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## Challenges and Opportunities for Developing Countries from Medical Tourism

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**Abstract:** Wikipedia defines “Medical Tourism” as the act of traveling to other countries to obtain medical, dental and surgical care. Rapid expansion of facilities for patients abroad has helped to spur this industry’s growth. Regardless of the destination, U.S. citizens are increasingly embracing the benefits of medical tourism due to dramatically rising U.S. healthcare costs. Medical care in countries such as India, Mexico, Thailand and Singapore can cost as little as ten percent of the cost of comparable care in the U.S. for some procedures. Statistical analysis revealed the costs to be significantly lower for many of these countries. Currently, patients from U.S., Canada, Europe, Australia and the Middle East appear to be traveling to destinations in Asia such as India and in Central America such as Mexico for medical care. Medical tourism can offer opportunities to developing countries to make improvements in their country and the host country can enjoy the economic benefit from medical tourism. However, there are also some challenges they may face from medical tourism. This paper discusses the opportunities and the challenges resulting from medical tourism for developing countries.

**Key words:** medical tourism; healthcare costs; developing countries

**JEL codes:** P46, Z10, Z19, N75, N76

### 1. Introduction

What is medical tourism? Deloitte Center for Health Solutions (2008) defines Medical tourism as a process of leaving home for treatments and care abroad or elsewhere domestically. Wikipedia defines “Medical Tourism” as the act of traveling to other countries to obtain medical, dental and surgical care. A Healthcare Magazine in India says “Medical Tourism can be broadly defined as provision of cost-effective private medical care in collaboration with the tourism industry for patients needing surgical and other forms of specialized treatment.”

Rapid expansion of facilities for patients abroad has helped to spur this industry’s growth. Regardless of the destination, U.S. citizens are increasingly embracing the benefits of medical tourism. Previously, “inbound” medical tourism was more prevalent where patients from other countries traveled to U.S. to receive advanced medical care. For years many medical tourists came to the United States to obtain care that was not available in

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their country or to obtain quicker access to services (Fried, 2009). He reports an estimated 400,000 patients coming to United States annually to obtain medical care. Today, “outbound” medical tourism is becoming equally prevalent where U.S. patients are traveling abroad for medical care due to the impact of dramatically rising U.S. healthcare costs. According to Fried (2009), such patients include patients who have limited or no insurance or lost their insurance; patients working for selected self-insured organizations with connections to facilities abroad; patients whose insurance companies take advantage of foreign facilities; and patients seeking care that may not be available in the United States for regulatory reasons such as ban on abortions, etc. He reports an estimated 750,000 Americans traveled abroad for care in 2007 and claims this number is expected to increase to 6 million by the end of year 2010. Currently, patients from U.S., Canada, Europe, Australia and the Middle East appear to be traveling to destinations in South and Southeast Asia such as India and in Central America such as Mexico for various medical and surgical procedures.

Frequently performed, common medical procedures and medical services in Medical Tourism include plastic surgery, ophthalmology (such as cataract removal), cardiothoracic surgery, joint replacement, dermatology procedures, dentistry and dental surgery, orthopedic surgery, certain transplants and nuclear medicine. The various specialties covered by Medical Tourism are dermatology, neurology, neurosurgery, ophthalmology, oncology, orthopedics, rheumatology, endocrinology, ENT, pediatrics, pediatric surgery, pediatric neurology, nephrology, gynecology and even psychiatry. To some extent general medicine and general surgery disciplines are also included.

## 2. Reasons for Increase in Medical Tourism

Medical care for some procedures in countries such as India, Mexico, Thailand and Singapore can cost as little as ten percent of the cost of comparable care in the U.S. The price is remarkably lower for a variety of services and often includes airfare and stay in a resort hotel making interest in medical tourism strong and positive (Keckley and Underwood, 2008). For example, in 2005 the average cost of a procedure such as the “Heart Bypass” was \$27,000 in the U.K, \$23,000 in France, \$24,000 in the U.S. while the cost in India was only \$7600 as reported by a student in his unpublished class project on healthcare costs in 2007. The average cost of hip replacement was reported to be \$16,000 in the U.K, \$14,000 in France, \$28,000 in the U.S. while the cost in India was \$5700. For a procedure such as the cataract surgery, the cost was \$5,000 in the U.K, \$3,000 in France, \$4,000 in the U.S. while the cost in India was only \$1200. Table 1 provides a brief comparison of the costs of few of the dental procedures between USA and India. Table 2 shows a comparison of costs of certain selected procedures for UK and India while Table 3 illustrates comparison of costs for a variety of countries such as Mexico, Costa Rica, India, Thailand and Korea with the United States. Finally, Table 4 offers a basic comparison of common procedure pricing between U.S. and “Overseas Hospitals.” This clearly shows that cost savings could be easily achieved if a person is willing to travel for medical care.

Although, costs of different procedures could vary from country to country we feel that they are significantly lower in “Medical Tourism” (developing) countries. To test this, cost data for selected procedures in USA (1), UK (2) and India (3) shown in Table 5, was used to conduct Analysis of Variance (ANOVA) (Anderson et. al., 2010). Randomly selected procedures, their costs in the respective countries and the results of the “Randomized Block Design ANOVA procedure” are shown in Table 5. The null and the Alternate hypotheses for the test were:

$$H_0: \mu_1 = \mu_2 = \mu_3$$

$H_a$ : At least one of the means is different.

where  $\mu_1$  is the average cost for USA;

$\mu_2$  is the average cost for UK;

$\mu_3$  is the average cost for India.

Based on the results of ANOVA, the null hypothesis of equality of means was rejected at a significance level of 0.05 ( $p = 0.00025$ ) indicating comparatively significantly cheaper medical care in India. Similar results were found for Mexico and Singapore. Multiple comparison procedures revealed that  $\mu_3$  was significantly different from  $\mu_1$  and  $\mu_2$ . However,  $\mu_1$  and  $\mu_2$  were not significantly different from each other. This confirmed that medical care cost can be significantly lower in India which may be a major reason for recent increased tourism.

**Table 1 Brief Comparison of The Costs of Few Dental Procedures between USA and India**

Dental procedure	Cost in US (\$)*		Cost in India (\$)*
	General Dentist	Top End Dentist	Top End Dentist
Smile designing	-	8,000	1,000
Metal Free Bridge	-	5,500	500
Dental Implants	-	3,500	800
Porcelain Metal Bridge	1,800	3,000	300
Porcelain Metal Crown	600	1,000	80
Tooth impactions	500	2,000	100
Root canal Treatment	600	1,000	100
Tooth whitening	350	800	110
Tooth colored composite fillings	200	500	25
Tooth cleaning	100	300	75

Source: [http://www.medical-tourism-india.com/india\\_vs\\_USA.htm](http://www.medical-tourism-india.com/india_vs_USA.htm).

**Table 2 Cost Comparison-India vs. United Kingdom**

Procedure	UK (\$) Approx	India (\$) Approx
Open Heart Surgery	\$18,000	\$4,800
Facial Surgery and Skull base	\$13,000	\$4,500
Neurosurgery with Hypothermia	\$21,000	\$6,800
Complex spine surgery with implants	\$13,000	\$4,600
Hip Replacement	\$13,000	\$4,500
Simple Spine Surgery	\$6,500	\$2,300
Simple Brain Tumor:		
Biopsy	\$4,300	\$1,200
Surgery	\$10,000	\$4,600
Parkinson's:		
Lesion	\$6,500	\$2,300
DBS	\$26,000	\$17,800

Source: <http://www.indian-medical-tourism.com/medical-tourism-india-price-benefits.html>.

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**Table 3 Cost Comparison: USA vs Mexico, Costa Rica, India, Thailand, Korea**

Medical Procedure	USA	Mexico	Cost Rica	India	Thailand	Korea
Angioplasty	Up to \$57,000	\$17,100	\$14,000	\$10,000	\$9,000	\$21,600
Heart Bypass	Up to \$144,000	\$21,100	\$26,000	\$10,000	\$26,000	\$26,000
Heart Valve Replacement	Up to \$170,000	\$31,000	\$31,000	\$3,000	\$24,000	\$38,000
Knee Replacement	Up to \$50,000	\$11,500	\$12,000	\$9,000	\$14,000	\$19,800
Hip Resurfacing	Up to \$30,000+	\$13,400	\$13,000	\$10,000	\$18,000	\$22,900
Hip Replacement	Up to \$43,000	\$13,800	\$13,000	\$10,000	\$16,000	\$18,450
Special Fusion	Up to \$100,000	\$8,000	\$16,000	\$14,000	\$13,000	\$19,350
Face Lift	Up to \$15,000	\$8,000	\$6,500	\$9,000	\$8,600	\$5,000
Breast Implants	Up to \$10,000	\$9,000	\$4,000	\$6,500	\$5,700	\$13,600
Rhino Plasty	Up to \$8,000	\$5,000	\$6,000	\$5,500	\$5,400	\$6,000
Lap Band/Bariatric	Up to \$30,000	\$9,200	\$9,000	\$9,500	\$14,000	\$11,500
Hysterectomy	Up to \$15,000	\$7,500	\$6,000	\$7,500	\$7,000	\$11,000
Dental Implant	Up to \$2,000-10,000	\$1,000	\$1,100	\$1,000	\$1,000	\$2,000

Note: These prices are as of 2010. Source: <http://www.medicaltourism.com/compare-cost.php?lang=en>.

**Table 4 Cost Estimates of Medical Treatment in USA and Abroad (Foreign Countries)**

Procedure	Cost in U.S.	Cost abroad
<b>Orthopedic</b>		
Hip Replacement	\$40,000-\$65,000	\$7,000-\$13,000
Hip Resurfacing	\$50,000-\$60,000	\$8,000-\$12,000
Knee Replacement	\$45,000-\$60,000	\$7,500-\$12,000
<b>Neurology</b>		
Spinal Fusion	\$80,000-\$100,000	\$6,000-\$10,000
Total Spinal Disc Replacement	\$100,000-\$150,000	\$8,000-\$12,000
Discectomy	\$20,000-\$24,000	\$5,000-\$7,000
<b>Cardiology</b>		
Angioplasty	\$50,000-\$65,000	\$5,000-\$7,000
Heart Bypass	\$90,000-\$120,000	\$10,000-\$18,000
Heart Valve Replacement	\$125,000-\$175,000	\$13,000-\$18,000
<b>Gynecology</b>		
Hysterectomy	\$18,000-\$25,000	\$4,000-\$7,000
<b>Cosmetic</b>		
Face & Neck Lift	\$8,000-\$15,000	\$2,500-\$4,000
Breast Augmentation	\$6,000-\$12,000	\$3,500-\$5,000
Tummy Tuck	\$6,000-\$12,000	\$3,800-\$5,200
Liposuction/Area	\$2,000-\$3,000	\$800-\$1,200
<b>Dental</b>		
Dental Implants/Tooth	\$3,000-\$5,000	\$800-\$2,000
Dental Crowns	\$800-\$1,200	\$200-\$600

Source: <http://www.medretreat.com/procedures/pricing.html>.

Table 5 Results of ANOVA

Procedure (Cost in Thousands \$)	USA	UK	India			
Open Heart	100	43	7.5			
Knee Replacement	48	52	6.3			
Hip Resurfacing	55	48	7			
LA Hysterectomy	22	24	4			
Lap Cholecystectomy	18	20	3			
Spinal Decompression Fusion	60	65	5.5			
Gastric Bypass	65	70	9.5			
Summary	Count	Sum	Average	Variance		
Open Heart	3	150.5	50.16667	2177.583		
Knee Replacement	3	106.3	35.43333	640.5633		
Hip Resurfacing	3	110	36.66667	672.3333		
LA Hysterectomy	3	50	16.66667	121.3333		
Lap Cholecystectomy	3	41	13.66667	86.33333		
Spinal Decompression Fusion	3	130.5	43.5	1089.25		
Gastric Bypass	3	144.5	48.16667	1127.583		
USA	7	368	52.57143	769.2857		
UK	7	322	46	357.6667		
India	7	42.8	6.114286	4.791429		
Source of Variation	SS	df	MS	F	P-value	F crit
Rows (Procedures)	3809.25	6	634.8749	2.555503	0.078585	2.99612
Columns (Countries)	8848.747	2	4424.373	17.80902	0.000256	3.885294
Error	2981.213	12	248.4344			
Total	15639.21	20				

Note: ANOVA: Two-Factor Without Replication.

Waiting times could be another reason for medical tourism. In UK, the waiting time for many procedures can range from three months to over a year. In medical tourism countries, the waiting times can be practically zero. Other reasons for the increased medical tourism could be the improvement in the quality of medical facilities and related infrastructure, reputation of the Asian medical professionals, physician specialties along with the cost savings. Most countries also offer a variety of tourist and pilgrim destinations. India additionally offers holistic healthcare management addressing the mind, body and spirit along with a warm reception to western foreigners.

### 3. Current Status of Medical Tourism in India

Medical tourism in India generated approximately \$333 million in the year 2003. About 150,000 foreigners from various parts of the world visited India specifically for receiving medical care, the recovery and the tourism. It was estimated by the government of India that this industry will grow to anywhere between \$1.2 billion to \$2.4 billion by the year 2012. The domino effect of medical tourism in India has also been enormous. For example, the domestic air travel, hospitality, domestic tourism, shopping of other goods by foreigners on the way home, all significantly increased.

#### 4. Why India or Mexico?

Fried (2009) suggests that management and medical expertise are rapidly improving in some of the developing countries. This seems to be true of India and to some extent of Mexico. India is not a third world country with an underdeveloped economy anymore (Chopra, 2009). Since its independence in 1947, the quality of Indian medical schools, medical education and medical facilities has steadily improved over the years. They are producing better graduates who are helping them earn excellent reputation in the world medical community. Many have migrated to Europe and the United States for their medical careers. Salsberg and Grover (2006) report that International Medical Graduates (IMGs) represent 25 percent of all new physicians entering the residency programs in the U.S. and represent approximately a quarter of practicing physicians (Association of American medical Colleges, 2007). It is easily seen that the reputation of the Indian medical professionals, the physicians, the specialists, nursing and other supporting staff has been on the rise during the last decade.

Both India and Mexico offer a variety of tourist destinations which are appealing to many people all over the world. India has many heritage hotels which are palaces converted into hotels with the western style amenities and food, and other services such as concierges, tour guides, etc. Mexico offers easy convenient access across the border at many points for U.S. travelers. Both offer a friendly political climate. In addition, most foreigners visiting the country receive a warm reception with friendly helping attitude from businesses as well as the locales.

Another reason is the language. There is no language barrier for U.S. or many European travelers who speak English—English is widely spoken in India. Also, there are many foreign language institutes that have sprung up in India recently that promote languages like German, French, Spanish, Chinese, Japanese and Russian. Most professional in Mexico have a working knowledge of the English language.

In addition, India offers holistic healthcare addressing the mind, body and spirit. There are many centers throughout the country that offer training and practice of Yoga and the meditation, reported to promote better health. India also offers access to other Indian systems of medicine such as “Ayurvedic medicine” and clinics for body cleansing and promoting better health.

#### 5. Challenges and Opportunities

Medical tourism can offer opportunities to developing countries to make improvements in their country. Economic gains from medical tourism can be very big incentives for a country to invest in improvements to the infrastructure, rural and urban planning and for improving medical facilities as well as the supporting services required to provide a quality experience to the medical tourists coming to the host country. This may result in a great benefit for the host country itself. To a small extent, medical tourism may help the host country keeping their medical graduates in the land. Fried (2009) reports that of the IMGs practicing in the United States, 60 percent are from lower income countries and these are the countries that can not afford to export their healthcare workforce (Fried and Harris, 2007). Although the host country can enjoy the economic benefit from medical tourism there are some challenges they face in the wake of medical tourism such as:

- (1) Maintaining quality of healthcare service: pre-, during, and post-surgery
- (2) Maintaining quality and training of medical staff
- (3) Maintaining quality of medical facilities
- (4) Handling of post-surgery or post-procedure complications or side effects

- (5) Handling of negligence, malpractice or false advertising
- (6) Handling of a patient death. What is the jurisdiction? Home or host country?
- (7) Sharing of financial burden. Insurance company in the home country.
- (8) What is covered under the insurance plan? Handling of paper work.

Dealing with the insurance company in another country can be a challenge or at least at times may not be simple and easy. Security of patients during the tourism part of the visit can also pose a challenge due to possible hostage taking, terrorism, kidnapping, etc. In addition, quality and safety of transportation, security and safety at the hotel where the medical tourists are staying must also be evaluated. Also, the issue of accreditation can not be ignored. Joint commission on accreditation of Healthcare Organizations emphasizes focus on patient rights and quality of medical and nursing staff. The host country must constantly ensure that the patient rights are honored and quality is maintained.

Another challenge is “dealing with the criticism of medical tourism”. From the point of view of the social effects of medical tourism, some argue that it has an impact on the quality and delivery of medical services to the local population. There are times when some local patients “get put on the back burner”. Some have criticized medical tourism for subsidizing the patients from wealthier industrialized nations at the cost of local patients. This delicate issue, although a challenge, needs to be examined very carefully by the host country.

## **6. What Needs to Be Done?**

Is there a need for a watch-dog agency to supervise this uncontrolled industry? Is there a need for bi-lateral or multi-lateral agreements or arrangements among countries to assure the quality and performance of medical tourism services? We would think so. The initiative must come from the host country government.

To promote medical tourism, the host country can undertake improvements in infrastructure, transportation, security etc. How can the government establish priorities? Which cities get attention first? Different cities probably get different number and type of medical tourists requiring different medical services. The host country government can look at not just the number of medical tourist visiting the city or the region but their net economic impact on the city or the region. Then, the “A-B-C analysis” approach in operations management can be employed to create category “A”, category “B” and category “C” cities or regions with highest priority going to category “A” listing. Priorities established then can be used for allocation of resources for improving infrastructure, facilities, and tourist spots, and for improving security and safety of visiting medical tourists. The eventual goal should be to cover cities and regions in all three categories.

The host country can also initiate research on the experiences of the past patients who had visited the country for medical tourism. The focus of such studies should be on various aspects of the medical treatment they received such as:

- (1) Patient recovery—how good was the recovery, how quick?
- (2) Post-surgery side effects—temporary, short-term, long-term
- (3) Patient prognosis
- (4) Level of patient satisfaction—pre and post surgery/medical service
- (5) Level of patient satisfaction with medical and support staff
- (6) Level of patient satisfaction with medical facilities

In addition the studies should also investigate “Level of Satisfaction” with the Tourism part with questions



regarding:

- (1) Satisfaction with immigration upon arrival
- (2) Satisfaction with hotel/boarding
- (3) Satisfaction with transportation, infrastructure
- (4) Opinions about personal safety

Medical tourism appears to be here to stay. The host country government can develop a set of standards by collaborating with non-governmental organizations. A strategic alliance of hospitals, domestic/international tour operators, airlines, insurance providers, accreditation agencies and government agencies can be important for the “Medical Tourism” industry to operate effectively and efficiently. Will a close monitoring of the industry by the government be a good idea? May be if they let the free market play out. This may help the host countries maximize the benefit of medical tourism in spite of the challenges.

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