



Does a host country capture knowledge of migrant doctors and how might it? A study of UK doctors in New Zealand

Robin Gauld · Simon Horsburgh

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Abstract

Objectives To investigate International Medical Graduate (IMG) perspectives on opportunities to share technical knowledge and professional experience with host country professionals and mechanisms for this.

Methods All IMGs from the UK registered with the New Zealand Medical Council who had arrived within the decade to 2014 were surveyed ($n = 1357$). The main outcome measures were respondent perceptions of host country receptivity to their potential knowledge contribution, and mechanisms through which knowledge might be shared.

Results The survey response rate was 47 % ($n = 632$). 82 % of respondents agreed colleagues had been receptive to their knowledge contribution; 67 % felt they had been encouraged to share professional knowledge gained abroad; 60 % agreed they had been encouraged to share knowledge of the UK or other health systems. Only 45 % believed there were clear mechanisms in place for knowledge sharing. Statistically significant differences by age and professional practice designation were found.

Conclusions Knowledge transfer in the New Zealand context appeared to be relatively ad hoc. Options for improving knowledge transfer include formal

organisational arrangements, use of knowledge brokers and building communities of practice in different areas.

Keywords International Medical Graduates (IMGs) · Knowledge sharing · UK · New Zealand

Introduction

Doctor migration and the reliance in many countries on International Medical Graduates (IMGs) to maintain a stable and balanced medical workforce are ubiquitous. This reliance affects some countries and parts of the world more than others, especially low- and medium-income countries who find it difficult to compete in a global workforce market. Affected countries are often simply unable to match the working conditions, income, training opportunities and lifestyle offered elsewhere (World Health Organization 2006). A 2014 review reiterated that such challenges are also common in the high-income countries of the OECD (Ono et al. 2014). A majority of these countries face a range of medical workforce challenges with questions over how they will meet increasing public demand for health care, maintain a sufficient number of general practitioners (GPs), fill shortages in particular hospital specialties, and ensure an even distribution of doctors across the population. One response is to seek the services of international medical graduates (IMGs—sometimes called ‘overseas trained doctors’) who have specific desired skills or may be willing to work in hard to staff areas (Negin et al. 2013; Zubaran 2011).

Data show that IMGs have long played an important role in providing health care in many countries (Negin et al. 2013; OECD 2015; Ono et al. 2014), with the history of, and reasons for, this role described in detail elsewhere

R. Gauld (✉)

Health Policy, Department of Preventive and Social Medicine,
Centre for Health Systems, University of Otago, PO Box 56,
Dunedin 9010, New Zealand
e-mail: robin.gauld@otago.ac.nz

S. Horsburgh

Epidemiology, Department of Preventive and Social Medicine,
Centre for Health Systems, University of Otago, PO Box 56,
Dunedin 9010, New Zealand
e-mail: simon.horsburgh@otago.ac.nz

(Stilwell et al. 2004; Van Der Weyden and Chew 2004; Zubaran 2011). The key reason why IMGs are required is the basic requirement for more doctors to keep up with ever-increasing health care demand which is not able to be met due to shortfalls in the numbers of locally trained doctors being produced, highlighting failings in domestic policy and planning (Van Der Weyden and Chew 2004). The global movement of doctors has various benefits, particularly in terms of training opportunities that may not be available in the IMG's country of origin, and provides all-important experience working within different health systems and populations.

A range of studies have investigated factors that drive doctor migration (Eastwood et al. 2005; Labonte et al. 2006; Marchal and Kegels 2003; Martineau et al. 2004; Nair and Webster 2012; Stilwell et al. 2004). These studies have largely focused on the flow of doctors from low to higher income destinations. They have identified a series of factors that 'push' doctors away from their country of origin, including substandard working conditions and facilities, inadequate pay, high stress levels, lack of clinical and administrative support, and a poor quality or unsafe living environment. Coupled with this are factors that attract or 'pull' doctors into a new country, such as improved quality of life, the promise of better working conditions, higher incomes, and training opportunities.

Researchers have also investigated the broader implications of migration. These include the fact that IMGs are often entering a health system and country quite different from that of their origins. This can lead to challenges of 'cross-cultural adaptation', pointing to a need for additional support to help IMGs integrate into their new role and society (Terry and Le 2014). Allegations of discrimination in the medical registration process and workplace are a major theme in the literature, especially against IMGs from ethnic minority groups (Moberly 2014). Indeed, studies show a consistent pattern of discrimination against ethnic minority doctors and IMGs, with impacts both in how these doctors are treated by professional colleagues and patients, and in examination processes (Coombs and King 2005; Esmail and Roberts 2013; Nunez-Smith et al. 2009; Elkin et al. 2012). Finally, in many parts of the world, the pull of particular destination countries can be a major contributor to workforce shortages in source countries, raising various ethical and policy questions (Labonte et al. 2006; Mackintosh et al. 2006; Negin 2008; Roberts 2008; Zubaran 2011). In response, the WHO issued a Global Code of Practice on the International Recruitment of Health Personnel which outlined a series of obligations for member states, including that they work collaboratively to both consider and reduce the impact on development capacity in source countries (World Health Organization 2010).

Yet, in the New Zealand case, IMGs are not a solution to workforce shortages. New Zealand data show something of a revolving door with such doctors often staying for a limited time. Amongst higher income countries, New Zealand may be an extreme example owing to its experiences, but important for various reasons. First, the proportion of IMGs in New Zealand's doctor workforce, at 44 % in 2014, is the highest of any OECD country and this proportion has been growing over time (Health Workforce New Zealand 2014). New Zealand is also amongst the highest per capita doctor exporting countries in the OECD, with local graduates routinely going abroad in search of new opportunities (Zurn and Dumont 2008). Second, while New Zealand has long relied on IMGs, its health system would not function without them meaning there is a structural shortage of locally trained doctors (Association of Salaried Medical Specialists 2014). Third, IMGs do not provide for a sustainable New Zealand health workforce. A year after registration, only 35 % of doctors from Canada and the USA remain in the country. This increases to 53 % for UK doctors—who compose around half of New Zealand's IMGs—dropping to 30 % after 2 years and 20 % after 8 years, and 70 % for doctors from Asia. The retention rate for all IMGs is around 30 % after 4 years. By contrast, 70 % of New Zealand-trained doctors are still there after 8 years, suggesting a locally grown workforce is more likely to contribute to sustainability (Health Workforce New Zealand 2014; Medical Council of New Zealand 2013). On the upside, IMGs from the UK go into a health system not dissimilar from what they are experienced with (see "Box: New Zealand's health system").

The costs of medical migration for New Zealand, and countries facing similar challenges, can be high. These include recruitment and associated costs such as relocation, locum coverage for vacant posts, and a period of supervision of new IMGs seeking medical registration by a registered and practicing local doctor (Association of Salaried Medical Specialists 2013, 2014). An additional cost is the potential lack of capacity to build institutional knowledge within the health system if a considerable proportion of the workforce is short term, and there is not a specific focus on drawing on the skills of IMGs so that the professional experiences and knowledge they bring from abroad can be put to local use. Of those IMGs who do stay for the longer term (as well as short term), there is still potential to systematically draw upon a large pool of expertise in various areas, such as different methods of care organisation or the implementation and impact of particular innovative practices they may have been involved with. The extent to which IMGs have opportunity to transfer their professional knowledge and experiences into a host health system and share this with professional and other colleagues is under-investigated; indeed, we found no prior

study focused on this. We are also not aware of any country that has a specific mechanism in place or policy to proactively capture and draw upon the potential knowledge bank that IMGs represent.

Following the above, this article reports on one component of a study of UK IMGs resident in New Zealand. It presents results from a survey of these doctors, showing that respondents had mixed perceptions of their capacity to contribute knowledge and the extent to which such contributions were encouraged. The survey questions investigated 'knowledge' in a general sense, including from experiences working in other health systems and from professional training. Drawing on these data, and the work of others, the article then discusses methods through which policy makers and health services might work to better harness IMG knowledge.

Box: New Zealand's health system

New Zealand's 1938 Social Security Act was the world's first attempt to create a 'national health service'. Doctor resistance meant the intent was never realised. Public hospitals salary all staff and are free of patient charges. General Practitioners are largely in private practice and act as gatekeepers. They receive considerable government subsidies but charge most patients a fee per consultation, creating an access barrier (Jatrana and Crampton 2009). Government contributes 83 % of total health expenditure, as in the UK. Around 40 % of public hospital specialists have a separate private practice, sometimes considered to be attractive in terms of public sector workforce retention (Ashmore and Gilson 2015). The parallel private system means patients of better means are able to circumvent public hospital waiting times or access treatments considered to be lower priority in the constrained public sector (Gauld 2013).

Methods

In mid-2014, all UK-trained doctors registered with the Medical Council of New Zealand who had arrived within the previous 10 years, currently practicing and with an active email address, were invited to complete an online survey ($n = 1357$). The survey included themed sections, each containing a series of fixed-response Likert-scale items, and drew on and adapted items developed for similar workforce migration surveys (Hall et al. 2007; Janulyte et al. 2011; Keane et al. 2013; Nair et al. 2012). Questions were also developed specifically to address issues known to be of concern to the Medical Council of New Zealand, which is responsible for registration and oversight of

professional standards for IMGs, and to New Zealand policy makers who were interviewed prior to survey development. The survey primarily inquired into motivations for the move to New Zealand and factors associated with working in New Zealand. Four questions in the survey, reported on in this article, probed mechanisms for respondents to translate the knowledge that they bring with them into the New Zealand health system and services. The four questions collectively exhibited good internal consistency (Cronbach's $\alpha = 0.85$, 95 % CI 0.80–0.90). The survey also featured background questions. The survey was reviewed amongst a small group of medically qualified Medical Council members and modified as a result of feedback received.

An email invitation to participate in the survey was sent by the Medical Council of New Zealand to those in the sample, with an embedded link to the survey website which was managed by the authors at the University of Otago. One reminder email was sent 2 weeks after the initial invite. The study protocol and survey were reviewed and approved by the University of Otago Human Research Ethics Committee.

Data were analysed using R version 3.1.2 (R Development Core Team 2014). Multivariate Proportional Odds Models (POMs) were used to quantify the associations between the participant characteristics of gender, age, years of experience and main form of medical work (general practitioner, hospital specialist, registrar or other) and responses on the Likert-scale items. The models were fitted using the *clm* function in the R package ordinal (version 2015.1-21) with the flexible threshold option (Christensen 2015). These models yielded odds ratios (ORs), with an OR greater than 1 indicating an increased likelihood of responding towards the positive end of the Likert-scale compared to the reference group. An OR less than 1 indicated the converse.

Results

The survey had a 47 % ($n = 632$) response rate, with 97 % of respondents completing the survey in full. Table 1 lists key characteristics of respondents, which were similar to those of the workforce.

Table 2 exhibits responses to the four knowledge translation questions. Notably, 82 % of respondents agreed or strongly agreed that colleagues had been receptive to their knowledge contribution; 67 % felt they had been encouraged to share professional knowledge gained abroad; 60 % agreed they had been encouraged to share knowledge of the UK or other health systems. Only 45 % believed there were clear mechanisms in place for knowledge sharing.

Table 1 Survey respondent ($n = 632$) and total workforce ($n = 1357$) characteristics

Demographic	Survey		Workforce	
	<i>n</i>	% ^a	<i>n</i>	% ^a
Gender				
Female	318	50	678	50
Male	312	50	679	50
Age				
20–30	170	27	463	34
31–40	244	39	550	41
41–50	142	23	241	18
51–60	51	8	75	6
61+	21	3	28	2
Years practising				
5 or less years	140	23	403	30
6–10 years	188	30	390	29
11–15 years	96	15	204	15
16–20 years	64	10	149	11
21 or more years	133	21	211	16
Job (prioritised)				
GP	133	21	241	18
Hospital specialist	176	28	282	21
Registrar	221	35	605	45
Other	101	16	229	17
Total	632	100	1357	100

Workforce characteristics supplied by Andrew Cullen, Medical Council of New Zealand (New Zealand, 2014)

^a Percentages may not add to 100 % because of rounding

Table 2 Responses to the survey knowledge translation questions ($n = 632$) (New Zealand, 2014)

Question	Strongly disagree		Disagree		Agree		Strongly agree		Missing
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
I have been encouraged to share my knowledge of the UK or other health systems with colleagues	31	5	216	35	298	49	67	11	20
I have been encouraged to share my professional knowledge from training undertaken abroad with New Zealand colleagues	28	5	174	28	331	54	78	13	21
There are clear mechanisms for knowledge sharing	33	5	303	50	231	38	43	7	22
My colleagues have been receptive to my knowledge contribution	18	3	92	15	424	70	71	12	27

The results of the POMs for each of the four questions are presented in Table 3. Those aged 31–40 (OR = 0.48, $p = 0.0171$) and registrars (OR = 0.46, $p = 0.0083$) tended toward disagreeing that colleagues had been receptive to their knowledge contribution. Respondents aged 51–60 years tended to disagree that they had been encouraged to share knowledge gained abroad with New Zealand colleagues (OR = 0.31, $p = 0.0346$), as did registrars (OR = 0.44, $p = 0.0020$) and respondents in ‘other’ jobs (respondents listing ‘other’ as their job category included non-hospital

specialties such as public health medicine) (OR = 0.50, $p = 0.0170$). Again, older respondents, in this case 51 years and over (OR = 0.29, $p = 0.0244$ and OR = 0.25, $p = 0.0451$), as well as registrars (OR = 0.47, $p = 0.0036$) tended to disagree that they had been encouraged to share knowledge of the UK or other health systems with New Zealand colleagues. Finally, registrars (OR = 0.44, $p = 0.0015$) and respondents in ‘other’ jobs (OR = 0.57, $p = 0.0483$) tended to disagree more than other respondent groups that there were clear mechanisms for knowledge sharing.

Table 3 Proportional Odds Models for each of the survey knowledge translation questions ($n = 632$) (New Zealand, 2014)

	I have been encouraged to share my knowledge of the UK or other health systems with colleagues		I have been encouraged to share my professional knowledge from training undertaken abroad with New Zealand colleagues		There are clear mechanisms for knowledge sharing		My colleagues have been receptive to my knowledge contribution	
	OR	95 % CI	OR	95 % CI	OR	95 % CI	OR	95 % CI
Gender								
Female	Ref							
Male	1.23	0.89–1.69	1.25	0.90–1.73	1.09	0.79–1.51	1.32	0.92–1.90
Age								
20–30	Ref							
31–40	0.71	0.41–1.22	0.63	0.36–1.10	0.63	0.36–1.10	<i>0.48</i>	<i>0.26–0.88</i>
41–50	0.46	0.19–1.10	0.49	0.20–1.20	0.83	0.34–1.98	0.48	0.18–1.28
51–60	<i>0.29</i>	<i>0.10–0.85</i>	<i>0.31</i>	<i>0.10–0.92</i>	0.66	0.22–1.93	0.40	0.12–1.34
61+	<i>0.25</i>	<i>0.06–0.97</i>	0.46	0.12–1.75	1.62	0.45–5.81	0.67	0.14–3.07
Years practising								
5 or less years	Ref							
6–10 years	1.26	0.73–2.20	0.90	0.51–1.57	1.33	0.76–2.32	1.22	0.67–2.25
11–15 years	1.09	0.53–2.26	0.87	0.42–1.81	1.38	0.67–2.84	1.74	0.78–3.89
16–20 years	0.93	0.36–2.46	0.90	0.34–2.38	0.63	0.23–1.67	1.22	0.42–3.59
21 or more years	0.96	0.35–2.61	0.70	0.25–1.93	0.78	0.29–2.12	1.28	0.42–3.91
Job (prioritised)								
GP	Ref							
Hospital specialist	1.16	0.72–1.86	1.31	0.81–2.14	0.84	0.52–1.34	0.70	0.40–1.20
Registrar	<i>0.47</i>	<i>0.28–0.78</i>	<i>0.44</i>	<i>0.26–0.74</i>	<i>0.44</i>	<i>0.26–0.73</i>	<i>0.46</i>	<i>0.26–0.82</i>
Other	0.57	0.33–1.00	<i>0.50</i>	<i>0.29–0.88</i>	<i>0.57</i>	<i>0.33–1.00</i>	0.59	0.31–1.11

Italics denote statistical significance at the 0.05 level

Discussion

The inflow of IMGs into a host country is a potentially vast and substantial source of knowledge which might be sourced from IMGs as individuals or groups. With a mechanism for more systematic capturing and organisation of such knowledge, this could be drawn upon for a broad range of issues and questions, from informing clinical expertise and health professionals when specific skills are sought, through to input into service design and organisation. Yet the extent to which countries pursue the collection and cataloguing of such information is largely unexplored. This study of UK IMGs practicing in New Zealand, therefore, makes an important contribution. It indicated that knowledge transfer was occurring to some extent but that, in general, this was probably through relatively informal processes. Indeed, New Zealand has no official policy, either within government and the health care provider system or via its Medical Council, to actively capture and transfer IMG knowledge. That survey respondents reported receptivity to their knowledge and some knowledge sharing occurring may have been a result of simple

collegiality that could be natural to and expected in a professionally led service delivery environment (Freidson 2001; Mintzberg 1979). However, the less than half of respondents reporting clear mechanisms in place for knowledge sharing implies that much more could be done in this regard. This leads to the question of what options might be available, which is addressed in more detail later in the discussion.

The POMs findings have various implications. The associations between different work designations and a tendency to disagree that there was encouragement of knowledge sharing may be explained in different ways. Registrars, in particular, tended to disagree more than other professional groups with each of the four survey questions. This may be as registrars are mostly focused on training and qualifying as specialists in their chosen fields and so do not actively seek to impart knowledge. But it may also be due to the fact that they work within a professional hierarchy in which they are largely seen as trainees, carrying out much of the routine patient care work under supervision of consultant specialists. Thus, the working culture within this particular arrangement may be one in which

there is limited, if any, recognition of the potential for knowledge sharing nor encouragement to participate meaningfully in formal knowledge sharing forums. Possible explanations for age associations are less clear. It would appear that older age was associated with negative responses to two of the survey questions around knowledge sharing. One reason for this may be that older doctors have higher expectations that their knowledge will be drawn upon due to their longer experience and seniority (although no relationships with years of practice were found). If older doctors have higher expectations, then this may drive a tendency to disagree more than younger respondents who may have less of an expectation.

Three factors known to be pivotal to effective knowledge transfer were found to be present to varying degrees in this study. That a high percentage of respondents believed colleagues were receptive to their knowledge contribution was a positive finding from the survey, indicating the presence of at least one of the factors: that of the potential for bridging and building of positive relationships between different individuals in the organisational system (Evans and Scarbrough 2014). The lower percentages of respondents who felt they had been encouraged to share professional and health system knowledge suggests there is less capacity for delivering on a second of the factors: the presence of a culture of 'co-creation' in which there is active encouragement of knowledge sharing and mechanisms in place for facilitating this (Kitson et al. 2013). That less than half of respondents perceived there were mechanisms in place for knowledge sharing could be viewed in two ways. On the positive side, and a third factor required for effective knowledge exchange (Lavis 2006), respondents obviously perceived that there were some formal mechanisms for sharing knowledge in existence. However, these may have been ad hoc or limited to only some fields of medical practice or districts in New Zealand.

What options might policy makers in New Zealand and elsewhere pursue if seeking to better utilise the knowledge of IMGs? First, it could be suggested that formal organisational arrangements be created, including a dedicated agency or section within an existing national agency, such as the Medical Council or health ministry, with aims of collecting and maintaining data on the skill sets of each IMG that might be drawn upon. Such information might be categorised and used as a 'library'. In turn, the range of skills in the 'collection' could be communicated across the local health care community, along with information on how particular knowledge could be drawn on. This might involve the use of knowledge 'navigators' or 'brokers' who help to connect end-users with knowledge sources (Conklin et al. 2013; Howard et al. 2014). Second are options to build knowledge sharing collaborations between IMGs, local health professionals and other relevant parties or to

upscale ad hoc arrangements that are already in place. The 'communities of practice' concept could be promising in this regard (Iaquinto et al. 2011). Noted as offering considerable capacity for fostering knowledge exchange, a community of practice generally involves individuals and groups from across an area of organisation with mutual interests actively sharing knowledge and experience to deal with particular challenges. With conceptual parallels, 'clusters', which bring together different groups and interests across different organisations and regions, offer another option for knowledge exchange (Steiner and Hartmann 2006).

This study's limitations include the response rate of 47 % and fact that we know little about non-respondents. However, as noted, a very high percentage of respondents completed the survey in full, and the characteristics of the respondents were similar to the wider workforce for those characteristics we do know about. Furthermore, it is widely recognised that achieving high response rates in studies of medical professionals and health workforce and service delivery issues is increasingly challenging (Cohen et al. 2008; Morton et al. 2012; Scott et al. 2003). In this context, 47 % could be considered a good response. Second, this study was of only one group of IMGs from the UK who were resident in a single country, so there are limits on the extent to which the findings are generalisable beyond the study setting. Third, while providing useful insights and some baseline information, the simple survey method and fact there were only four questions related to knowledge transfer did not allow for further examination of various issues. In-depth interviews and focus group discussions could reveal useful additional information (Rice and Ezzy 1999). Fourth, the survey questions might have been improved through interviewing or conducting focus group discussions with potential respondents in the developmental process and more extensive piloting of the survey tool. These limitations aside, this study contributes to the question of whether IMG knowledge sharing is encouraged in a host country and, if not, how this might be approached.

Conclusion

The potential for a host country to draw upon the knowledge that IMGs represent, beyond their basic professional skills, is considerable. However, most countries have overlooked this potential. This study of IMGs from the UK practicing in New Zealand indicated that the mechanisms for knowledge sharing are limited and variable, and lacking formal organisation. Countries interested in capturing the knowledge of IMGs and other migrant professionals have various options available. These require both a will to organise and to utilise this knowledge. As with any knowledge transfer question, the challenge for policy

makers is to commit to capitalising on the knowledge of IMGs, and then to pursuing means for this. An additional challenge lies in building a better understanding of whether and how knowledge is captured from IMGs in different countries and health systems.

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Compliance with ethical standards

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