

# The movement of patients across borders: challenges and opportunities for public health

Matthias Helble<sup>a</sup>

**Abstract** In a globalizing world, public health is no longer confined to national borders. In recent years we have observed an increasing movement of patients across international borders. The full extent of this trend is yet unknown, as data are sparse and anecdotal. If this trend continues, experts are convinced that it will have major implications for public health systems around the globe. Despite the growing importance of medical travel, we still have little empirical evidence on its impact on public health, especially on health systems. This paper summarizes the most recent debates on this topic. It discusses the main forces that drive medical travel and its implications on health systems, in particular the impacts on access to health care, financing and the health workforce. This paper also offers guidance on how to define medical travel and how to improve data collection. It advocates for more scientific research that will enable countries to harness benefits and limit the potential risks to public health arising from medical travel.

Abstracts in **عربي**, **中文**, **Français**, **Русский** and **Español** at the end of each article.

## Introduction

The current global trend towards a more integrated world is challenging our understanding of public health. As national borders become increasingly porous, public health experts need to explore new ways of managing national health systems. In recent years, more and more patients have decided to seek medical treatment in countries where they are not resident. Reasons for this increasing international mobility of patients are various. Affluent patients might search for the highest possible quality of health care, whereas others might be looking for less expensive treatment abroad. In any case, patient mobility is increasingly observed in developed and developing countries, both of which serve as source and destination countries.

The objectives of this paper are threefold. First, it provides an overview of the magnitude and trends of patients travelling across borders; it highlights the limitations of existing data and suggests improvements. Second, it analyses the main motivations of patients to seek medical treatment abroad, dividing the incentives into push and pull factors. Third, it presents the main challenges and opportunities for health systems and public health in both receiving and sending countries.

## Definition and statistics

There is not yet an agreed international definition of a person that travels abroad to seek medical treatment. Some experts label such patients as “health tourists” or “medical tourists”. However, this wording suggests that patients travel abroad for pleasure, which is discordant with the anxiety and pain often involved in medical treatment. We therefore prefer to call such a patient a “medical traveller”, even though the person might decide to combine his/her medical treatment abroad with tourism.

The absence of an internationally agreed definition and of a common methodology for data collection is one of the main reasons that we have limited statistics on medical travellers that are often not comparable across countries. The methods applied by countries vary substantially. For example, some countries

count foreign patients’ visits to hospitals whereas others count the entry of individual patients into the country. Other countries record the nationality of the patients but not their place of residence, which can be problematic in the case that migrants return to their home country for treatment but are not recorded as medical travellers. In addition, countries often collect statistics solely on the number of visits of foreign patients, but not on the type of treatment, the source of financing or the outcome of the treatment. While private health service providers may collect such statistics, this type of information is generally considered confidential.

For these reasons, the total number of patients travelling abroad to seek medical treatment is yet unknown. However, the anecdotal evidence that we have from several countries suggests an impressive magnitude. For example, it is reported that Malaysia received 360 000 foreign patients from the Association of South-east Asian Nations (ASEAN) region in 2007.<sup>1</sup> In Thailand, the number of foreign patients more than doubled in five years, from around 630 000 in 2002 to 1 373 000 in 2007 (C Pachanee, unpublished data, 2009). According to a study by the World Health Organization (WHO) Regional Office for the Eastern Mediterranean, each year in Jordan more than 120 000 non-Jordanian patients are treated, generating an estimated US\$ 1 billion in annual revenue.<sup>2</sup> Regarding the number of residents from the United States of America (USA) travelling offshore for health services, a study by consulting company, Deloitte, estimated that 750 000 Americans travelled abroad for health services in 2007 and that this number would increase to 1.6 million by 2012.<sup>3</sup> In a study by consulting firm, McKinsey & Co., the number of United States residents travelling offshore for medical care is estimated to range between 5000 and 750 000 depending on the definition of medical travel.<sup>4</sup> Several experts have tried to evaluate the total value of medical services provided to foreign patients worldwide and have come up with US\$ 60 billion for 2006 (D Warner, unpublished data, 2009). The global annual growth rate is expected to be 20%.<sup>5</sup>

<sup>a</sup> World Trade Organization, Centre William Rappard, 154 rue de Lausanne, 1211 Geneva, 21, Switzerland.

Correspondence to Matthias Helble (e-mail: matthias.helble@wto.org).

(Submitted: 9 February 2010 – Revised version received: 30 July 2010 – Accepted: 10 August 2010 – Published online: 26 November 2010)

One way to define and identify patients who are treated outside their home country is to study their motivation for seeking health care abroad. Using this criterion, we can distinguish two different categories of patients. The first group covers patients who travel abroad for the sole purpose of receiving health care. Such patients might travel long distances to receive medical treatment or might just be residents of border areas. Their reasons for seeking health care abroad are numerous, including higher quality or lower cost for treatment. These patients might also decide to combine their medical treatment with tourism. The second group includes all those persons who are already abroad, who fall sick and need health care during their stay. This category includes temporary or migrant workers, retirees abroad and tourists.

Patients belonging to the first group seem relatively easy to identify. Ways to obtain this information include surveys about the purpose of travel at country entry points and household surveys on use of medical services abroad. It is important that the second group excludes foreigners that live on a permanent basis abroad as they most likely contribute to the public health system, e.g. through paying taxes. Our definition of medical traveller aims to capture all foreign patients, excluding permanent residents that use the health system.

Detailed data is required to accurately gauge the public health implications of an inflow of patients. Basic data should include the number of individual patients, their country of residence, the type of medical treatment, its cost and the source of financing. Another important variable to consider is the outcome of the procedure, as this measures the potential gain or loss for public health.

The Organisation for Economic Co-operation and Development (OECD) and WHO are working together to improve the system of health accounts by better integrating imports and exports of health services and goods. These revisions are an important step towards an internationally agreed nomenclature on medical travel and a recommended methodology to collect the data. Once the revised version of the system of health accounts is applied worldwide, we can expect to have a growing number of comparable and consistent data sets on medical travel. Collecting this data is crucial to improving our understanding of medical travel and

its public health effects and to designing appropriate policies.

## Push and pull factors

Despite our ignorance about the precise number and nature of patients seeking health care abroad, we can identify several general factors that have facilitated the movement of patients in almost all countries over the past two decades. New developments in information technology have facilitated access to information about foreign health providers. Globalization has lowered transportation costs and reduced language barriers. Trade liberalization efforts in services are another driving force of enhanced medical travel.

In addition to these broad developments, the patient often has specific reasons for seeking health care abroad. Most importantly, patients might seek treatment, such as injections of stem cells, abortion or sex-change surgery, that isn't available in their own country for legal, cultural or other reasons. Furthermore, patients faced with long waiting lists for certain procedures sometimes decide to seek treatment abroad. Beyond these general drivers of medical travel, we can identify distinct "push" and "pull" factors depending on the level of income available to spend on health care. Affluent patients typically travel abroad for different reasons than patients that travel to afford adequate health care.<sup>6</sup>

### Affluent patients

Affluent patients typically explore options beyond borders due to dissatisfaction with their domestic health system, such as the unavailability of appropriate treatments, relatively low quality of care, absence of modern technology and/or shortage of health-care providers. Many well funded patients travel to countries with a long tradition of receiving foreign patients, such as Switzerland or the USA. Others might decide to seek care in countries that have recently upgraded their health sector through new and better equipped hospitals as well as well trained professionals. For instance, India is becoming an attractive medical travel destination for patients from Bangladesh, providing health services to approximately 50 000 Bangladeshi every year.<sup>1</sup>

### Affordable care

In recent years, many middle- and high-income countries have been confronted

with a rapid increase in health costs due to, among others, an ageing population and shortages of health providers. To contain the financial burden for the public budget, many countries have decided that the individual must bear an increasing portion of health costs. This means patients have considerable financial incentives to seek less expensive care elsewhere. These patients often choose to travel to countries where quality services are offered at significantly lower costs, such as in the emerging economies of Jordan and Thailand. Hospitals in these countries often try to promote their high quality treatment by seeking international accreditation or by affiliation with prominent hospitals in developed countries. Furthermore, governments in these countries often actively encourage medical travel by providing, for example, simplified visa requirements for foreign patients or offering legal guidelines in case of malpractice.

Patients looking for more affordable health care might also travel to neighbouring countries that offer health services of similar quality but at a significantly lower price. Such patient movements are often facilitated by health systems that are becoming more and more integrated, such as in the European Union (EU) (D Warner, unpublished data, 2009).

## Implications

Given that the numbers of medical travellers has been increasing considerably over recent years, evaluation is needed on their possible impact on public health. This section analyses the public-health implications of medical travel mainly from a health systems perspective, in other words how medical travel effects access to health care, financing, the health workforce and other elements of health systems. We first discuss the implications on the health system of the country from where the foreign patients originate (i.e. the sending country) and then discuss implications on countries that receive foreign patients.

### Sending countries

#### Access and financing

In some countries, medical travel provides an alternative way for uninsured or underinsured patients to obtain treatment, as is the case in the USA. For health systems with long waiting lists, patients seeking care abroad may help to clear backlogs without the difficulty, delay and expense

of expanding local capacity. The downside of this option is that countries may have less incentive to improve access to the domestic health system.

If a large number of patients travel abroad, it will probably heighten competition among private-sector health providers in the sending countries, which could bring prices down. On the other hand, since health-care centres are often fixed-cost institutions, they might be forced to increase prices to remain profitable.<sup>7</sup> In an extreme case, this effect might induce a further push for patients to seek medical treatment abroad. The overall costs to the health system will probably still be lower, especially in the medium- and long-term, as patients receive less expensive treatment abroad.

In this context it is important to mention that insurance companies in several countries have started offering schemes that cover medical treatment abroad. The schemes are offered at a lower price than domestic schemes, as insurers expect that treatment and drugs will be less expensive in the destination country. In the USA, several innovative plans, such as Access Baja, have developed in California. These plans provide a coverage option with lower premium and co-payments for employees of American employers who want access to health services in Mexico.<sup>8</sup> National regulators have also become aware of the challenges of the availability of insurance coverage for medical treatment abroad. For example, a directive has been proposed in the EU that travellers who seek acute or ambulatory care in any other EU country are covered directly by their home insurance arrangements, if they have the EU health card or the E111 form.

### Health workforce

The growth of medical travel might trigger an expansion and modernization of health facilities in the receiving country, while it might cause a contraction in the sending countries. Given the global shortage of health workers, one might deduce that the pressure on health workers would ease in the sending country. However, existing shortages may be exacerbated in these countries if health workers are attracted to receiving countries, in many cases developing countries, due to more lucrative new job opportunities and a favourable working environment.

### Continuum of care

Depending on the procedure, a medical treatment typically takes place in several steps and may require interventions over a longer period of time. When patients travel abroad, those interventions are often squeezed into a short time span, while follow-up care might still be necessary once the patient has returned home. The continuum of care is therefore often not possible. This may have serious implications not just for the individual but also for the local health system.<sup>9</sup> For example, cases have been reported where doctors have been reluctant to correct a medical problem arising from malpractice abroad, with the consequence that patients have resorted to costly emergency services (T McLean, unpublished data, 2009).<sup>7,10</sup>

### Receiving countries

#### Access and financing

Medical travel has the potential to improve or worsen the access and quality of health care for local residents. Before receiving foreign patients, some health providers might upgrade their facilities and professional skills, which ultimately benefits local residents' access to modern medical facilities.<sup>11</sup> Revenues generated by providing medical services to foreigners are often reinvested into new facilities and used to attract highly trained physicians. Governments could collect taxes from medical travel and use them to improve the access and quality of health care available to the local population in developing countries.<sup>12</sup> However, for this to happen, it is essential that appropriate macroeconomic redistributive policies are in place or are being developed.<sup>13</sup>

The downside might be that, with the influx of foreign patients, demand and prices for health care might rise, at least in the short run. In addition, an increasing number of health services might cater for the needs of foreign patients and neglect local needs.<sup>11</sup> Some authors fear that, unless distributive measures are implemented, such an influx could lead to a rise in the cost of some procedures and health insurance premiums, making them effectively less affordable for local patients.<sup>14</sup> Other experts have expressed concerns that efforts made to attract and care for foreign patients ignore, or even exacerbate, the divide between facilities oriented towards wealthy patients and those that serve poorer segments of the population, particularly in rural areas.<sup>9,15,16</sup>

### Health workforce

Treating foreign patients is often perceived as a professional and financial opportunity for health professionals and may therefore help to stem the outflow of physicians and nurses to other countries or even prompt those living abroad to return home (M Horowitz, unpublished data, 2009). However, some experts have expressed concerns that providing health services to foreign patients might create an internal brain drain that diverts resources from the public to the private sector, potentially reducing access to care for local citizens.<sup>14,17</sup> A recent study in Thailand showed that the existing internal domestic maldistribution could be further aggravated by efforts to promote medical travel (C Pachanee, unpublished data, 2009). Finally, a hypothesis has been suggested that medical travel alters the incentives for medical students to favour some medical specialties over others, which might ultimately disrupt the skills-mix imbalance within a country.

### Ethical concerns

Medical travel has also raised several ethical issues. For example, it may lead to a duality in health care policies: on the one hand ensuring the access of health care for every citizen, while promoting cutting-edge technologies for foreign patients (G Crozier et al., unpublished data, 2009). Others have raised concerns about possible social changes in doctor-patient relationships, for example through the transformation of health services away from a patient-oriented moral mission towards a commodification of health care.<sup>18,19</sup> Most prominently, medical travel involving human body resources, especially organs, has prompted an extensive debate with various ethical concerns. The scarcity of human body resources has generated concerns both on how they are obtained and how they are used. Many countries have therefore introduced restrictive or prohibitive legislation and policies governing their donation and access. Significant international variation in such legislation and its enforcement have triggered substantial international flows of patients that attempt to take advantage of those differences. Shimazono estimates the total number of recipients who underwent commercial organ transplants overseas at around 5% of all recipients in 2005.<sup>20</sup> Further she finds that travelling abroad to undergo transplantation has

become the most common way of receiving transplants in certain countries.<sup>20</sup> Human body resources are typically more available in countries where poor and vulnerable population groups are ready to jeopardize their personal health for a small financial reward. In many countries, standards of health care for donors are often poor and lacking follow-up care.<sup>21</sup> Emerging literature studies the ethical concerns of these practices in detail (A Whitaker, unpublished data, 2009).<sup>22</sup>

## Conclusion

Patients who leave their home country to seek medical treatment abroad is certainly not a new phenomenon, however, the rapid development and the magnitude of medical travel are recent. It is expected that medical travel will grow further in the near future, pushed also by health-care reforms in several advanced economies,

such as in the USA, which will probably increase the health insurance premiums for both employers and individuals.<sup>23</sup>

Medical travel is challenging our traditional ways of thinking about public health and we are confronted with a wide array of questions that still need to be answered. Research about the topic is still in its infancy and more studies are urgently needed. The most extensive research efforts have so far been undertaken from a commercial perspective to explore the size and nature of the market. Given the considerable implications for public health, future research is needed to further our understanding of medical travel with the objective of improving public health. A series of papers commissioned by WHO explores such questions as legal and regulatory issues, ethical concerns and transnational infections. WHO could also identify best practices that countries have applied to cope with

medical travel. Beyond these background studies, WHO's role could be to promote data collection at the national level and act as a repository for corresponding data at the international level. The implementation of the revised system of health accounts will certainly contribute to this objective. WHO Member States might also need to discuss establishing international standards for health care of medical travellers. The ultimate challenge in all these efforts will certainly be to find a strategy that allows harvesting of the benefits for public health of medical travel while limiting the risks. ■

## Acknowledgements

The author thanks Jostacio Lapitan, Siyoung Park and Riana Rakotoarimananjara who provided valuable research assistance.

**Competing interests:** None declared.

## ملخص

**حركة المرضى عبر الحدود: التحديات والفرص أمام الصحة العمومية**  
في عصر تسوده العولمة، لم تعد الصحة العمومية تقتصر على ما يدور داخل الحدود الوطنية. ففي الأعوام الأخيرة لوحظ زيادة في حركة المرضى عبر الحدود الدولية. والتقدير الشامل لهذا الاتجاه غير معروف حتى الآن، نظراً لقلّة وعدم موثوقية المعطيات. والخبراء على قناعة، في حالة استمرار هذا الاتجاه، بحدوث عواقب ضمنية كبرى على نظم الصحة العمومية حول العالم. وبالرغم من تنامي أهمية السفر لأسباب طبية، فلا يوجد حتى الآن سوى دليل عملي محدود حول تأثير هذا السفر على الصحة العمومية، وبخاصة النظم

الصحية. وتلخص هذه الورقة آخر تطورات الجدول الدائر حول هذا الموضوع. وتناقش العوامل الأساسية التي تؤدي إلى السفر لأسباب طبية وتأثيرها على النظم الصحية، وبخاصة تأثيرها على الوصول إلى الرعاية الصحية، والتمويل، والقوة العاملة الصحية. كما تقدم هذه الورقة توجيهات حول كيفية تعريف السفر لأسباب طبية وكيفية تحسين جمع المعطيات. وتدعو إلى المزيد من البحوث العلمية لتمكين البلدان من الاستفادة من المزايا والحد من المخاطر المحتملة على الصحة العمومية نتيجة للسفر لأسباب طبية.

## 摘要

### 病患跨境流动对公共卫生的挑战和机遇

在这个正在全球化的世界,公共卫生不再局限于国家。近年来,我们发现病患的跨境流动越来越多。这一趋势的最大可能范围还不清楚,因为数据稀少且零星。如果这种趋势继续下去,专家们相信其将对全球的公共卫生系统产生重大影响。尽管医疗旅游日益重要,但是其对公共卫生,特别是卫生系统的影响,我们仍没有什么经验证据。本文总结了关于这

一议题的最新争论,讨论了驱动医疗旅游的主要力量及其对卫生系统的启示,特别是对获得医疗保健、融资和卫生人力资源的影响。本文还对如何定义医疗旅游和如何改善数据收集提供了指南。本文倡导进行更多的能够使各国利用医疗旅游带来的利益并限制其潜在风险的科学研究。

## Résumé

### Déplacements transfrontaliers des patients: défis et opportunités pour le secteur de la santé publique

À l'ère de la mondialisation, la santé publique n'est plus limitée aux frontières nationales. Ces dernières années, nous avons observé une augmentation du nombre de déplacements transfrontaliers des patients. L'étendue de cette tendance n'est pas entièrement connue à ce jour car les données sont rares et isolées. Si cette tendance se poursuit, les experts sont convaincus qu'elle aura des conséquences majeures pour les systèmes de santé publique du monde entier. Malgré l'importance croissante des voyages pour raisons médicales, nous disposons de très peu de preuves empiriques de son impact sur la santé publique, en

particulier sur les systèmes de santé. Cet article synthétise les derniers débats sur ce sujet. Il décrit les principales forces qui motivent les voyages pour raisons médicales et leurs conséquences sur les systèmes de santé, en particulier leur impact sur l'accès aux soins de santé, le financement et le personnel soignant. Cet article fournit également des instructions permettant de définir les voyages pour raisons médicales et d'améliorer la collecte de données. Il préconise davantage de recherches scientifiques qui permettront aux pays de tirer profit des voyages à des fins médicales et d'en limiter les risques potentiels en matière de santé publique.

## Резюме

### Трансграничное перемещение пациентов: проблемы и благоприятные возможности для общественного здоровья

В глобализирующемся мире общественное здоровье уже не ограничено государственными границами. В последние годы мы наблюдаем во всевозрастающих масштабах трансграничное перемещение пациентов. Подлинные масштабы этой тенденции пока неизвестны, так как данные обрывочны и бессистемны. Эксперты убеждены, что, если эта тенденция сохранится, она окажет значительное воздействие на системы здравоохранения во всем мире. Несмотря на возрастающую роль лечения за рубежом, мы пока что не располагаем обширными эмпирическими данными о его воздействии на общественное здоровье, особенно на системы здравоохранения. В статье обобщаются новейшие

дискуссии по этому вопросу. В ней обсуждаются основные движущие силы, поощряющие лечение за рубежом, и его влияние на системы здравоохранения, в частности, на доступ к медико-санитарной помощи, финансирование и кадровое обеспечение здравоохранения. В статье также содержатся рекомендации о том, как определить, что такое лечение за рубежом, и как совершенствовать сбор данных. В ней содержится призыв к проведению большего числа научных исследований, что позволит странам пользоваться преимуществами и ограничивать потенциальные риски для общественного здоровья, возникающие в связи с лечением за рубежом.

## Resumen

### El movimiento transfronterizo de los pacientes: retos y oportunidades para la sanidad pública

En un mundo cada vez más globalizado, la sanidad pública ya no permanece confinada dentro de las fronteras de cada país. En los últimos años hemos podido observar un creciente movimiento de pacientes de un país a otro. Aún se desconoce el alcance total de esta tendencia, ya que disponemos de datos escasos y anecdóticos. Los expertos están convencidos de que, de persistir esta tendencia, ello acarrearía importantes consecuencias para los sistemas públicos sanitarios de todo el mundo. A pesar de la importancia cada vez mayor del turismo sanitario, seguimos sin disponer de suficientes datos empíricos sobre su impacto sobre la sanidad pública, especialmente en los sistemas sanitarios. Este

artículo resume los debates más recientes en relación a este tema. Se comentan las principales causas que estimulan el turismo sanitario y sus implicaciones en los sistemas sanitarios, especialmente su impacto sobre el acceso a la atención sanitaria, la financiación y el personal sanitario. Este artículo ofrece además una orientación sobre cómo definir el turismo sanitario y cómo mejorar la obtención de datos. Abogamos por una mayor investigación científica que permita a los países aprovechar los beneficios del turismo sanitario y limitar los posibles riesgos que plantea para la salud pública.

## References

- Whittaker A. Pleasure and pain: medical travel in Asia. *Glob Public Health* 2008;3:271–90. doi:10.1080/17441690701463936
- Trade in health-related services and GATS. Cairo: World Health Organization Regional Office for the Eastern Mediterranean; 2005.
- Consumers in search of value. Washington: Deloitte; 2008.
- Ehrbeck T, Guevara C, Mango PD. Mapping the market for medical travel. *The McKinsey Quarterly*, May 2008. Available from: [https://www.mckinseyquarterly.com/Mapping\\_the\\_market\\_for\\_travel\\_2134](https://www.mckinseyquarterly.com/Mapping_the_market_for_travel_2134) [accessed 19 November 2010].
- MacReady N. Developing countries court medical tourists. *Lancet* 2007;369:1849–50. doi:10.1016/S0140-6736(07)60833-2 PMID:17549816
- Glinos IA, Baeten R, Helble M, Maarse H. A typology of cross-border patient mobility. *Health Place* 2010;16:1145–55. doi:10.1016/j.healthplace.2010.08.001 PMID:20729128
- Forgione DA, Smith PC. Medical tourism and its impact on the US health care system. *J Health Care Finance* 2007;34:27–35. PMID:18972983
- Warner D, Jahnke LR. US-Mexico. Mode 2: imports and exports of health services. In: *Report to the Organization for Economic Cooperation and Development*. Austin: University of Texas at Austin; 2010.
- Carrera P, Bridges J. Globalization and healthcare: understanding health and medical tourism. *Expert Review of Pharmacoeconomics and Outcomes Research* 2006; 6.
- Mirrer-Singer PM. Medical malpractice overseas: the legal uncertainty surrounding medical tourism. *Law Contemp Probl* 2007;70:211–32.
- Cattaneo O. Trade in health services – what's in it for developing countries? (World Bank Policy research working paper no. 5115). Washington: The World Bank; 2009.
- Mattoo A, Rathindran R. How health insurance inhibits trade in health care. *Health Aff (Millwood)* 2006;25:358–68. doi:10.1377/hlthaff.25.2.358 PMID:16522578
- Bookman M, Bookman K. *Medical tourism in developing countries*. New York: Palgrave Macmillan; 2007.
- Cohen E. Medical tourism in Thailand. *AU-GSB e-journal* 2008;1. Available from <http://gsbejournal.au.edu/> [accessed 19 November 2010].
- Ramírez de Arellano AB. Patients without borders: the emergence of medical tourism. *Int J Health Serv* 2007;37:193–8. doi:10.2190/4857-468G-2325-47UU PMID:17436992
- Bovier PA. Explosion du tourisme médical: des voyageurs d'un nouveau type? *Rev Med Suisse* 2008;157:1196–1201.
- Chinai R, Goswami R. Medical visas mark growth of Indian medical tourism. *Bull World Health Organ* 2007;85:164–5. PMID:17486202
- Pellegrino ED. The commodification of medical and health care: the moral consequences of a paradigm shift from a professional to a market ethic. *J Med Philos* 1999;24:243–66. doi:10.1076/jmep.24.3.243.2523 PMID:10472814
- Stoeckle JD. From service to commodity: corporization, competition, commodification, and customer culture transforms health care. *Croat Med J* 2000;41:141–3. PMID:10853040
- Shimazono Y. The state of the international organ trade: a provisional picture based on integration of available information. *Bull World Health Organ* 2007;85:955–62. doi:10.2471/BLT.06.039370 PMID:18278256
- Turner L. 'Medical tourism' initiatives should exclude commercial organ transplantation. *J R Soc Med* 2008;101:391–4. doi:10.1258/jrsm.2008.080058 PMID:18687861
- Turner L. Commercial organ transplantation in the Philippines. *Camb Q Health Ethics* 2009;18:192–6. doi:10.1017/S0963180109090318 PMID:19263601
- Update and implications report. Washington: Deloitte; 2009.