Physician migration and the Millennium Development Goals for maternal health: the untold story

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To the Editor: In 2000, the United Nations Millennium Summit produced an agenda for reducing global poverty. It listed eight Millennium Development Goals (MDGs) and was signed by 189 countries. Improving maternal health (with the aim of reducing the maternal mortality ratio by three-quarters between 1990 and 2015) is the fifth and perhaps the core health-related MDG if we consider the centrality of mothers in social development and health.[1,2] Globally, the number of maternal deaths remains high at 529 000 per annum.[2] Ensuring maternal survival demands functional health care systems with skilled health care workers. However, migration of health care workers (mostly to wealthier English-speaking countries) is a major threat to achieving the MDGs.[3-5] Here, I estimate the associations between maternal health and physician migration and human resources for health.

I used recently updated physician migration[3] and global health workforce data[4] to look at correlations between physician migration and two core maternal health indicators — the maternal mortality ratio, and the percentage of births attended by skilled personnel.[1,2] I also explored the associations between these maternal health indicators and human health care resources. Migration was measured as the number of physician émigrés working in Australia, the United Kingdom, Canada, and the United States during 1999–2002, per 1000 population of their source countries.[5] Physician migration density values for all four countries combined, and for each country individually, were determined (Box). Human health care resources included current densities of health care workers remaining in the source countries (Box).

I calculated the Pearson's correlation coefficients between these variables and the two core maternal MDG indicators.

The Box shows that countries with better maternal health are likely to have higher physician migration and more human resources for health care. For example, higher migration to Australia is seen from countries with lower maternal mortality ($r = -0.29$; $P = 0.011$) and more births attended by skilled staff ($r = 0.25$; $P = 0.037$).

I acknowledge that, like most health system and global health analyses, these correlations are based on an ecological (cross-country) design which does not lend itself to causal inference. These findings are therefore descriptive and require further exploration. Furthermore, the two maternal health indicators used here (which are the core maternal health MDG indicators used by the United Nations) could be viewed as indicators of health system and population health progress. Although physicians and other health care workers play major roles in maternal survival, especially in pregnancy, they cannot be seen as the only requirements for better maternal health. Physicians' roles can also be substituted by other health care workers in many situations in resource-poor settings.

However, less-poor source countries often have higher capacities than poor nations to turn out skilled workers who subsequently migrate. Contrary to conventional wisdom,

Correlations between source countries' core maternal Millennium Development Goal indicators and (A) physician migration to Australia, the United Kingdom, Canada and the United States and (B) human health care resources*

			Maternal Millennium Development Goal indicators in source countries			
(A) Physician migration to Australia, the UK, Canada and the US	No. of source countries†	Mean physician migration density‡ (SD)	Maternal mortality ratio¶	*P*	Births attended by skilled health care staff**	*P*
Total migration	141	0.094 (0.224)	–0.45	< 0.001	0.34	< 0.001
Migration to Australia	75	0.007 (0.040)	–0.29	0.011	0.25	0.037
Migration to the UK	117	0.017 (0.072)	–0.27	0.003	0.17	0.072
Migration to Canada	116	0.008 (0.027)	–0.47	< 0.001	0.45	< 0.001
Migration to the US	124	0.061 (0.158)	–0.55	< 0.001	0.43	< 0.001
(B) Human health care resources		Mean density of health care workers§ (SD)				
Physicians	141	1.655 (1.426)	–0.84	< 0.001	0.67	< 0.001
Nurses	141	3.636 (3.544)	–0.81	< 0.001	0.72	< 0.001
Public and environmental health care workers	64	0.114 (0.169)	–0.56	< 0.001	0.54	< 0.001
Health management and support workers	71	1.488 (2.222)	–0.73	< 0.001	0.51	< 0.001

* Data are those available for 1999–2002, and each variable was transformed into its natural logarithmic form for analysis.

† Top 10 source countries losing physicians (per 1000 population) to the four destinations combined (in decreasing order): Ireland, Saint Lucia, Lebanon, New Zealand, Jamaica, Iceland, Malta, Dominican Republic, Israel, and Cook Islands. Top 10 source countries for Australia: New Zealand, Ireland, Singapore, Fiji, Malta, Sri Lanka, South Africa, Slovakia, Bahrain, and Hungary. Top 10 source countries for the UK: Ireland, Malta, Barbados, Jamaica, New Zealand, Sri Lanka, Libya, Greece, Iraq, and Iceland. Top 10 source countries for Canada: Ireland, Jamaica, Kuwait, Lebanon, South Africa, New Zealand, Barbados, Bahrain, Saudi Arabia, and Iceland. Top 10 source countries for the US: Saint Lucia, Lebanon, Ireland, Iceland, Dominican Republic, Jamaica, Cook Islands, Israel, Belize, and the Philippines.

‡ Number of source country's physicians working in Australia, the UK, Canada and the US per 1000 source country's population (based on average year-2000 population).

§ Number of health care workers remaining in home/source country per 1000 population.

¶ Correlations between the number of maternal deaths per 100 000 live births and (A) physician migration density and (B) human health care resources.

** Correlations between the percentage of births attended by skilled health care staff and (A) physician migration density and (B) human health care resources. ◆

Australia, the UK, Canada, and the US draw substantially more migrant physicians from countries with higher health care worker capacities. Many countries may be losing physicians just when they should be reaping the benefits of their improving fortune. Given the patchy progress towards achieving the MDGs,[1] health care worker shortages may impede many countries' progress in improving health standards if migration rates exceed workforce replacement in the face of changing but increasingly complex health care needs.[1,2,4]

Physician migration must be taken seriously if the global target of reducing maternal mortality by three-quarters between 1990 and 2015 is to be realised and sustained. Australia and other Western countries must partner with source countries to develop strong political commitment and scaled-up investments in human resources for health.

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Potential impact of AUSFTA on Australia's blood supply

Albert Farrugia

To the Editor: In reference to the letter by Kennedy et al, reporting two patients who tested positive to human T-lymphotropic virus I/II (HTLV-I/HTLV-II) antibodies after administration of the intravenous immunoglobulin, Octagam (Octapharma Australia, Sydney, NSW),[1] the Therapeutic Goods Administration (TGA) would submit that:

- This product was accepted for review by the TGA at a time when plasma products sourced from overseas had to demonstrate superiority over the local product. This requirement was fulfilled by Octagam on grounds that included pathogen safety issues.
- HTLV-I and HTLV-II are entirely cell-associated viruses and are thus irrelevant to the safety of plasma derivatives. They are in a group of pathogens for which risks, implied by epidemiological factors, apply to cellular but not to plasma products. Another common example is malaria. The Australian plasma pool includes donations from individuals who are at risk of transmitting malaria, so their cells are not used but their plasma is used for fractionation. This situation is well understood and managed by regulators, none of whose standards internationally include the need to test plasma donors for HTLV-I/HTLV-II infection. As the bulk of Australia's fractionation pool is derived as a by-product of whole blood, blood is tested for HTLV-I/HTLV-II in this country, but it is not a mandatory requirement in Australia or anywhere else.
- The exclusion of antibody from the plasma pool, as occurs for HTLV-I/HTLV-II in Australia, may actually lead to the loss of potentially protective antibodies, which may well have a therapeutic effect in protecting patients from HTLV-I/HTLV-II infection.[2] Such considerations apply, for example, in the requirements of the Food and Drug Administration in the United States for source plasma for fractionation. The requirements take care to allow the inclusion of antibody-positive units for some viruses that would be excluded from blood transfusion.
- The incident referred to by Kennedy et al was appropriately reported to the TGA's Adverse Drug Reactions Unit, which concluded that this was not an adverse event.
- A Northern Territory Government document on HTLV reports: "In Central Australia the prevalence of HTLV-I is estimated to be up to 14%, compared to 4.7% in the Northern Territory cattle country . . ."[3] The residual risk of transmission of HTLV-I/HTLV-II infection, while low,[4] clearly varies across the potential donor population, and comparisons that are irrelevant in relation to the safety of specific products would appear to be unwise.
- It is recommended that practitioners seeking to assess causality in putative infectious disease transmission by plasma products follow rigorous scientific processes, such as those recommended by the German regulatory authority.[5]

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"Failure to thrive" or failure to use the right growth chart?

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To the Editor: Growth charts are important tools in assessing the physical development of infants and children. Understanding and comparing the derivation and applicability of the new World Health Organization Child Growth Standards[1] and the Centers for Disease Control and Prevention (CDC) growth charts[2] is essential.

Arguments for and against the standard use of the new WHO growth charts are being discussed on the basis of differences in study designs used and growth patterns found.[3,4] The WHO charts show the growth of breastfed infants on the basis of data from about 8500 children from widely different ethnic backgrounds and cultural settings (Brazil, Ghana, India, Norway, Oman and