



# Effects of Medical Tourism on Health Systems in Africa

J.J.O. Mogaka\*<sup>1</sup>, T.P Mashamba-Thompson<sup>1</sup>  
J.M. Tsoka-Gwegweni<sup>1</sup> L. M. Mupara<sup>1</sup>  
<sup>1</sup>University of KwaZulu Natal  
Howard College Campus,  
Mazisi Kunene Avenue,  
Durban, 4041, South Africa  
[johnmogaka2@gmail.com](mailto:johnmogaka2@gmail.com)

Corresponding author\*

## Abstract

Medical tourism is the travel of people in search of medical care that is either, unavailable, unaffordable or proscribed at home healthcare systems. This is due to varying bioethical considerations for some medical procedures and technologies, high healthcare costs, and unequal accessibility to quality healthcare. This paper presents evidence of MT in Africa and critically discusses its role and effects on the region's healthcare systems. The systematic scoping review design guided by Arksey and O'Malley (2005) framework was used. Pre-determined exclusion/inclusion criteria were used to identify literature sources. 52 reviewed articles dwelt generally on the role and effects of MT on the structures, processes and system outcomes components of health systems in Africa, although only 14 (27%) of them solely focused on Africa. Although MT provides access to healthcare locally unavailable or unaffordable, it nevertheless disrupts the Dawson healthcare delivery model common in Africa and its usual referral system, while competing for scarce healthcare resources in the region. Africa experiences both in- and out-bound and intra-regional MT. Findings point to a contradiction to the commonly held belief limiting MT to the elites in society, and show that majority of MT activities in Africa are need-based rather than elite-based. African governments increasingly promote MT, although MT tends to compete in coexistence with, instead of being integral part of, national healthcare systems. MT affects both personal and population health, and if appropriately integrated into national healthcare systems, can complement and supplement both home and destination systems.

**Keywords:** Medical tourism, Africa, health provision

## Introduction

Healthcare delivery contexts around the world are rapidly changing. Globally, national health systems are facing enormous pressure brought about by forces of globalization, medical technological advances and consumerism. Material prosperity, social stability and better disease and health management have undoubtedly led, not only to improved life expectancy and more aged populations, but, conversely, resulted in higher rates of chronic, mostly age-related illnesses, sharply increasing health care costs (World-Economic-Forum, 2013).

Despite health systems in most developed countries being highly structured, running on efficient systems of financing and strong regulatory frameworks, aspects generally lacking in most low- and middle-income countries (Zakus and Bhattacharyya, 2007), global medical travel presents undeniable evidence that most national health systems are failing, irrespective of whether located in developed or developing countries. National health systems allocate health care



based on either time, money or a combination of the two at point of care(POC). Depending on medical technology advances, means of healthcare allocation, the and health ethics considerations, some patients encounter care that is either too delayed (long waiting lists), unaffordable (too costly), unavailable, of inadequate quality, or altogether proscribed. The dramatically growing prevalence of chronic diseases in both developing and developed countries, further exerts additional pressure on already stretched national health systems.(World-Health-Organization, 2000)

Over time, sustained economic austerity measures in most Low and Medium Income Countries (LMICs) have led to curtailed public health expenditures. Urged on particularly by some international organizations, these governments presided over elimination of most subsidized or free basic health care for local populations, privatization of state sponsored healthcare facilities, imposition of user fees, and made way for market forces to determine medical care prices(Pfeffer, 2011). Evidence shows that trade and tax policies have had major effects on the health of populations(Blouin, 2010, Ross Anthony and Lurie, 2004). Most LMICs initially ostensibly designed national health systems to provide comprehensive services for whole populations. Lack of finances, however has made this goal elusive(Schellekens et al., 2007, Zakus and Bhattacharyya, 2007). The resultant unbridged two-tier healthcare system forces many patients to opt out of home health system to find medical care elsewhere.

On the other hand, even though most developed nations' healthcare systems do not suffer from unequitable access to healthcare, their healthcare systems are highly structured (Zakus and Bhattacharyya, 2007). This makes them vulnerably inflexible, mostly wielding considerable control over health planning through measures such as regulation of hospital capacity and deploy-able technology. This has unintended result of stifling innovation, excessive administrative costs and medical under- or un-insurance (Bodenheimer and Grumbach, 2004).

At the backdrop of the above challenges facing almost all healthcare systems globally, some healthcare providers and facilitators have emerged to meet growing patient demand largely outside of the state regulation. Unavailability of appropriate care, long delays, high cost of healthcare in some countries and uneven global application of laws for some medical procedures, has led some people to seek medical care through medical tourism (MT). An admixture of aggressive promotion of MT by some destinations and MT facilitators and the added allure for adventure and vacation, all collude to persuade people to seek care outside their local and familiar healthcare systems.

MT does not have a standard definition, but it is a term initially coined by travel agencies and mass media to publicize the new form of medical travel, and now widely used by academic and industry researchers, policy makers, providers and consumers (Samir and Karim, 2011). It generally refers to the practice of patients leaving their country of residence and going abroad, with the core-purpose of getting access to medical care(Samir and Karim, 2011, Snyder et al., 2011).

MT is driven by healthcare liberalization, cutting back on public services by governments, and corporations with competitively attractive healthcare. It is sustained through globalization, fostered by consumerism and boasts of swift capacity to better serve patients in terms of cultural competence, state-of-the-art quality care, skilled specialists, and lower medical costs, especially in meeting neglected patients' healthcare needs (American Medical Association, 2007, Samir and Karim, 2011). Although MT serves a fraction of the population that can pay the rates, with more empowered patients, more diverse delivery models, new roles and



stakeholders and necessary incentives, the market for MT keeps on growing(World-Economic-Forum, 2013).

From systems theory perspective (Zakus and Bhattacharyya, 2007), health systems may be viewed as the continuum of inputs, processes, and outputs. The inputs consist of people in need of health care services (health care consumers), those who deliver health care services (care providers) and the systematic arrangements that ensure that care is delivered. In this paper, systems theory has been used as a framework to describe how MT interacts with the various components of healthcare systems and the relationships so produced, and the systems' ability to change and adapt in response to internal and external forces of MT(Yaseen, 2007). MT interacts and influences public and private agencies that organize, plan, regulate, finance, and coordinate medical care services. These agencies consist of hospitals, clinics, insurance companies and other programs that pay for medical services, all operating in various configurations of groups, networks, and independent practices. Professional schools, agencies and industry associations that research and monitor the quality of health care services, licensing and accreditation institutions, and the companies that produce medical technology, equipment, and pharmaceuticals also influence or are influenced by MT (Whpcr, May 2008).

Although personal and population health, private and public health care are common denominators in virtually all health systems worldwide, the design and rate of development of these systems is affected by each country's health priorities and resource base. Given that healthcare systems are open systems(Cordon, 2013), and national health systems are answerable to the people they serve(Handler et al., 2001), it is imperative to understand how the systems respond to both internal and external influences of MT(Zakus and Bhattacharyya, 2007). Systems theory and thinking allow us to understand how health care organizations and systems respond to and influence MT, especially in resource-constrained settings like Africa.

Fundamental healthcare system flaws, especially in Africa, disrupt smooth communication, collaboration, and systems planning among various components in the system. On the other hand, the relentless focus on reducing public healthcare expenditure, coupled with unbalanced, inequitable healthcare resource allocation especially make the region's health systems unable to address complex health care demands for non-communicable diseases. These attributes create confusion, further inequity, and excessive administrative burdens for all in the system, providers and consumers alike.

Evidently, the context of healthcare delivery in Africa forces segments of the population to engage in MT (Africa, 2012, Ahwireng-Obeng and Van Loggerenberg, 2011, Akukwe, 2006, Crush and Chikanda, 2015, Crush et al., 2013, El Taguri, 2007, Gbenga, 2014, Bezabih and Wamisho, 2013, Godson Ezejiolor and Okoro, 2013, Goldberg, 2013). Out-bound and intra-Africa MT represents a relatively larger segment than the in-bound medical tourists who come to Africa from developed countries(Crush et al., 2012, Crush et al., 2013, Crush et al., 2015). This segment's absolute numbers, however, is currently unknown. The in-bound MT segment exhibit a North-South patient movement pattern, with some patients coming to Africa from Europe, USA, Canada and other developed countries especially for cosmetic surgery (Crush et al., 2013, Hanefeld et al., 2014, Helmy and Travers, 2009, Mazzaschi, 2011, Michelle, 2009). This pattern has been explained in terms of relaxed health ethics enforcement regiment and favorable currency exchange rates in most LMICs which give these destinations competitive advantage in attracting price-conscious medical tourists (Johnston et al., 2010). Besides these factors, medical tourists seem to be motivated by a desire for privacy, a desire to avoid long waiting lists for some critical medical procedures and the promise of first-class services at low



prices: personal attention and long supervised recovery are two remarkable characteristics of MT (Helmy and Travers, 2009).

Africa experiences inbound, out-bound and intra-regional MT (Crush et al., 2012, Crush et al., 2015, Dangor et al., 2015, Uppiah et al., 2014, Lautier, 2008). Some African governments have sought to promote MT within their shores with a view to exploit their real or perceived geographical convenience, quality of healthcare services or simply healthcare cost differentials (Abdullah and Ng, 2006). In addition, MT provides additional sources of revenue, as well as mitigating cost of excessive capacity in the private sector, which accounts for most treatments in MT (Cohen, 2011, Cohen, 2012, Purohit, 2011). Even though MT seems to present advantages, studies suggest that MT could be a threat to national health systems; potential negative consequences being widening of disparities due to unequal distribution of health care, unintended and unplanned subsidy for costs of care for patients from outside the system, and diverting resources from priority local medical care needs to medical care aspects pertaining to patients from abroad (Cortez, 2011, Cortez, 2008).

To date, however, questions about the context in which MT operates, as well as its relationship with national healthcare systems in Africa has not been well documented. This research aimed at presenting evidence of MT in Africa as well as to contextualize MT in the structures, processes, and systems outcomes of national health systems in Africa. It sought to examine the level of knowledge on how MT affects the delicate policy equilibrium worked into health systems for financing, licensing, accreditation, malpractice surveillance, regulatory approval and medical technologies in Africa.

This report is therefore, an assessment of the level of knowledge on MT and how it relates to health systems in Africa, through systematically scoping literature on the subject.

The research question the study sought to answer was:

“What are the identified effects of medical tourism on health systems in Africa?”

## **Methodology**

The scoping review method was selected for the present study because it facilitates identification of knowledge gaps and opportunities that exist regarding an emerging subject of interest (H. and L., 2005, Levac et al., 2010, Pham et al., 2014). The review followed Arksey and O'Malley's methodological framework for scoping reviews (H. and L., 2005, Levac et al., 2010).

In this scoping review, methodological quality assessment of quantitative, qualitative and mixed methods of primary studies was done on admitted studies using the Mixed Methods Appraisal Tool (MMAT) (Pluye et al., 2011). However, this assessment was not done to exclude studies on account of quality scores, rather, methodological quality of reviewed papers was considered in the narrative synthesis of evidence.

The design comprised a five-step process that involved: identification of the questions to be addressed; identification of the relevant literature sources; selection of literature sources to be included in the present review synthesis; recording key themes emerging from the literature; and collation, summary, and reporting of the results.



## **Inclusion and exclusion criteria**

Provisional criteria based on the review objectives were devised and refined during the first stage of selection for retrieval. (see Appendix I for the complete Inclusion/Exclusion criteria and the search results).

Two researchers independently read the first 30% of abstracts and decided whether the inclusion criteria applied. Their decisions were compared; and a kappa index (Mchugh, 2012) calculated. The score was again calculated at the end of full article inclusion stage. Disagreements were discussed among the reviewers and differences in interpretation were clarified. All papers meeting the inclusion criteria at this stage were selected for retrieval.

Those studies that were judged by agreement to address the review topics sufficiently were retained.

## **Sources of literature**

Databases: Regional Business News; PsycINFO; MasterFILE Premier; Health Source: Nursing/Academic Edition; GreenFILE; ERIC; Education Source; Business Source; Ultimate Business Source Complete; Newspaper Source; Library, Information Science & Technology Abstracts; Health Source - Consumer Edition; eBook Collection (EBSCOhost); AHFS Consumer Medication Information; PsycARTICLES; MEDLINE with Full Text; Academic Search Ultimate; and Academic Search Complete (n=18)

A Google scholar search was performed to identify relevant gray literature, which included unpublished conference papers and abstracts, government websites, books and news articles. The websites of key medical tourism organizations and associations were also searched.

The team collected potentially relevant citations from reference lists and applied the refined inclusion criteria on them.

Data on the study setting and the key findings described in each article were recorded and organized into different themes in NVivo. Information obtained included the place where the research was conducted (e.g. Low and Medium Income Countries(LMIC)/High Income Countries(HIC)), the type of study (e.g. empirical, review, expert opinion), the type of analysis techniques used (e.g. statistical analysis, thematic analysis) and findings applicability to the African context (local/regional or global).

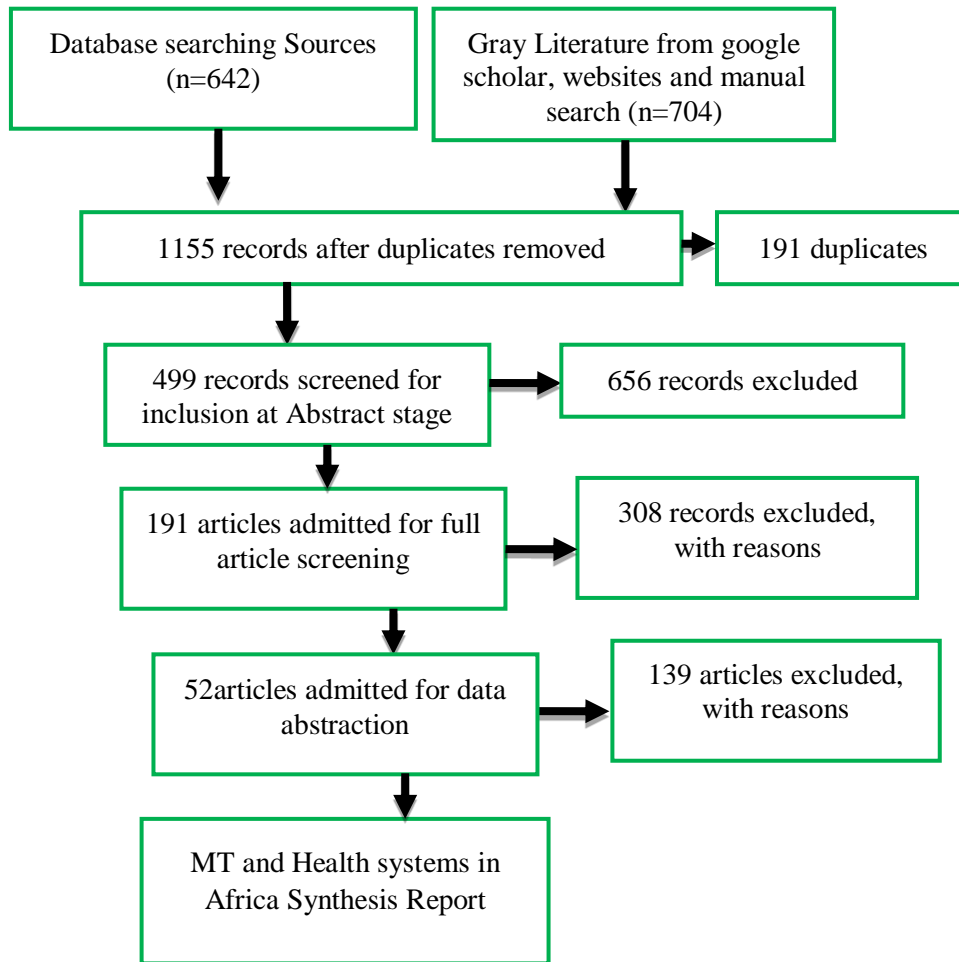
## **Results**

Our search identified 1346 potentially relevant articles in the scoping review. Using Endnote reference management software, 191 duplicate studies were removed. The remaining 1155 were screened for title relevance (Figure 1). 499 articles underwent a detailed abstract screening against the inclusion criteria. Of the 499 included papers at abstract screening stage, 308 were excluded with reasons as shown in the Table 1 below. The remaining 191 articles were selected for full-article screening by two researchers with 52 being selected for independent detailed data abstraction for this synthesis (Figure 1). These articles were also subjected to methodological quality assessment.



The inter-reviewer kappa score was 0.89 at abstract screening stage and 0.83 at full article screening stage.

Of the 52 articles that met the inclusion criteria, 21% reported on LMICs and 47% on High Income Countries (HICs), while the rest (32%) focused on MT in Africa, of which the majority were on South Africa. The main HICs that were involved in MT in Africa were USA, Canada, UK and Australia, whereas popular LMICs destinations were India, Thailand and Singapore. Within the African continent, countries engaged in the MT were South Africa, Egypt, Tunisia and Mauritius. (Appendix 1 and Fig.2).



**Figure 1.** PRISMA Record Screening Flow-chart. (Source: (Adapted from Moher et al.2009(Moher et al., 2009))

Of the 499 included papers at abstract screening stage, 308 were excluded with reasons as shown in the table below.

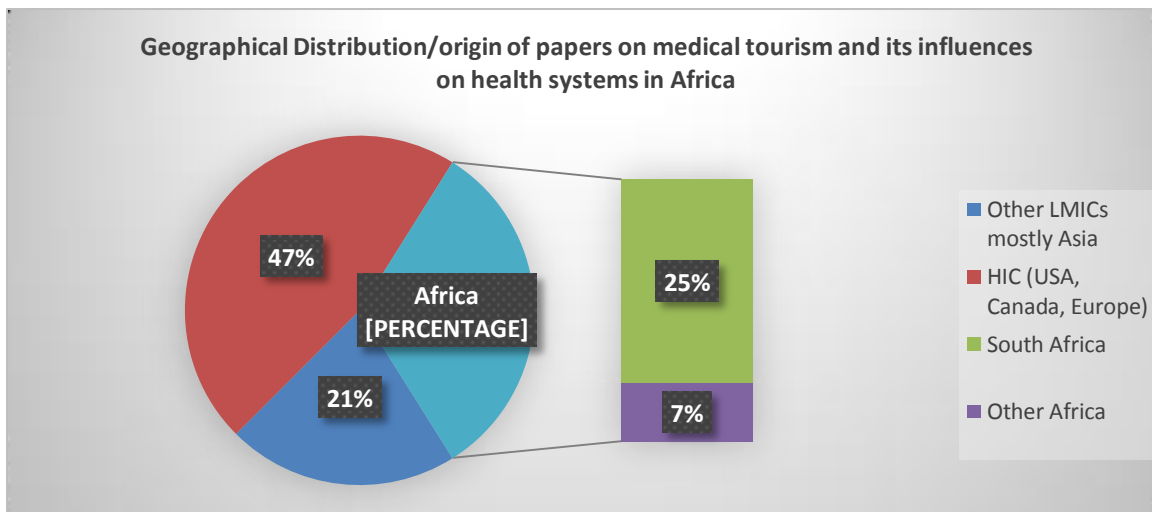


No of Records Excluded	% of total included ( <sup>n</sup> / <sub>499</sub> )	Reasons for Exclusion
169	34	Medical care provision to medical tourists is not explicitly differentiated from the day to day provision of health care offered to the general public.
61	12	Main focus is on wellness tourism
78	15	Focus on MT outside Africa, mostly High Income Countries; results/conclusions are non-transferable to the African settings.

**Table 1.** Criteria for excluding papers at abstract screening stage (n=308) (Source: Authors)

### Medical tourism and the health systems

Figure 2 shows the geographical distribution/origin of the papers that focused on MT and its relationship with health systems specifically from Africa (n=14). These papers are further subdivided into those from South Africa and those from other African countries (Egypt, Mauritius, Nigeria and Tunisia) as compared to other studies with generalized global outlook on MT and its effects on health systems (n=38). The latter group is also further divided into high income countries (HIC: USA, Canada, Europe, and Australia) and low and middle-income countries (LMICs, apart from Africa) as grouped by the World Health Organization (WHO) (Who, 2014). Clearly, literature coverage is highly skewed towards HICs which together with other LMICs, especially Asia, dwarf literature on Africa. This corresponds with what other researchers' concerns about lack of balance of literature on MT in the South as compared to the same on the North (Crush and Chikanda, 2015, Lunt and Carrera, 2010, Lunt et al., 2016). Therefore, there is a definite need, within the medical travel/medical tourism field, for a rebalancing of the said literature.



**Fig.2** Geographical distribution/origin of the papers focusing on MT and its relationship with health systems in Africa as compared to other studies with generalized global outlook on MT and its effects on health systems. (Source: Authors)



The Figure below (Fig. 3) shows the type of studies on medical tourism and health systems in Africa and their Authors' geographical location and type of papers reviewed. Of the 52 admitted articles, 43% were expert opinion reports, 30% reviews, with 18% being empirical studies and 9% government and industry reports or thesis reports. Empirical studies admitted in this review were mostly based on secondary data sources and were mostly qualitative in study design. More than 70% of the sources were located outside Africa, with less than 30% from Africa, the majority of which were from South Africa.

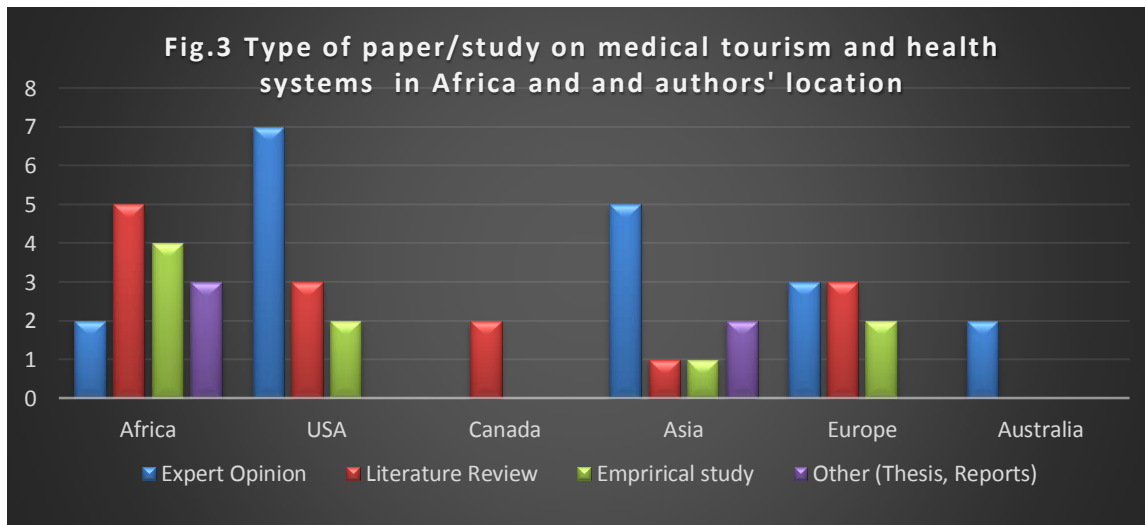


Figure 4 shows the components of health systems covered as influencing or having been affected by MT in Africa. The components considered are the systems structures, processes and health outcomes. Out of the 52 admitted articles for review, only 13% focused on MT and health systems structures, whereas close to 50% dwelt on systems processes as being influenced or influencing MT in Africa. 38% focused on health outcomes. Evidently, the most discussed health system components in relation to MT in Africa is systems processes and health outcomes. This is probably because systems processes and outcomes are the most immediate encounters people have, and most felt, tangible concerns with healthcare systems. This is unlike systems structures which need more empirical work to engage with.

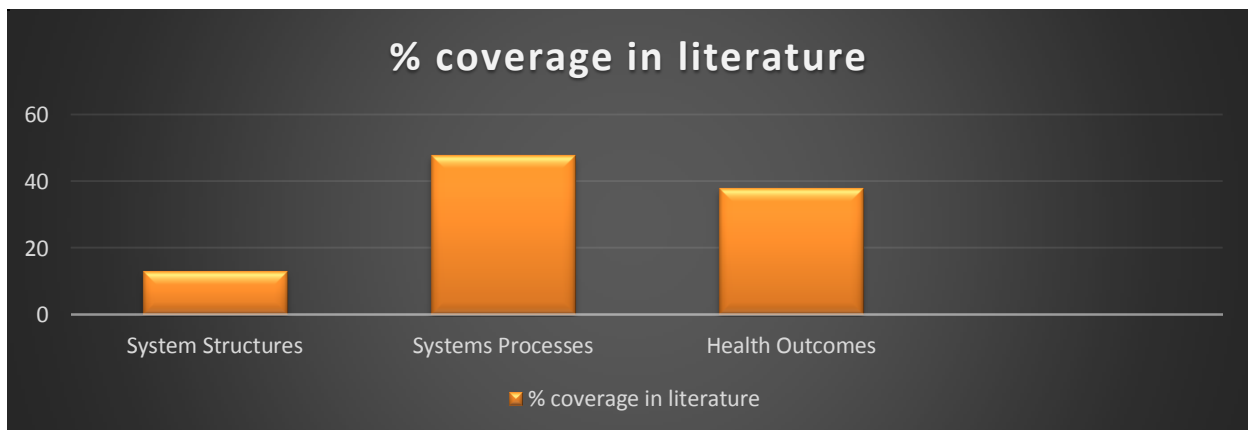


Figure. 4: Percentage literature coverage of health system components.





Evidence shows that, despite high poverty levels in Africa, and the much held opinion that effective demand for MT could be constrained by sub-Saharan poverty, results from a study of some 320 patients and five staff at the Johannesburg Breast care Centre of Excellence, reject this notion (Ahwireng-Obeng and Van Loggerenberg, 2011). Other studies show an increase in intra-African medical travel, especially from southern African countries to South Africa (Crush et al., 2013).

South Africa, Egypt and Tunisia are the three most popular MT destinations in Africa.

### Effects of medical tourism on health systems in Africa

There are a number of effects MT has on health systems in Africa. These are structural, processes and health outcome based. Health structures related MT effects include motivation to invest in local healthcare infrastructure with resources sourced either locally or internationally, but at the same time unfairly competes for local healthcare resources like healthcare professionals and vital organs for transplant. Healthcare processes that are affected include access to treatment alternatives not found locally, but at the same time MT raises concerns about health equity, quality of care, continuity of care, legislation problems, interferes with health professional codes, and institutional policies, creating legal and ethical issues in the process.

The table below (Table 4) summarizes the identified effects in the reviewed literature.

Effects of MT on healthcare systems (+=Positive, -=Negative)		
System Structures	+	<ol style="list-style-type: none"> <li>1) Economic and social development by investing in healthcare infrastructure.</li> <li>2) MT reduces cost of excessive capacity in corporate hospitals bettering allocation of health resources in private sector.</li> <li>3) Local patients can utilize MT facilities.</li> </ol>
	-	<ol style="list-style-type: none"> <li>1) MT competes for local healthcare resources.</li> <li>2) MT challenges national healthcare regulatory mechanism.</li> <li>3) Informal healthcare facilitators, intermediaries and brokers</li> </ol>
Systems Processes	+	<ol style="list-style-type: none"> <li>1) Increased patient choice.</li> <li>2) Access to treatment alternatives not found locally.</li> <li>3) Expedited access to medical care</li> <li>4) MT is a tool for bridging the regional imbalances that exist in getting access to medical facilities on global scale.</li> </ol>
	-	<ol style="list-style-type: none"> <li>1) Raises concerns about health equity, quality of care, continuity of care, legislation problems, professional codes, and institutional policies with legal and ethical issues.</li> <li>2) Transfers health care problems of source countries.</li> <li>3) MT promotes regional health inequality and inequity as corporate hospitals are clustered in urban settings; their prices are out of reach to the locals</li> <li>4) Overseas medical treatment is a huge economic burden in lost consumer spending in the local economy.</li> <li>5) Conflict of interest in the role of (public) healthcare professionals in MT and international patient, professionals with business aspirations which go beyond their role as medics</li> <li>6) MT has policy implications.</li> <li>7) Misuse of government funds in sending patients out for expensive non-elective treatments</li> <li>8) MT does not consider cultural aspects in healthcare, family and work; culture shock specific to a more advanced care setting.</li> </ol>



		<ol style="list-style-type: none"> <li>9) MT discourages confidence in local health systems</li> <li>10) MT encourages illegal transnational medical practices such as illegal organ transplant.</li> <li>11) Distorts national health care systems by influencing migration of health-care workers to facilities focusing on MT</li> <li>12) Unnecessary medical referrals of cases that can be handled locally for the sake of referral incentives</li> </ol>
Health outcomes	+	<ol style="list-style-type: none"> <li>1) Gives local healthcare a global touch.</li> <li>2) MT politically responds to developing countries' healthcare underdevelopment to advance domestic health-care</li> <li>3) Casts off 'underdevelopment' image not only among foreign patient consumers but also among own nationals.</li> <li>4) Patient misinformation with potential negative health outcomes</li> <li>5) Positive effects on the economy, health staff and medical costs</li> <li>6) MT ups standard of local healthcare</li> <li>7) Inspired reflections on participants' own health care systems, particularly in the realms of patients' rights, the efficacy of health professionals, and "development."</li> <li>8) MT discourages an external brain-drain</li> </ol>
	-	<ol style="list-style-type: none"> <li>1) MT influences people to step out of typical medical referral systems</li> <li>2) Experimental medical treatments and associated risks in MT.</li> <li>3) MT potentially poses unintended, undesired medical outcomes for patients</li> <li>4) Negative MT effects on local economy, healthcare professionals and healthcare costs.</li> <li>5) Bio-availability for uncommon medical procedures that cannot be offered locally. Expensive to maintain in-case of complications.</li> </ol>

**Table 2:** MT and its effects on health systems. (source: Authors).

## Discussion

The suitability of the systematic scoping review framework employed in this study was justified by the fact that, unlike the traditional systematic reviews, scoping reviews are able to cover the full width of available literature and accommodate wide ranging study designs (Colquhoun et al., 2014, Dijkers, 2015, Grimshaw, 2010, H. and L., 2005, Levac et al., 2010), which particularly helped in realizing our aim of mapping the literature on how MT relates to health systems in Africa study.

## Sources and quality of data

The reviewed works point to a dire need for quality data on MT in Africa. Almost all the sources do not explain how they arrived at estimates and conclusions they make, other than based on personal, anecdotal or at best, secondary data sources. This study's findings resonate well with the observations made in Crush et al (Crush and Chikanda, 2015, Crush et al., 2013, Crush et al., 2015), on glaring disparities in estimates for medical tourists to Africa, who noted:



“Estimates of the number of medical travelers and tourists to South Africa vary widely. One study put the number of medical tourists at only 8,000 in 2003, with an industry value of R123 million. Another estimated that there were 30,000 medical tourists in 2007, who generated approximately R3 billion. In contrast, the President of the South African Association for Plastic and Reconstructive Surgeons said that as many as 200,000 medical tourists visited South Africa in 2006, but only generated approximately R260 million”. Much of the medical travel estimates potentially include patients who seek cross-border medical care due to near total collapse of their own health systems, mostly obtaining this care on humanitarian grounds in the public healthcare sector of destination countries (Crush and Chikanda, 2015, Crush et al., 2012, Crush et al., 2013).

The present study also echoes Ruggeri et al (Ruggeri et al., 2015) findings that in the absence of valid and robust data, much of what is presented as medical tourist arrival numbers may largely be inaccurate, potentially for the purpose of implying growth and success and encouraging private sector investment and industry lobbying for support. This, however, can be attributed to lack of consensus on standard definition of who a medical tourist is, and a lack of globally agreed-upon methods for data collection (Pocock and Phua, 2011).

As shown in Fig.2 and Fig.3, and Appendix (Table 1), almost 70% of the sources dwelling on MT and health systems in Africa actually point to global, generalized MT and health system issues. Furthermore, most of the research and authors reside or are located outside Africa, mostly North America (Canada and USA), Asia and Europe. This implies potential generalizations that could lead to misplaced conclusions. For instance, whereas cost and delayed access to quality healthcare are the major motivation for travel for medical care, especially outside Africa, evidence shows that in the African context, unavailability of quality medical care is the main motivation for patient travel. Also, whereas outside Africa, most travel is associated more with the elites in society, in the African context, need supersedes elitism for medical travel. These kind of generalizations inadvertently distract the focus of health systems policy makers from appropriately contextualizing and therefore addressing particular conditions of healthcare vulnerability or inequities. In particular, the majority of these sources are either reviews or expert opinions.

Almost all of the few empirical research studies are qualitative. Such methodological diversity entrenches respective epistemological differences on much of the debates in the works; and value of research findings is favored or refuted based on what kind of knowledge different researchers believe research should produce, and what counts as adequate evidence for drawn conclusions.

An analysis of most of the sources reveals considerable subjectivity and research bias mainly due to lack of research truncating techniques. However, it is helpful to note that, the newness of the field, and the amount and quality of evidence currently available, means that the pool of evidence is limited and therefore rigorous data analyses, especially of statistical nature is severely hindered.

### **The role and effects of medical tourism on health systems in Africa**

MT interacts directly with individual healthcare consumers and providers. It also has indirect interactions within national healthcare systems through public health processes and population health. Both interactions do, however, affect structures, processes and system outcomes, the three healthcare system components.



## **Structure of health systems**

The structure of the health system consists of healthcare facilities, including hospitals, clinics; healthcare professionals including specialist physicians, general practitioners, auxiliary and allied staff; and technology that create the capacity to extend healthcare services to consumers (Steinwachs and Hughes, 2008). The quality of health care services depends on the structural resources of health facilities and organization, while the cumulative resources and relationships of the healthcare system determine its structural capacity to carry out healthcare processes.

As reflected in Fig.4, only a few studies dwelt on the structural aspects of health systems in Africa. The few that did were among the minority of the studies; i.e. empirical studies, theses and reports. The said sources however, lacked depth, dwelling shallowly on external and internal brain drain of healthcare professionals due to MT in developing countries and other structural issues. Structural characteristics of healthcare systems influence the quality of care it is able to provide. None of the reviewed literature focused, specifically, on how MT influences the structural capacity of the region's health systems in terms of information resources, organizational resources, physical resources, human resources, and fiscal resources.

Evidence shows that one of the motivations for travel for medical care stems from medical technologic advances in destination countries (Iordache et al., 2013). However, which technologic advances attract patients from or to Africa is not clearly shown in the reviewed works. MT has been shown to play a role in healthcare resource creation in terms of investment in healthcare infrastructure and health professionals training (Suzana et al., 2015). Although in Africa, most of the training is done by the public sector, MT may influence healthcare professionals' choice of career and location (Abdullah and Ng, 2006). Exhaustive inventory and assessment of healthcare infrastructure in Africa is, however, currently unavailable.

Structural and strategic innovations in MT seem to have achieved organizational economies of scale, improved utilization of resources, enhanced access to capital and extended scope of the market, while the traditional national health systems lack these entrepreneurial innovations, largely dominated by payment systems that rewards in terms of time spent rather than value of care. In MT there is specialization especially in ambulatory walk-in services, reduced prices and lower costs. Previously unimagined techniques seem suddenly within reach (Turner, 2007a, Turner, 2007b). The result is healthcare service provision, traditionally offered by public health systems in Africa, is now dominated by private sector sometimes through MT as poor incentives for public providers leads to poor quality of care. MT therefore affects financing balances carefully negotiated in health systems especially cross-subsidization of healthcare services (Cortez, 2008).

Health systems financing in Africa mainly focus on public healthcare, neglecting the private sector. However, research shows that even though this method sounds equitable, it leads to reducing rich / poor solidarity mechanisms. Targeting public funds to the poor leads the middle classes to purchase healthcare on the market, rejecting taxes meant to finance healthcare, thereby chronically under-financing public healthcare for the poor (Unger et al., 2011).

## **Processes of care**

These are key processes to identify, address, and prioritize individual and population health problems and resources; outputs of which are system interventions, policies, regulations, programs, and services (Handler et al., 2001).



These processes comprise interactions between the health care providers and patients over time including the timeliness of care, organizational responsiveness and efficiency; diagnosis, treatment, management, and recovery of problem presentation (Steinwachs and Hughes, 2008).

Figure 4 shows that once again, in Africa, processes of care were more addressed by empirical studies and less by expert opinion literature. This means that as there are few empirical studies, and less processes of care issues have been addressed in Africa. More detailed observation and research are needed to address these system processes.

Although health systems develop policies and plans on how the public accesses medical information, education, and how to empower people about health issues (Handler et al., 2001), the proliferation of information on internet through MT impacts on the relationship patients have with their doctors. Empowered patients have greater power of choice on who and where they can be treated. This leads to some fundamental concerns:

1. Historically, the physician was the exclusive provider and gatekeeper of all medical advice and service. The often 'misleading' information, even though correct but in 'unprofessional' hands, may be a threat to medical paternalism suggesting, for instance, the decline of medical profession power because of the public's greater access to health knowledge. Technological advancement has, for instance, placed some medical procedures in the hands of some professionals other than physicians, notably some fertility treatments (Sweet, 2014). MT disrupts the Dawson regionalized model of healthcare (Bodenheimer and Grumbach, 2004), a care delivery model prevalent in Africa. MT influences people to step out of the more preferred referral system common in the Dawson model (Horowitz, 2007). It encourages self-referral. It disrupts the more systematic referral system from primary or secondary care to specialized consultative care.

In MT, patients demand direct access to specialists and tertiary care services, and freedom in selecting caregivers of their choice for particular healthcare needs. Individual autonomy latest in medical technology are highly prized, even if these are available at far distances from home. In this way, primary healthcare ideals, valued in many national health systems in the region are affected. Consequently, MT to some extent limits the benefits of primary healthcare whose key tasks, as expounded in Starfield et al. (Starfield et al., 2005), are:

- i. first contact care, initial evaluation
- ii. longitudinally, (continuity), sustaining a patient–caregiver relationship over time
- iii. comprehensiveness, the ability to manage a wide range of health care needs, in contrast with specialty care, which focuses on a particular organ system or procedural service; and
- iv. coordination through referral and follow-up, the primary care provider integrates services delivered by other caregivers.
- v. Physicians may be financially-incentivized to order more procedures and acute interventions, sometimes unnecessarily, on the basis of ability to pay, leading to over-exposure.

MT and return visits and/or continuity of care were issues mentioned in most literature, though insights into the natural history and subsequent processes of care and the relationship of health



services to specific patient complaint or diagnosis are not dealt with in detail.

### **Medical tourism and regulation in healthcare**

Regulation in healthcare has variously been defined as a rule, a law or other order prescribed by authority specially to regulate conduct; and as “all of those legitimate and appropriate means governmental, professional, private and individual, whereby order, identity, consistency and control are brought to the profession.” (Whpcr, May 2008). Patient care is at the center of all regulation with higher forms of regulation being regulations by legislation whereby governments implement laws to protect citizens from the actions of many parts of the health system (Zakus and Bhattacharyya, 2007). Legislation provides a framework for enforcement and therefore compliance.

MT presents immense challenges in regulating healthcare through globalization of healthcare, diversification of practice settings and increased access to information on medical conditions and possible therapies. Individual rights and freedoms on the other hand, limits any meaningful MT regulation using current frameworks. Some sources reviewed in this study strongly identify the issue of MT regulation as a need, especially for taxation (lordache et al., 2013, Purohit, 2011), while others explain the need for MT legislation (Chou, 2016, Cohen, 2011, Uppiah et al., 2014), though no regulatory framework applicable especially in the African context is proposed.

### **System outcomes and medical tourism in Africa**

The bottom line and value of a health system is, as its output, improved health of its citizenry (Steinwachs and Hughes, 2008, Zakus and Bhattacharyya, 2007). The immediate and long-term changes experienced by individuals, families, communities, providers, and populations are the system's outcomes, the cumulative result of the interaction of the public health system's structural capacity and processes, given the macro context and the system's mission and purpose. Outcomes can be used to provide information about the system's overall performance, including its efficiency, effectiveness, and ability to achieve equity between populations.

### **Conclusion**

Despite high poverty levels in Africa, and the much held opinion that effective demand for MT could be constrained by widespread poverty in African, available evidence shows that this notion should be rejected (Ahwireng-Obeng and Van Loggerenberg, 2011) (Ahwireng-Obeng and van Loggerenberg, 2011) (Ahwireng-Obeng and van Loggerenberg, 2011) (Ahwireng-Obeng and van Loggerenberg 2011). Literature reviewed in this present study shows an increase in intra-African medical travel, especially from southern African countries to South Africa (Crush et al., 2013) (Crush et al., 2013) (Crush et al., 2013) (Crush, Chikanda et al. 2013), and from rest of Africa to Asia, especially India (Goldberg, 2013, Idowu and Adewole, 2015). South Africa, Egypt and Tunisia are the three most popular MT destinations in Africa.

The findings further suggest that MT in Africa, if appropriately integrated into national healthcare systems, is complimentary and supplementary. It can be used to advance domestic health-care reforms and cast off ‘underdevelopment’ image; and boost confidence in healthcare systems; not only among foreign patient-consumers but also among own nationals. An aggressive drive to incorporate local patients, especially the able-to-pay elites should be undertaken in Africa. Currently MT tends to compete and coexist with, instead of being integral part of the national healthcare systems in Africa.



The limited sources and quality of data reviewed in this study suggest a great need of empirical studies that will shade more light on the full impact of MT on health systems in Africa and how this phenomenon can be incorporated into national health systems for positive health outcomes.

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## Appendix 1

**Table 1** below presents the study abstraction results done of the admitted papers.

Author, Year	Country/Region	Study setting	Major findings, Results, conclusions	Design/methodological Approach/Report format	Main focus is on MT in Africa?
Abdullah, BJJ Ng, KH 2006	Malaysia, Asia	LMICs, Global	Effects of MT on health systems in LMICs	Expert Opinion	No
Agwa-Ejon, JF Pradhan, A 2014	S. Africa, Africa	Africa, Local	Medical technology in medical services	Empirical Case study	Yes
Ahwireng-Obeng, Frederick van Loggerenberg, Charl 2011	S. Africa, Africa	Africa, Regional	African region patients seeking Cancer treatment in S. Africa	Empirical, qualitative	Yes
Álvarez, Melisa Martínez Chanda, Rupa Smith, Richard D.2011	UK	LMIC	Bi-lateral MT arrangements	Qualitative	No
Beladi, Hamid Chao, Chi-Chur Ee, Mong Shan Hollas, Daniel2015	USA	HIC Global	MT and external brain drain Medical tourism and health worker migration in developing countries	Review	No
Bergmann, Sven 2011	USA	HIC Global	Fertility Tourism and Access to Reproductive Technologies and Substances	Expert opinion	No
Bezabih, B Wamisho, BL 2013	Ethiopia, Africa	Africa, local	Referrals of Ethiopian Orthopedic Patients for Treatment Abroad.	Clinical records as source of data.	yes
Carmen, Iordache Iuliana, Ciochina 2014	Romania, Europe	HIC Global	Global direction and flow of MT	Review	No
Casey, Victoria Crooks, Valorie A. Snyder, Jeremy Turner, Leigh2013	Canada	HIC Global	Informal caregivers' roles as knowledge brokers, companions, and navigators in medical tourism	Empirical, qualitative	No



Chen, Y. Y. Brandon Flood, Colleen M. 2013	Canada	LMIC, Global	MT Impact on Health Care Equity and access in LMICs	Review	No
Chou, Franklin 2016	USA	HIC, Global	Effects of MT on health systems globally including regulation mechanisms	Review	No
Cohen, I. Glenn 2010	USA	HIC Global	MT types and kinds of concerns they pose in healthcare.	Expert opinion	No
Cohen, I. Glenn 2011	USA	HIC Global	Medical Tourism, Access to Health Care, and Global Justice	Expert opinion	No
Connell, John 2006	Australia	HIC Global	Privatization of health care, growing dependence on technology, uneven access to health resources and the accelerated globalization of health care	Expert Opinion	No
Connell, John 2011	Australia	LMIC, Global	MT exacerbates unequal access to health care in developing countries, distorts national health care systems by influencing migration of health-care workers	Expert opinion	No
Cortez, Nathan 2008	USA	HIC Global	Effects of MT on health care system financing, licensing, accreditation, malpractice, and regulatory approval of medical technologies.	Review	No
Crooks, Valorie A. Kingsbury, et al 2010	Canada	HIC Global	MT risks, information to medical tourists	Scoping review	No
Crush, Jonathan Chikanda, Abel 2015	South Africa, Africa	Africa, regional	South-South Vs North South movement of medical tourists to South Africa for medical treatment.	Secondary data sources	Yes
Crush, Jonathan Chikanda, Abel Maswikwa, Belinda 2012	South Africa, Africa	Africa, regional	North-South and South-South patient movement, medical procedures sought in S. Africa	Secondary data sources	Yes



Crush, J Chikanda, A Maswikwa, B Labonté, R Runnels, V Packer, C Deonandan, R 2013	South Africa, Africa	Africa, regional	North-South and South-South patient movement, medical procedures sought in S. Africa	Secondary data sources	Yes
Dangor, Faheem Hoogendoorn, Gijsbert Moolla, Raeesa 2015	South Africa, Africa	Africa, Regional	South African national travelling to India for medical care	Empirical, Qualitative	Yes
El Taguri, Adel 2007	Libya, Africa	Africa Local	Medical Tourism and the Libyan National Health Services	Expert opinion	Yes
Fisher, Caroline Sood, Kuna 2014	USA	HIC Global	Drivers of MT	Empirical Qualitative	No
Godson Ezejiofor, DHA Okoro, Ephraim 2013	USA	Africa, local	Social-political, economic problems facing healthcare in Nigeria drive MT	Empirical, Qualitative	Yes
Goldberg, Allyson M 2013	USA	Africa, Regional	African medical tourists in India, motivation for travel, participants' experiences, challenges, Outcomes: inspired reflections on participants' own health care systems,	Thesis	Yes
Hadi, Abdullahel 2009		HIC Global	Health care access and MT	Conference paper	No
Hanefeld, Johanna Smith, Richard Horsfall, Daniel Lunt, Neil 2014	UK	HIC, Global	Contributions of MT to destination countries' economies and health systems' Access (inequities).	Review	No
Hazarika, Indrajit 2010	India, Asia	LMIC Regional	Potential impact of MT on the health workforce and health systems	Expert Opinion	No
Helmy, Eman M. Travers, Robert 2009	Egypt, Africa	Africa, Local	Development of MT in Egypt	Report	Yes



Idowu, Emmanuel Olufemi Adewole, Oladipo Adebolaji 2015	Nigeria, Africa	Africa, local	MT legislations for care abroad, proper follow-up care upon return, agencies in MT.	Empirical, medical records	Yes
Iordache, Carmen Ciochină, Iuliana Roxana, Popa 2013	Romania, Europe	HIC Global	Health care costs, an aging population, long waiting lists for surgery procedures and globalization as factors driving MT.	Review	No
Johnston, Rory Crooks, Valorie A. Ormond, Meghann 2015	Canada	LMIC, Global	MT activities and their economic and health systems and policy implications	Empirical, Qualitative	No
Johnston, Rory Crooks, Valorie A. Snyder, Jeremy Kingsbury, Paul 2010	Canada	HIC Global	MT is a user of public resources, solution to health system problems; generate revenue, ups standard of healthcare and source of healthcare inequity.	Review	No
KM, Sudheer Muhammed D'Souza, Sunil C 2014	India, Asia	LMIC Global	North-South and South-South patient flows.	Expert opinion	No
Kumar, Latha Rajendra Robin Yurk, Robin 2010		LMIC Global	Monetary benefit, access to services, customer service, improved quality to the community for future development as some of the advantages of MT	Expert Opinion	No
Lautier, Marc 2008	France	Tunisia, Regional	Export of health services from Tunisia	Empirical qualitative	yes
Maaka, Tshepo P 2006	South Africa	Africa, Regional	The role of MT in Africa	Expert opinion	Yes
NaRanong, Anchana NaRanong, Viroj 2011	Thailand, Asia	LMIC, gloal	positive and negative effects of medical tourism on the economy, health staff and medical costs	Quantitative	No
Nicolaides, A Zigiriadis, E FC, Cardio SA 2011	S. Africa	Africa, Global	Information provided to medical tourists	Review	No



Ormond, Meghann 2011	Netherlands, Europe	LMIC Local	MT as a political response to advance domestic health-care reforms and cast off 'underdevelopment' image.	Expert opinion	No
Pocock, Nicola S Phua, Kai Hong 2011	Singapore, Asia	LMIC Global	MT has policy implications for health systems. Need for universal definition of medical tourism, concerted data collection efforts	Conceptual Framework	No
Purohit, Brijesh C 2011	India, Asia	LMIC Global	MT is not anti-poor. Need for appropriate regulatory mechanism for effective taxation. MT reduces cost of excessive capacity in hospitals. MT adds to the comparative advantage of a country.	Expert opinion	No
Rai, A Chakraborty, P Sarkar, A 2013	India, Asia	LMIC Global	MT as a tool for bridging healthcare access imbalances	Review	No
Horowitz, Michael D., Rosensweig, Jeffrey A 2007	USA	HIC Global	Driving factors influencing MT	Expert opinion	No
Samir, Nafisa Karim, Samir 2011	Oman, Asia	LMIC, Global	Risks associated with MT	Expert opinion	No
Skountridaki, Lila 2015	UK	HIC Global	The role of professionals in the face of MT.	Expert opinion	No
Suzana, Mariyam Mills, Anne Tangcharoensathien, Viroj Chongsuvivatwong, Virasakdi 2015	Thailand, Asia	LMIC Global	MT is lost consumer spending in local economy. Geographical inequality in access. Investment in the domestic health infrastructure avoids outflow of funds.	Empirical, quantitative	No
Tattara, Giuseppe 2010	Italy, Europe	LMIC Global	MT providers are clustered in urban settings; their prices are out of reach to many locals	Expert opinion	No





Turner, Leigh 2007	USA	HIC; Global	MT provides opportunity for care to patients avoiding delays, and destination economic development. MT increases inequalities. Unintended, undesired medical outcomes for patients.	Expert Opinion	No
Turner, Leigh 2007	USA	Global	MT promotes patient choice, gives consumers access to treatment alternatives, expedited access to care, fosters global competition, promotes economic and social development.	Expert Opinion	No
Uppiah, MV Gunpath, RP Nunkoo, R Seetana, B Sannasee, RV 2014	Mauritius, Africa	Africa, Regional	MT legislation	Report	Yes
Vijaya, Ramya M. 2010	USA	HIC Global	MT contributes economically to destination, but also competes with the domestic health sector; could transfer health care problems	Expert opinion	No

**Table 1:** Data abstraction study results (n=52)