ORIGINAL ARTICLE

Travel Medicine Encounters of Australian General Practice Trainees—A Cross-Sectional Study

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Background. Travel medicine is a common and challenging area of clinical practice and practitioners need up-to-date knowledge and experience in a range of areas. Australian general practitioners (GPs) play a significant role in the delivery of travel medicine advice. We aimed to describe the rate and nature of travel medicine consultations, including both the clinical and educational aspects of the consultations.

Methods. A cross-sectional analysis from an ongoing cohort study of GP trainees' clinical consultations was performed. Trainees contemporaneously recorded demographic, clinical, and educational details of consecutive patient consultations. Proportions of all problems/diagnoses managed in these consultations that were coded "travel-related" and "travel advice" were both calculated with 95% confidence intervals (CIs). Associations of a problem/diagnosis being "travel-related" or "travel advice" were tested using simple logistic regression within the generalized estimating equations (GEE) framework.

Results. A total of 856 trainees contributed data on 169,307 problems from 108,759 consultations (2010–2014). Travel-related and travel advice problems were managed at a rate of 1.1 and 0.5 problems per 100 encounters, respectively. Significant positive associations of travel-related problems were younger trainee and patient age; new patient to the trainee and practice; privately billing, larger, urban, and higher socioeconomic status practices; and involvement of the practice nurse. Trainees sought in-consultation information and generated learning goals in 34.7 and 20.8% of travel advice problems, respectively, significantly more than in non-travel advice problems. Significant positive associations of travel advice problems were seeking in-consultation information, generation of learning goals, longer consultation duration, and more problems managed.

Conclusions. Our findings reinforce the importance of focused training in travel medicine for GP trainees and adequate exposure to patients in the practice setting. In addition, our findings have implications more broadly for the delivery of travel medicine in general practice.

Australians are enthusiastic international travelers, with more than nine million international departures in 2013 to 2014.[1] The pre-travel consultation is a key opportunity for the assessment of travel-related health risks and the delivery of up-to-date advice and interventions such as immunizations.[2] Pre-travel counseling has been shown to be an effective intervention.[3] Despite the rise in specialized travel medicine clinics, Australian general practitioners (GPs) continue to play a significant role in the delivery of travel medicine advice.[4] Problems related to travel were managed at a rate of 0.6 per 100 encounters in Australian general practice in 2007, equivalent to about 570,000 encounters in a 12-month period.[5]

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Travel medicine is a challenging area of clinical practice. Practitioners need up-to-date knowledge and experience in a number of areas, including epidemiology and geography of communicable diseases and other travelers' illnesses; noncommunicable travel risks; vaccines, travel medications, their indications, and adverse events; post-travel illness presentation and management; and an understanding of when to refer.[2] However, inadequacies of travel medicine training of GPs have been identified both in Australia and internationally, including for appropriate pathology testing of the febrile traveler and use of resources.[6–8] In particular, more than half of Australian GPs and more than 90% of New Zealand GPs have previously reported no formal training in travel medicine.[7,8]

The Australian General Practice Training (AGPT) program involves a minimum of three 6-month terms of experiential learning in the general practice setting. Registrars (trainees) have recourse to advice from GP supervisors (trainers) within an "apprenticeship-like" model and have structured educational sessions away from the practice setting. But consulting with patients is the core learning activity of training. Trainees see unreferred patients and practice as independent practitioners (including for prescribing purposes). The curriculum "walks through the door," and there is no standardized process for influencing clinical exposure or targeted patient bookings.

For travel medicine, as with other clinical areas, consulting with patients provides trainees with the opportunity to apply knowledge, skills, and attitudes acquired in structured educational sessions and independent study. Understanding the nature of travel medicine-related encounters is therefore important to gain a better appreciation of the health needs of the traveling public and of the educational needs of GP trainees.

There is no literature describing the travel medicine consultations of GP trainees. We aimed to describe the rate and nature of these consultations, including both the clinical and educational aspects of the consultations.

Methods

This was a cross-sectional analysis of GP trainee consultations as part of the Registrar Clinical Encounters in Training (ReCEnT) study. The study methodology has been described in detail elsewhere.[9] Briefly, ReCEnT is an ongoing cohort study of the in-practice clinical experiences of GP trainees. It is undertaken in five of Australia's 17 general practice regional training providers (RTPs) and encompasses urban, rural, and remote practices in five of Australia's six states. It includes trainees through both the Royal Australian College of General Practitioners and the Australian College of Rural and Remote Medicine.

Participating trainee characteristics and characteristics of their practice are recorded. Trainees record the details of 60 consecutive patient encounters, representing approximately 1 week of consultations, each

6-month training term in general practice. Data collection is conducted around the midpoint of each training term and employs a standardized paper-based encounter form for each consultation. As data collection is designed to reflect a "normal" week of general practice, consultations in a specialized clinic, eg, vaccination clinic or Pap smear clinic, are excluded. Only office-based consultations (not home visits or nursing home visits) are recorded.

Outcome Factors

The primary outcome factor in this study was whether a problem/diagnosis managed by the trainee was a travel medicine problem, referred hereafter as "travel-related." In the ReCEnT study, problem/diagnosis is defined as the "single most likely provisional diagnosis." Trainees are asked to record at least one and up to four problems/diagnoses per patient encounter (consultation). Only problems actually dealt with at the encounter are recorded. Problems/diagnoses are coded according to the International Classification of Primary Care, second edition classification system (ICPC-2 plus).[10] For the analysis of travel-related problems, all ICPC-2 codes that included a travel element were grouped. The relevant codes were A44 002 (Immunization;overseas travel), A45 14 (Advice/education;travel), A30 023 (Checkup;travel), A30 024 (Exam;travel), A62 009 (Admin;travel), A62 021 (Admin;arrange travel), and A50 013 (Medication;travel). We excluded travel sickness from our analysis because this code is equivalent to motion sickness in the ICPC-2 classification system and is therefore not directly related to travel medicine.

A secondary outcome factor was whether the problem was more specifically provision of travel advice, referred to hereafter as a "travel advice" problem. The classification of "travel advice" problems/diagnoses was restricted to the ICPC-2 codes A45 14 and A30 023.

The rationale for separate analyses of the two outcome factors is as follows: "Travel-related" problems/diagnoses include all travel medicine problems and this is therefore the appropriate outcome factor to describe the broad epidemiology and associations of the practice of travel medicine. Though "travel-related" problems may include all types of travel, the assumption is that the vast majority of GP presentations for this purpose relate to international travel.

However, we recognize that this grouping is likely to include a large number of simple, brief consultations involving only script writing or administering vaccines (or delegating vaccine administration to nurses), and will not reflect the more specific undertaking of comprehensive travel advice (typical of the pre-travel consultation). We therefore used the "travel advice" outcome factor to capture this appropriately (Figure 1).

Independent Variables

Independent variables related to trainee, patient, practice, consultation, and educational factors.
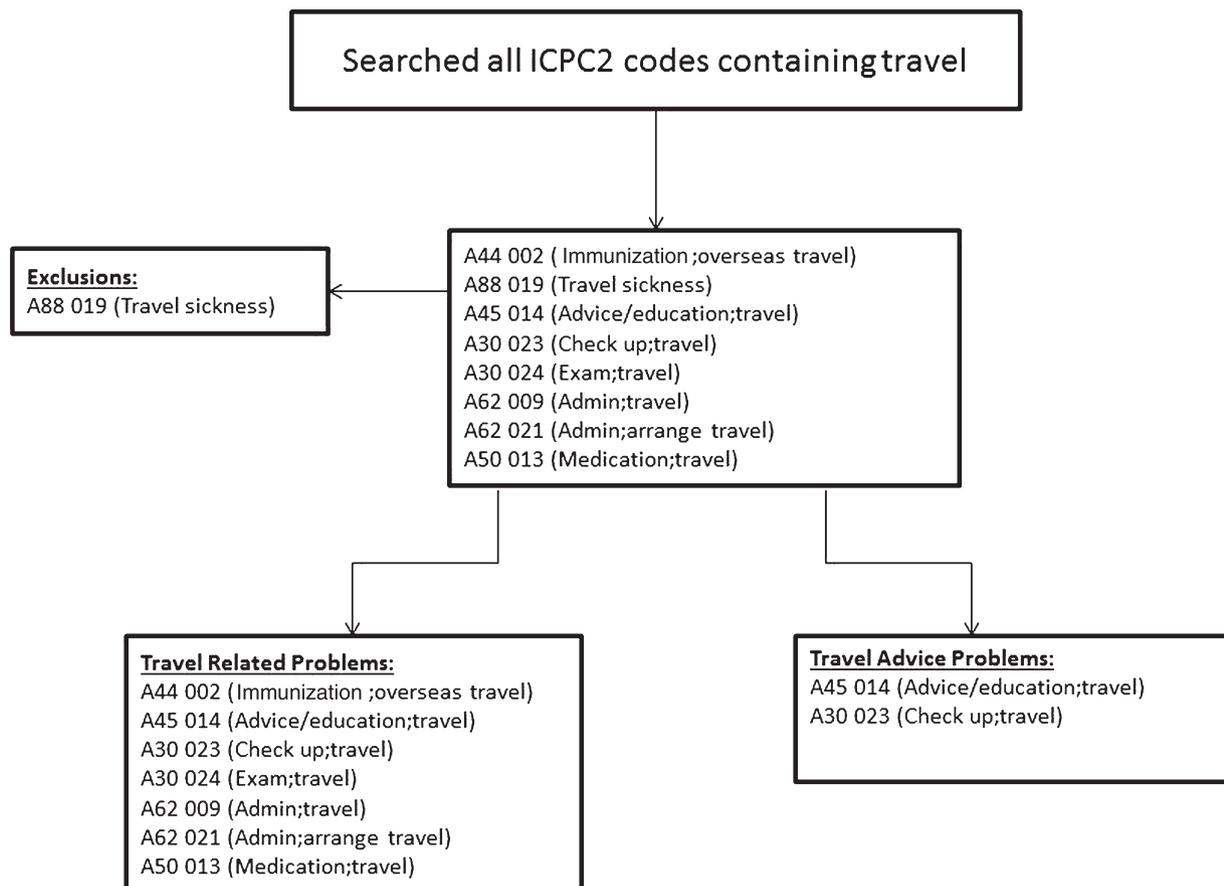
Figure 1 Construction of outcome factors from the relevant International Classification of Primary Care, second edition classification system (ICPC-2) codes.

Trainee factors were age, gender, training term, place of medical qualification (Australia/international), and full-time/part-time status.

Patient factors were age, gender, new patient to the practice, and new patient to the trainee.

Practice factors included rurality, practice size (number of full-time equivalent GPs), socioeconomic status, and if the practice routinely bulk-bills (ie, there is no financial cost to the patient for the consultation). Practice postcode was used to define the Australian Standard Geographical Classification-Remoteness Area (ASGC-RA) classification (the degree of rurality) of the practice location[11] and to define the practice location's Socioeconomic Index for Area (SEIFA) Relative Index of Disadvantage (socioeconomic status). [12]

Consultation factors included duration of consultation, involvement of the practice nurse, number of problems managed, referrals made, and medications prescribed (including over-the-counter medications and vaccines).

Educational factors included recourse to in-consultation information or advice and generation of learning goals by the trainee for subsequent attention.

Statistical Analysis

Analysis was performed on nine rounds of data from 2010 to 2014. Individual RTPs contributed one to nine rounds of data, depending on their date of commencing the study.

The unit of analysis was the individual problem/diagnosis rather than the consultation.

Descriptive analyses were used to report trainee, patient, and practice demographics.

Proportions of travel-related and travel advice problems and diagnoses were calculated with 95% confidence intervals (CIs). Travel-related problems were compared with all other problems. Travel advice problems were compared with all non-travel-related problems.

Associations of trainee, patient, and practice factors with a problem/diagnosis being travel-related were tested using simple logistic regression within the generalized estimating equations (GEE) framework to account for the repeated measures on trainees. Associations of consultation and educational factors with a problem/diagnosis being travel advice-related were also tested using simple logistic regression within the GEE framework.

Table 1 Participating trainee, trainee-term, and practice characteristics

Variable	Class	n	%	(95% CIs)
Trainee variables (n = 856)				
Trainee gender	Female	562	65.7	(62.4–68.8)
Qualified as a doctor in Australia	Yes	664	78.5	(75.6–81.1)
Trainee age (years)	Mean ± SD	32.5 ± 6.3		
Trainee-term* and practice-term variables (n = 1,832)				
Trainee training term	Term 1	765	42.8	(39.5–44.0)
	Term 2	538	29.4	(27.3–31.5)
	Term 3	454	24.8	(22.9–26.8)
	Term 4	75 4	1	(3.3–5.1)
Trainee worked at the practice previously	Yes	486	26.9	(24.9–29.0)
Trainee works full-time	Yes	1,395	77.8	(75.8–79.6)
Practice routinely bulk-bills†	Yes	317	17.4	(15.8–19.2)
Number of GPs working at the practice	1–4	604	33.7	(31.6–35.9)
	5–10+	1,187	66.3	(64.1–68.4)
Rurality of practice	Major city	1,060	57.9	(55.6–60.1)
	Inner regional	521	28.4	(26.4–30.6)
	Outer regional or remote	251	13.7	(12.2–15.4)
SEIFA‡ Index (decile) of practice	Mean ± SD	5.4 ± 2.9		

CI = confidence interval.
*"Trainee-term" means the number of individual terms undertaken by all trainees.
†"Bulk-bills" means no financial cost to the patient.
‡Socioeconomic Index for Area (SEIFA) Relative Index of Disadvantage.

All analyses were conducted at the level of individual problem/diagnosis rather than consultation level, except for the analyses of consultation duration and problems managed during the consultation, which were performed at the consultation level to make assessment of clinical significance more straightforward.

All analyses were programmed using STATA 13.1. *p*-Values <0.05 were considered significant.

Ethical approval for the study was obtained from the Human Research Ethics Committee of the University of Newcastle, NSW, Australia (approval number: H-2009-0323).

Results

Participants

A total of 856 trainees contributed data to the analysis. The response rate was 95.2% (in all rounds, the number of times trainees participated was 1,924, of a potential 2,022 participations). Overall, 65.7% of the trainees were female, and the mean age was 32.5 ± 6.3 years. Trainees who did their primary medical degree in Australia comprised 78.5% (95% CI: 75.6–81.1) of trainees, and 22.2% (95% CI: 20.4–24.2) of all trainees worked half-time (2½ days/week) or less. Table 1 displays the characteristics of participating trainees, trainee-terms, and practices.

All Travel-Related Problems

Overall, trainees returned data on 169,307 individual problems/diagnoses from 108,759 encounters. There were 1,152 travel-related problems/diagnoses managed, accounting for 0.68% (95% CI: 0.64–0.72) of all

problems/diagnoses managed. This equated to a rate of 1.06 travel-related problems/diagnoses per 100 encounters (95% CI: 1.00–1.12).

The mean age of trainees managing travel-related problems/diagnoses was significantly less than that of the trainees managing non-travel-related problems/diagnoses. There was a nonsignificant trend for Australian-trained trainees to manage more travel-related problems/diagnoses than non-Australian-trained trainees.

The mean age of patients seen for travel-related problems/diagnoses was 39.7 ± 19.8 years, significantly less than that of patients seen for non-travel-related problems/diagnoses (42.7 ± 23.5 years). Overall, 60.7% (95% CI: 57.8–63.5) of the patients seen for travel-related problems/diagnoses were female. Patients with travel-related problems/diagnoses were significantly more likely to be new to both the trainee and the practice, compared with patients with non-travel-related problems/diagnoses—57.4% (95% CI: 54.4–60.2) versus 49.1% (95% CI: 48.8–49.3) and 10.0% (95% CI: 8.4–11.9) versus 6.7% (95% CI: 6.6–6.8), respectively.

Travel-related problems/diagnoses were significantly more likely to be managed in privately billing practices, larger practices, urban practices, and those located in areas of higher socioeconomic status. The practice nurse was significantly more frequently involved in the management of travel-related problems.

Table 2 presents the characteristics of the trainees, patients, practices, and practice nurse involvement for travel-related problems in comparison to all other problems.

Table 2 Characteristics associated with travel-related problems

Variable	Class	Travel-related problem (n = 1,152)	Non-travel-related problem (n = 168,155)	Cluster adjustment OR [95% CI] (p value)
Trainee variables				
Trainee gender	Female	783 (68.0%)	110,652 (65.8%)	1.09 [0.93–1.27] (0.269)
Trainee age (mean ± SD)		31.9 ± 6.0	32.8 ± 6.6	0.98 [0.96–0.99] (<0.001)
Qualified as doctor in Australia	Yes	914 (80.4%)	128,632 (77.5%)	1.20 [1.00–1.45] (0.052)
Trainee-term and practice-term variables				
Full-time/part-time trainee	Full-time	869 (77.1%)	127,610 (77.5%)	0.93 [0.75–1.16] (0.533)
Training term	1	520 (45.1%)	71,832 (42.7%)	Referent
	2	324 (28.1%)	48,512 (28.9%)	0.92 [0.76–1.11] (0.371)
	3	263 (22.8%)	41,181 (24.5%)	0.89 [0.74–1.07] (0.210)
	4	45 (3.9%)	6,630 (3.9%)	1.06 [0.70–1.61] (0.795)
Trainee worked at practice previously	Yes	309 (27.0%)	44,502 (26.8%)	1.04 [0.88–1.22] (0.649)
Practice bulk-bills	Yes	160 (14.0%)	29,194 (17.5%)	0.75 [0.60–0.94] (0.011)
Practice size	Small (1–5 GPs)	340 (30.2%)	55,490 (34.4%)	
	Large (6+ GPs)	785 (69.8%)	107,988 (65.7%)	1.21 [1.02–1.44] (0.028)
Rurality	Major city	740 (64.2%)	97,296 (57.9%)	Referent
	Inner regional	291 (25.3%)	47,472 (28.2%)	0.81 [0.68–0.96] (0.016)
	Outer regional/ remote/ very remote	121 (10.5%)	23,387 (13.9%)	0.64 [0.50–0.82] (<0.001)
SEIFA decile		5.37 (2.9)	5.98 (2.9)	1.08 [1.05–1.11] (<0.001)
Patient variables				
Patient age (years)	0–14	83 (7.3%)	22,787 (13.8%)	Referent
	15–34	456 (40.1%)	42,195 (25.5%)	2.97 [2.24–3.95] (<0.001)
	35–64	452 (39.8%)	67,587 (40.8%)	1.86 [1.41–2.46] (<0.001)
	65+	146 (12.8%)	32,998 (19.9%)	1.25 [0.91–1.72] (0.165)
Patient age (mean ± SD)		39.7 ± 19.8	42.7 ± 23.5	0.99 [0.99–1.00] (<0.001)
Patient gender	Female	680 (60.7%)	102,612 (62.7%)	0.92 [0.81–1.04] (0.160)
Patient/practice status	Returning patient	362 (32.6%)	72,364 (44.2%)	Referent
	New to trainee	636 (57.4%)	80,314 (49.1%)	1.57 [1.37–1.80] (<0.001)
	New to practice	111 (10.0%)	10,991 (6.7%)	2.00 [1.52–2.64] (<0.001)
Consultation variables				
Practice nurse involved	Yes	204 (17.7%)	8,327 (5.0%)	4.13 [3.38–5.04] (<0.001)

OR = odds ratio; CI = confidence interval; GP = general practitioners; SEIFA = Socioeconomic Index for Area.

Travel Advice Problems

There were 557 travel advice problems managed, accounting for 0.33% (95% CI: 0.30–0.36) of all problems managed. This equated to a rate of 0.51 problems per 100 encounters (95% CI: 0.47–0.56). Table 3 presents the consultation and educational factors for travel advice problems.

Medications were prescribed for 37.5% of "travel advice" problems, compared with 35.4% for non-travel advice problems, a nonsignificant difference.

Trainees sought in-consultation information or advice in 34.7% of travel advice problems. This was significantly more common than for non-travel advice problems (14.3%). For those problems where in-consultation information was sought by the trainee, 17.1% were from the trainer (or other doctor in the practice), 73.1% were with electronic resources, and 9.8% were with hard copy resources. The most common resources accessed are listed in Table 4.

Trainees generated learning goals in 20.8% of travel advice problems/diagnoses, significantly more frequently than that in non-travel-advice problems/diagnoses (14.9%).

Consultations where travel advice was managed were significantly longer than other consultations (19.0 minutes compared with 17.0 minutes). Overall, there were significantly more problems (of all types) managed in encounters where travel advice problems were managed compared with all other encounters — 2.03 ± 0.92 problems per travel advice encounter compared with 1.55 ± 0.80 for all other encounters. Only 32.0% (95% CI: 28.2–36.0) of all travel advice problems were managed as the only problem in the consultation.

Discussion

This is the first published study on the prevalence and associations of travel medicine problems/diagnoses managed by GP trainees. Our findings address identified evidence gaps in travel medicine practice, including a better understanding of the demographics of patients presenting for travel-related problems.[13]

Comparison With Previous Studies

In comparison to established GPs,[3] prevalence of travel-related problems/diagnoses in GP trainees'

Table 3 Characteristics associated with travel advice problems

Variable	Class	Travel advice problem ($n = 557$) % or $\pm$SD	Non-travel advice problem ($n = 168,155$)% or $\pm$SD	Cluster adjustment OR [95% CI] (p value)
Problem/diagnosis-level variables				
Medications prescribed	Yes	209 (37.5%)	59,450 (35.4%)	1.13 [0.91–1.38] (0.265)
Referral made	Yes	19 (3.4%)	20,422 (12.1%)	0.25 [0.14–0.46] (<0.001)
Follow-up made	Yes	167 (30.0%)	74,792 (44.5%)	0.50 [0.43–0.65] (<0.001)
Any information source used	Yes	193 (34.7%)	24,059 (14.3%)	3.25 [2.68–3.96] (<0.001)
Learning goal generated	Yes	116 (20.8%)	25,004 (14.9%)	1.54 [1.23–1.92] (<0.001)
Consultation-level* variables				
Consultation duration		19.02 ± 9.18	17.01 ± 9.11	1.02 [1.01–1.03] (<0.001)
Number of problems		2.03 ± 0.92	1.55 ± 0.80	1.71 [1.57–1.87] (<0.001)

OR = odds ratio.

*N.B. analysis at the level of consultation rather than problem/diagnosis.

Table 4 Source of information used by GP trainees for travel advice problems when any source accessed

Type of resource	Proportion of all sources accessed (%)
Electronic resource (including travel medicine databases)	73.1
GP trainer (or other doctor in the practice)	17.1
Books (hard copy resources)	9.8
Other health professional	9.3
Other resource	4.7
Specialist	0.5

GP = general practitioners

practice was much higher (1.1 compared with 0.6 per 100 encounters). This is consistent with previous work demonstrating that Australian GP trainees see more acute presentations and less chronic diseases than established GPs.[14,15] This may also reflect greater availability of appointments with GP trainees than established GPs.

The age of patients presenting for travel-related problems was less than that of patients presenting for other problems, with the most common age group being 15 to 34 years. This is consistent with travel-related encounters of established GPs[5] and also reflects the young age of the Australian international traveler.[1] Studies of GP trainees have also found a considerably younger population of patients than that in studies of established GPs.[14]

There is no directly comparable literature to compare our findings of travel advice problems, and therefore interpretation of our findings of higher rates seen by trainees is guarded.

Strengths and Limitations

Our study has a number of strengths. We believe that the findings are broadly generalizable to Australian general practice training overall, as the trainee participants had very similar demographics (age, gender, and international medical graduate status) to the national GP trainee cohort.[16] In addition, we conducted this study in five RTPs across five Australian states. The very high response rate also contributed to the reliability of our findings.[17]

We coded our data using ICPC2-plus, thus enabling comparability with other Australian studies. ICPC2-plus is the international standard for classifying primary care data and the validity of this system has previously been demonstrated. [18]

Staggered data collection due to logistical considerations within different RTPs and among part-time/full-time trainees and irregular terms for some trainees means that seasonality in travel consultations is unlikely to have biased our results.

Limitations of this study include having only presented descriptive and univariate statistics and not having conducted multivariable analysis. As a result, we have not accounted for potential confounding in the associations we have established. Our intention in this study was, however, confined to broadly "mapping the territory" of GP trainee travel medicine-related encounters, about which there is no previous published literature.

Another potential limitation is generalizability beyond Australia. However, as a number of other countries have a similar model of general practice vocational training to Australia (apprenticeship plus external teaching), including the UK and northern Europe, we feel that the findings are internationally relevant.

A further limitation is that we are unable to identify whether travel-related problems relate to pre-travel or post-travel. There are no specific ICPC-2 codes that relate to the returned traveler, and such presentations were likely to have been recorded by the trainee and subsequently coded as the presenting illness, eg, diarrhea. So, while it is likely that the majority of our data relates to pre-travel encounters, some may be for the returned traveler with an illness.

Implications for Educational Practice and Policy

We found that trainees manage a travel-related problem in more than one in every 100 encounters, making it a relatively common presentation, comparable in

frequency to male genital problems (1.3 per 100 encounters).[15] Our findings have implications for both general practice training, and more broadly for the delivery of travel medicine in general practice.

Travel-related consultations are complicated and ideally comprise comprehensive history taking, assessment of specific and general travel-related risks, and provision of targeted advice and recommended interventions such as immunizations and malaria prophylaxis.[2] It follows that a prior knowledge of the patient's past medical history, medications, allergies, and social history is ideal in delivering best practice care.

In contrast, we found that a high rate (57.4%) of patients presenting with travel-related problems were new to the trainee. This relative lack of continuity is likely to reflect greater availability of trainees compared with established GPs for what might be misguidedly regarded as a "simple, one-off visit." It may also reflect a lack of appreciation of the benefits of a patient seeing their regular GP for travel advice. We believe that this is a concerning finding and has implications for provision of comprehensive care for the traveling patient. The finding that travel-related consultations addressed more problems/diagnoses than did non-travel-related consultations further suggests that patients (and, perhaps, trainees) may see these as "simple" problems that do not need particularly close focus and attention.

The findings that travel-related problems were more likely to be managed in privately billing practices, urban practices, and those of higher socioeconomic status were perhaps not surprising. However, from an educational viewpoint, this would suggest that trainees not working in such settings will have a relative lack of exposure to travel medicine management, with consequent implications for comprehensiveness of training.

Travel advice problems led to significantly more in-consultation information seeking and generation of learning goals than other problems. Again, this is an expected finding, as travel medicine is complex and requires up-to-date knowledge about constantly changing risks and treatments.[7]

However, we have also identified that external resources were not accessed in nearly two thirds of travel advice problems by GP trainees. Furthermore, more than one quarter of the travel advice problems for which information was sought was not from electronic resources, and therefore less likely to be evidence based or up-to-date. It is widely accepted that hard copy resources may rapidly lose currency and become outdated.[19] As well, we have previously found that human sources of information may lead to non-evidence-based prescribing behaviors in this study population.[20]

Even after accounting for information seeking after the encounter for a proportion of these problems, this high rate of travel advice problem management unsupported by evidence-based in-consultation information seeking is concerning. There are clear implications here for GP training, including greater access and orientation to online resources for up-to-date information on travel medicine, specific to both disease and country/region (for example, the Centers for Disease Control and Prevention guidelines).[21] A previous older study on information seeking concluded that the wide range of reference materials available may lead to inconsistent and inappropriate advice.[22]

There are a number of other important educational implications from our study. The importance of continuing professional development in travel medicine has been promoted.[23,24] Much less, however, has been written about its place in postgraduate training for general practice. The extent of current specific travel medicine teaching through the RTPs is unknown. We believe that GP trainees must receive high quality teaching in travel medicine with an emphasis on risk assessment and use of best available evidence.

Despite its importance and prevalence, travel medicine is not specifically mentioned in the Royal Australian College of General Practitioners[25] or the Australian College of Rural and Remote Medicine[26] curricula. We believe that this is a critical omission and our findings support the need for inclusion in future revisions of these documents.

Our findings also have implications for practice policy. To provide best practice care in travel medicine, GPs need to allocate sufficient time.[27] Although we found that travel advice consultations lasted a modest mean duration of 2 minutes longer than other encounters, such encounters also included management of another 0.5 (unrelated) problems. This is inconsistent with the described complexity of travel advice problems and the time needed to manage them. We therefore advocate for all travel medicine encounters to have sufficient time allocated to undertake a comprehensive risk assessment and development of a tailored management plan.

We believe that the implications of our findings are relevant to many other countries with broadly similar models of primary care delivery and general practice training. The issues of managing a complex travel-related problem, the potential lack of continuity of care, and the information-seeking practice are likely to be similar for GP trainees (and, indeed GPs) in other countries.

Implications for Further Research

We have presented an overview of travel medicine-related encounters of general practice trainees. Particular aspects of trainee clinical practice demand individual-focused analyses, including medication prescribing, the nature and specific sources of travel-related information sought, and GP trainer teaching. Qualitative research into the GP trainees' interactions with patients seeking travel-related care could help explain and contextualize our findings. Similar studies conducted in other countries would be important to identify the local epidemiology and issues.

Conclusion

We have described the travel medicine encounters of Australian GP trainees, including the associations of managing travel-related problems. Our findings reinforce the importance of focused training in travel medicine for GP trainees and adequate exposure to patients in the practice setting. We believe that these findings have significant implications for GP training in Australia and internationally, and more broadly for the delivery of travel medicine in general practice.

Acknowledgments

Declaration of Interests

The authors state that they have no conflicts of interest to declare.

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