-GP specialists. A turnaround time of 72 h was considered acceptable and achievable by almost all interview participants, providing adequate protected time and remuneration (see Theme 2). Reduction in outpatient waiting lists, potentially increasing availability for more urgent FTF consultations, was considered a secondary benefit of eConsult services.

I thought it (eConsults) had considerable potential for nonurgent consults. Where it was a fairly straightforward question that GPs were asking, the information they provided we thought was sufficient to answer their query and that we would actually save a face-to-face clinic appointment. And allow us then to hopefully reduce some of our waiting lists where we actually do need to have face-to-face consults. (Interview 3)

Participants agreed that eConsults were likely to have considerable benefit for non-urgent consultations, such as category 2 and 3 outpatient referrals. A number of participants commented that between 10 and 30% of non-urgent consultations currently referred for a specialist physician opinion, could be suitably addressed in primary care with non-GP specialist support. This is described in the following extract from the interview with a public hospital general physician from Queensland.

... most clinics will probably have about fifteen, twenty percent of consults that are very low urgency. They relate

to minor abnormality or perhaps a chronic condition. The GP really is asking a clearly specific question, not asking for a total review. So on that basis that's the sort of consult that you'd like to avoid bringing the patient in, it's inconvenient to them, as I said we waste clinic time. The message can be got back pretty quickly, most cases it's a single answer to the question, many cases it's just reassuring the GP that this abnormality or this concern that you have is nothing to get worried about. (Interview 3)

The implementation of an eConsult service was perceived to have benefits for the patient, the GP, the specialist physician and potentially the healthcare system. Benefits to the patient mentioned included a reduction in unnecessary FTF specialist consultations, reduced time lost through days off work and travel for appointments, and reduced diagnostic delay. Participants also mentioned benefits to GPs through ongoing education, facilitating future GP independence for similar clinical problems, and potentially reducing the need for future physician referral for similar clinical issues. Other benefits mentioned included better allocation of scarce health resources to patients most in need of specialist services by reducing the FTF outpatient waiting list. Some of these issues were highlighted by a public hospital general physician.

I think that quite a lot of outpatient attendances are unnecessary. And look there's quite a few...where a patient might have been expected to come along to simply get a result or a patient's come along because you want to make sure that the response to treatment has been followed. It's actually a hell of a lot cheaper for them to attend their GP and if the GP is copied in to the result then that makes life easy for the GP. From the point of view of monitoring progress it's not unreasonable for the GP then to send a message to the specialist saying, "Mister so and so has responded well to his treatment" or "Mister so and so is still not quite right. This is what's happening. Have you got a suggestion for what next? Or should he come and see you?" (Interview 4)

Theme 2: the business model – time and remuneration factors

Physician perspectives regarding the business model associated with eConsults was divided largely along private/ pubic lines, with remuneration the issue of difference. Physicians working primarily in the public health system were concerned by time factors much more than remuneration factors. To successfully implement an eConsult system, public hospital physicians recognised the need for protected time in their working week. From a pragmatic sense, public hospital physicians considered that one to two sessions per week would need to be devoted exclusively to responding to eConsult requests. Without dedicated time, participants were concerned that uptake would be low among their colleagues, and that the 72-h turn around time would not be feasible, which in turn, would reduce the effectiveness of the model. Public physicians were concerned that hospital administrators would not view eConsult time as of equivalent importance to FTF consulting time, and as a result, attempt to add eConsult activity into already inadequate existing clinical and non-clinical activities. This is summed up by the following participant who drew attention to the additional burden imposed on an already time-poor workforce by not having dedicated time, and the potential detriment to good patient care.

 \dots in the public sector \dots if it's an additional burden – another job on top of another job then that's a big issue. Whereas if it's replacing an activity with something that makes life potentially easier and the ability to provide good care to a greater number of people than that will be seen as a positive. (Interview 4)

In direct contrast, private hospital physicians valued remuneration per consultation much more than protected time. If eConsults were to be widely utilised in the private system, ultimately they would replace FTF consulting time, so private physicians felt the eConsult hourly rate would need to match their existing consulting rate, otherwise uptake would be low. A full-time private infectious diseases physician made the following observation, which summarises the issue.

Well I mean, the realities no one is going to be too keen in doing it (eConsults) if it means a financial impost to them. So if it's happening within the public system, and it just becomes part of that, then the impost really becomes in terms of time and extra work. Because I'd imagine that it's not going to be a specific funding stream when you're being already paid a salary to do the work. So it's more an issue of how am I going to fit this into my day? In the private, clearly any time you're doing this will displace other activities and I mean again, it's a question of how much it pays. (Interview 8)

A public endocrinologist observed that due to time and remuneration factors, eConsults may be more suited to a public compared to a private billing system.

I think you'd get greater uptake in the public system with specific allocated time for it where you can work as a team... (In the Australian private healthcare system) there's not much incentive to reduce face-to-face... why would you go down this model if you're going to be better remunerated for face-to-face visits? So I think there is potential concerns between the two systems, private and public according to the demand on the specialty. (Interview 2)

Theme 3: improved GP-physician relationships

GP–physician relationships were discussed at length in a number of interviews. Many RACP adult medicine physicians

viewed close personal relationships between primary and secondary care providers as beneficial to both patient care and the overall health system. This was summarised by a private rheumatologist, who discussed the importance of a three-way connection between patient, GP and the specialist physician.

...anything that fosters better relationships in the three way triangle between primary care, patient and the GP is to be encouraged. And I would see this (eConsults) as a way that it could easily do that significantly because I just think medicine's going away from what it was and I think this would be a way of bringing medicine back to the way it should be. (Interview 6)

Many study participants were concerned that large tertiary hospitals and their non-GP specialist providers are currently not well integrated with GPs, resulting in a fracturing of the healthcare system at the primary–secondary care interface. Lack of primary–secondary healthcare integration was viewed as a contributor to unnecessary outpatient referrals, and duplication of medical care. The issues resulting from breakdown of the primary–secondary care interface were highlighted by a public general physician.

I think quite a lot of referrals you end up seeing the patient and actually, it's surprising how often they don't even know why they're being sent. Even when they do you will find often that the question that is required to be answered is different from what was on the referral. It's quite disappointing. Our GP liaison office did a bit of a cull of that in collaboration with the Primary Health Network (PHN) about 18 months ago and the GPs who were doing the cull were horrified. (Interview 4)

Many RACP Fellows felt that, in the past, their personal relationships with GPs were built through either phone calls or chance face-to-face meetings, so called 'corridor consultations'. eConsult was viewed as potentially the modern equivalent of the bygone 'corridor consultation', with the asynchronous nature allowing the GP and the physician to connect at mutually convenient times. Participants considered eConsult to be a modern facilitator of personal relationships with GPs, as the electronic conversation was a private connection between two colleagues, designed to share thoughts and opinions in close to real time.

So that's what kind of an older fashioned way we used to do it. GP that would call you up regularly and ask and you'd be like yes, yes I think that's a good idea ... So years ago it was often done just kerbside or in the hallway or that kind of stuff. So we had relationships with a whole professional network, whether specialists or GPs. Now we don't seem to have that relationship anymore, we don't seem to know each other so this is the same thing. This is the new age which will be eConsult. (Interview 1)

Theme 4: impact on physician work-life balance

Physician work–life balance was an issue that was raised regularly, but did not achieve a uniform focus. A number of physicians viewed eConsults as having the opportunity to enhance physician work–life balance. There was a feeling of control attached to an eConsult that could not be achieved by alternatives such as FTF consulting or realtime telehealth. This was primarily related to the asynchronous nature of eConsults, as compared to the synchronous nature of other consulting methods. eConsults were noted to be less time constrained than other methods of consulting, and could be completed with some flexibility in periods of clinical downtime, such as during a cancelled FTF appointment. Some participants felt that eConsults could enhance their time efficiency by filling the expected or unexpected gaps during their day.

I think the beauty of the eConsults, the potential beauty anyway, is that it could be done much more electively in your own time. If you could steer that ship and say alright I've got that hour over lunch or I've got that hour before work or after work to do these things rather than say well I've got to do Telehealth because they've got to go to a Telehealth centre maybe, or they've got to be in a hospital at a set time or a clinic that's got Telehealth facilities that needs to be done in work time. (Interview 11)

Other physicians had a contrasting opinion about the effect of eConsults on work–life balance. There was a view that increasing the ability of providers to connect at times outside the standard business day would have a detrimental effect on work–life balance. A number of physcians were of the opinion that their working week was already filled completely with clinical and non-clinical activities, and that the additional of eConsults would inevitability spill over into private and recreational time. Physicians were concerned that eConsults would violate the separation of work and home life.

... one of the things that we as physicians are trying to do is to actually concentrate on our home health and work life balance. And I think you know any suggestion that we should be working from home as well as working 60 hours a week in the rooms is not something we should be opening up doing either. So I think the sort of purported flexibility of video conferencing, Telehealth, digital health and eConsulting yes it provides flexibility but you know if that's going to then overflow into your after hours and weekend activities then I'm not sure we should be encouraging any of us to go down that path. (Interview 9)

Theme 5: the importance of a structured model of care

All participants viewed the success of a future eConsult model as contingent on the formal structures that would be required to underpin it. They were of the opinion that eConsults would represent a fundamental change to the primary–secondary care interface, and as such, would require a proper administrative and governance structure. Specific concerns were raised around: (1) ensuring adequate information technologic systems with built-in safety mechanisms; (2) ensuring potential medico-legal implications were addressed with indemnity providers and policymakers; and (3) implementing an administrative structure, including the periodic reporting of outcomes and costs. All participants viewed a formal administrative structure as essential to the success of the eConsult model of care. An informal or haphazard approach would result in low provider satisfactions and low uptake among both GPs and non-GP specialists.

 \dots so you need to have a proper administrative structure, in the public hospital system there would be obviously a requirement for entry of the information in to a patient record. So you'd have to have all of that side sorted. (Interview 4)

... we need to have this done with properly developed frameworks, which have approval of indemnity, have approval from potentially the Medical Board for that matter, that's quite important. (Interview 4)

In terms of information technology systems, concerns were raised around patient privacy and confidentiality; ensuring there was an accurate audit trail with time stamping for medicolegal purposes; ensuring acknowledgement of receipt; automated synchronisation of eConsult data with the electronic or paper medical record; and the ability of the computerised system to communicate the results of investigations such as blood tests and medical imaging. In terms of privacy and confidentiality, participants were of the opinion that data sent over eConsult would need to be de-identified to reduce the risk to patients. A record of the eConsult would need to be automatically kept on a secure server, including a record of request and response times. Participants were worried about GPs not receiving and implementing their response, and wanted a 'read response' function. eConsult records would ideally be automatically linked to electronic and paper patient medical records, to avoid an eConsult becoming a source of healthcare disintegration. For eConsult to be effective, the information technology system would need a mechanism of transmitting primary data, such as that related to pathology and medical imaging, rather than, or supporting the synthesis of primary data by the referring GP. These potential practical and logistical issues were summarised by a public hospital endocrinologist.

Okay, can I make a decision with this eConsult, do I have awareness of, you know, the necessary details around patients in terms of where they live, what other medical practitioners are involved in this person's care apart from just the GP...I think that other health professionals involved in that patient's care also need to see this advice. Do I have their email for example, can I send it to them quickly... so it's really the logistics. Making sure that okay it's a secure connection, the relevant information is provided to me so that I can triage and make it and also then give advice back to the GP or decide, no, I think I need to see this patient face to face. And that information then that I send back to the GP... I get acknowledgment that he/she received it just to make sure that there hasn't been some glitch in the system and he/she doesn't get my advice at all. Particularly, if I'm asking to do things in the short term with this patient so just some form of confirmation that the email, that the eConsult has been received. I think they're the sort of things to be careful about. (Interview 2)

In terms of medico-legal implications, physicians did not consider eConsults to be practically different from providing phone advice to GPs. All non-GP specialists were of the opinion that the GP requesting an eConsult would retain primary responsibility for patient care, and that the physician could only be responsible for the advice provided in the eConsult. The justifications for this opinion were twofold: (1) the quality of an eConsult would be contingent on the quality of the referral that was provided by the GP specialist; and (2) the GP specialist would still be required to consider the advice provided in an eConsult in the context of the patient in their clinic room. Participants were concerned about their inability to perform a physical examination during an eConsult, and as a result, many felt eConsult would be limited to questions that were not contingent on physical examination findings. Questions related to objective findings, such as laboratory investigations or medical imaging, were viewed as most suitable for eConsult. Given these complexities, all participants were of the opinion that medical indemnity providers would need to be involved in developing guidelines for GPs and non-GP specialists participating in eConsults.

Discussion

Internationally, health systems are struggling to balance everincreasing consumer demand with available high-quality care. Coronavirus disease 2019 (COVID-19) has complicated this scenario with an over-stretched and exhausted global health workforce facing daily resource and clinical challenges. Digital health innovation is increasingly seen as essential in improving care efficiency and access, especially for vulnerable or marginalised communities.

The Champlain BASE eConsult service and similar regional models in North America, have effectively utilised digital innovation to link busy clinicians asynchronously in addressing timely patient care, with minimal administrative burden or delay (Guglani *et al.* 2022). The international literature

cited in this paper, consistently demonstrates the positive impact of this model on system access, cost and impact. Despite this, eConsult services in adult physician specialties remain in their infancy across major health services in North America and Europe. In Australia, only one eConsultant option, a single-specialty GP-to-General Physician eConsultant service (Job *et al.* 2022), is operational, and largely only available to rural populations in sections of one state. This service plans to expand delivery to include a number of other specialties, currently inaccessible to rural communities (Job *et al.* 2022). The findings of this research will be utilised in further exploring translation and scaling-up of the model.

Whereas other studies have identified potential barriers and enablers to eConsult translation from the GP specialist or patient setting, this study is the first to examine it in depth from the non-GP specialists' perspective. Without the commitment and availability of this sector at scale, implementation of the model is impossible. Although the majority of our sample were in support of the concept and appreciated the potential, they raised a number of concerns requiring attention prior to broad implementation.

The cost of the service and non-GP specialist financing model were both raised within this study. Initial data from the Queensland eConsultant service suggest a 61% reduction in service costs per patient compared with traditional FTF outpatient care (Job *et al.* 2023). Funding for the physician in the Queensland service is currently covered in a protected eConsultant salary, with a 2-h time allowance twice weekly (Job *et al.* 2021). In Canada, it is delivered via a fee-forservice payment per reply for the non-GP specialist, with a \$16 CAD payment to the GP for generation of the eConsult (Liddy *et al.* 2022). It is clear from our work that Australian physicians require reassurance that they will not be pressured to add this work to existing consultation numbers and demand without support. They also did not see the model as workable if it intruded into out-of-work time.

A specific recording and administrative infrastructure was also seen as critical to support this new approach. This is needed to ensure effective interoperability, secure messaging via settings, alerts to ensure arrival and dispatch of the eConsult is actioned, a formal record, an evaluation function, and indemnity coverage. Supporting investigations, summaries and reports should easily be able to be attached and strict patient privacy should be ensured.

There are several limitations to this qualitative research that are important to consider. Our sample included physicians from all but one Australian state, with good gender and age balance; however, the participant numbers overall were low. This study also focusses on the perspective of RACP adult medicine specialists. Future studies might consider other specialty groups such as paediatric and surgical specialties. The impacts of the COVID-19 pandemic on eConsults was not considered in this study, but has likely made eConsult services even more relevant to patients, healthcare providers, key stakeholders and policymakers.

Conclusion

The successful dissemination and uptake of the eConsultant model in Australia will require the perspectives of RACP adult medicine specialists to be understood and considered. This is the first study to specifically address this issue – allowing policymakers, clinicians, and funders in this country to fully understand key barriers and enablers relevant to the translation of this, and potentially other, innovative digital health initiatives. This study makes an important contribution to the growing body of evidence underpinning the translation of effective eConsultant services across Australia.

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Data availability. The data that support this study will be shared upon reasonable request to the corresponding author.

Conflicts of interest. The authors declare no conflicts of interest.

Declaration of funding. This research did not receive any specific funding.

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