

Cost Comparison of Medical Treatment in the United States vs India for Uninsured Americans

by

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## **Abstract**

With the increase in treatment costs in developed countries such as the United States, medical tourism (MT) plays a vital role in healthcare. People from developed countries are travelling to developing regions such as Asia and Singapore to undergo treatments at a lower cost. Increased numbers of uninsured citizens are also a driving factor for medical tourism. The uninsured and underinsured citizens of the United States find it challenging to afford quality treatment for themselves or their families; therefore, many are opting for MT. Through MT, the patient and a support family member travel abroad for a short period of time, which may be compared to a vacation with the benefit of getting good care and treatment at a lower cost. MT is mainly considered when the patient has enough time and is well enough to travel. India, one main stop for MT, supports foreign patients and hospitals through special lodging facilities for patients traveling there. The costs of four selected non-emergency treatments were compared for Americans in the United States versus in India. Along with the treatment costs themselves, other expenses, including travel and lodging, were considered. The all-inclusive mean treatment cost for four treatments was 32% less in India than in the United States.

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## **Introduction**

According to Foreign Tourist Arrivals (FTAs), 5.4 million tourists, out of a total 922 million tourists all over the world, visited India in 2008 (Jose & Sachdeva, 2010, p. 376). There are various reasons for travelling, including business, entertainment, adventure, and more. Another reason to travel is for medical treatment. Patients from developed countries travel to developing regions such as Asia and Singapore to obtain medical treatment. The majority of these patients are either uninsured or underinsured. Medical treatment in India costs approximately half the price of treatment in the United States (Alleman & Luger, 2011, p. 493). Medical Tourism (MT) may be defined as voluntary patient travel from a home country to another country for non-emergency health services and treatments (Johnston, 2010, p. 1). Patients who are uninsured may prefer to travel abroad rather than spend more money in the United States.

According to a World Health Organization (WHO) survey, the United States stands in 37<sup>th</sup> place in providing good health care, but it is difficult for middle- and lower-class citizens to obtain good health care support (Smith, R., 2011, p. 277). Many employers provide health insurance in the United States to their employees, but it is challenging for people who are unemployed or self-employed to have sufficient insurance, which is one reason why they use MT. It may be extremely difficult for such individuals to obtain treatment such as cataract surgery or a bone marrow transplant, which may cost thousands of dollars even with insurance coverage.

## **Background**

### **What is Medical Tourism?**

Tourism allows people to explore new places and spend their spare time in comfort (Rory et al., 2010, p. 8). Traveling to an advanced facility in another country to receive necessary medical/surgical treatment, usually at much lower cost, is called medical tourism (MT). Patients often may use their savings to enjoy a holiday during recovery from their treatment/medical need (Jose & Sachdeva, 2010, p. 376). A medical care vacation can be described as vacation in which patients from developed countries travel to other countries, mostly developing countries such as India, China, and Singapore, to obtain medical and dental treatments and health care support (Rory et al., 2010, p. 11). Patients are motivated to cross these national borders due to health service concerns such as high prices, long delay times, or a lack of availability in their home countries (Rory et al., 2010, p. 11).

### **India's Medical Tourism Growth**

Providing medical support for international patients is not new to a developing country like India. Major cities in India—Mumbai, Delhi, Chennai, and Hyderabad—have been offering quality medical care for more than ten years (Anand, 2012, p. 143). Visitors from other nations see India as the place with the best medical care available at a better price. There are a number of countries that participate in medical tourism; they may be importers, exporters, or sometimes both. North America and Western Europe are considered exporting countries, which means that people from these places seeking health care support travel abroad for better medical maintenance at a reasonable cost. Latin America, Eastern Europe, Africa, and Asia are considered importing countries, which provide health care support to immigrants (Smith, 2011,

p. 278). Medical tourism offers the promise of escape and repair to patients in dire healthcare straits (Solomon, 2010, p. 109).

It is interesting that in 2005 alone, more than 15,000 tourists from 55 different nations travelled to India for various types of therapy (Anand, 2012, p. 143). Excellent medical facilities are more affordable in India than in other nations (Anand, 2012, p. 142). Tourists from all over the world are drawn to traditional medical treatment programs like Ayurveda (i.e., the traditional Hindu system of medicine which uses diet, herbal treatment, and yogic breathing) and naturopathy (i.e., a system of alternative medicine based on the theory that diseases can be treated or prevented without drugs by techniques such as diet).

Kerala, a state in the southern part of India, is called “God’s Own Country,” as the main livelihood of people in this area is to develop medical care and physical wellness and fitness cottages or ashrams for patients/tourists visiting here (Anand, 2012, p. 143). Kerala is a place for natural Ayurveda treatments (Anand, 2012, p. 143). Tourists from all over the world travel to this state in India specifically for these treatments. They consider it a vacation and stay in the hospital cottages while receiving Ayurveda treatment. The cost of Ayurveda treatment is much less than hospital bills in the United States (Anand, 2012, p. 143).

### **Quality Care in India**

According to Medical Tourism Facilities Accreditation Standards (2010), selecting an appropriate hospital for treatment in a foreign country such as India is the key to medical tourism for a patient from the United States. Many aspects are considered in determining the appropriate health care center or hospital, but nothing is more critical than the quality of care the hospital provides and the reputation it has. Hospital accreditation from qualified committees such as the Joint Commission International or International Standard Organizations (ISO) is very important.

Other factors that affect the choice of health care centers include qualification of the physicians and treatment provided to the patients. It is the patients' responsibility to do thorough research about the physician who will be treating them.

The International Standardization for Organization (ISO) or the Joint Commission International (JCI) approves all of the hospitals that support medical tourism (Medical Tourism Facilities Accreditation Standards, 2010). These two major international commissions establish the criteria for medical centers around the world (Medical Tourism Facilities Accreditation Standards, 2010). Accreditation by either of these is evidence of the high quality of services and management by the hospital or clinic, allowing them to admit and treat foreign patients. For patients trying to find the right hospital, this certificate serves as a standard document of proof of patient care and quality of treatment provided (Hospital Accreditation, 2011, p. 1). The accreditation organizations check on the medical centers' infrastructures, procedures, and processes that the healthcare professionals follow. These accrediting bodies also certify the qualifications of physicians who work in the hospitals. JCI is considered the most prestigious accreditation agency; its approval is the gold seal for hospitals. (Hospital Accreditation, 2011, p. 2).

The Joint Commission International (JCI) is the global arm of the U.S.-based Joint Commission on the Accreditation of Healthcare Organizations (JCAHO). JCAHO certifies more than 18,000 hospitals in the United States. JCI accreditation is for hospitals in India (Hospital Accreditation, 2011, p. 1). The other main commission is the International Standardization Organization (ISO); nearly 100 nations are part of this organization. One of the main goals of the ISO is to verify infrastructure and quality of treatment provided by international health care centers (Hospital Accreditation, 2011, p. 1). These are the two leading global organizations that

set standards and ensure quality health care in hospitals and other medical institutions around the world (Hospital Accreditation, 2011, p. 1).

### **The Impact of Medical Tourism on the United States Health System**

U.S. citizens without medical insurance benefit from medical tourism in that it improves their quality of life at affordable prices (Taylor & Francis, 2007, p. 225). Affordable medical treatments, including surgery with high costs when performed in the United States, are available in other countries, which may convince insurance companies to provide medical tourism as an option to their policyholders to attract customers (Burkett, 2007, p. 228). According to Taylor and Francis (2007) in their article “Medical Tourism,” treatment costs in the United States may decrease in the future with the increase of medical tourism. At the same time, a decrease in the treatment costs could lead to poor quality health care services in the United States (Taylor & Francis, 2007, p. 226). According to Kumar and Breuing (2012), in their article “Globalization of health care delivery in the United States through medical tourism,” if the U.S. health care industry is unable to eliminate waste and inefficiency and thus curb rising costs, it will continue to lose surgical revenue to foreign health providers. The medical tourism industry is changing at such a fast speed that policy-based evaluation is nearly impossible (Taylor & Francis, 2007, p. 226). The top hospitals in India offer a wide range of non-emergency, so-called “elective” surgeries, aesthetic operations, and infertility services (Norton, 2009, p. 24). Also, many offer dental procedures and eye operations. The patient spends the majority of the healing time vacationing, with follow-up routines according to surgery (Taylor & Francis, 2007, p. 226).

## **Research Question**

Medical tourism is the name given to the practice of patients traveling from developed countries, such as the United States, to developing countries, such as India, for medical treatments. The reason for this migration is that the treatment costs in the United States are very high compared to the treatment costs in India for an uninsured person.

The main purpose of this research was to answer the following questions:

- How cost-effective is medical treatment in India compared to the United States?
- What is the percentage difference in the treatment costs in the United States and India?

## Methodology

For this research, travel costs were gathered from the travel sites MakeMyTrip and Priceline. To calculate the travel cost, four major cities in the United States were selected: Dallas, Los Angeles, New York, and Chicago. Next, four major cities in India were selected: New Delhi, Bangalore, Chennai, and Hyderabad. Then the travel costs were calculated using the travel websites. For the 1<sup>st</sup> and 30<sup>th</sup> of each month, the roundtrip fares were calculated from each city in the United States to the cities in India. These values were used to calculate the mean for each month for one individual adult patient travelling from the United States to India by adding the roundtrip travel cost for each set of cities and dividing the value by the total number (4) of cities in India. The travel cost was retrieved from the travel websites on November 15, 2013; the 1<sup>st</sup> of each month in 2014 was used as the departure date from the United States, and the 30<sup>th</sup> of each month was used as the return date.

For each month, the mean travel cost from each city in the United States equals the sum of the travelling cost from each city in the USA to various cities in India divided by 4, the total number of cities in India used for the study.

The mean travel cost was then calculated by adding the total travel cost from each city in the USA and dividing it by 12 (the number of months in a year), and then four values were obtained as the study was conducted for four cities in the United States. These four values were added and divided by 4 to obtain the statistical mean cost of travel from the United States to India.

The statistical mean travel cost for each city in the United States equals the statistical mean of the travel cost from each city in the USA from each month for this city in the USA divided by 12, the total number of months. The statistical mean travel cost from the United States

to India equals the sum of the statistical mean travel cost for each city in the USA divided by 4, the total number of states used in the study.

Apollo Hospitals, a private organization supporting medical tourism in India, has established its franchises in various major cities in India. This organization is affiliated with ISO and JCI committees and offers lodging facilities for foreign patients and one additional person, if needed to assist the patient. For this study, Apollo Hospital was used as the health care unit in India for calculating the treatment costs. This organization is established in all four subject cities in India. Data from this organization were used throughout the study to compare the cost to treatment costs in the United States. The article “Indian Society for Apheresis and apheresis tourism in India – Is there a Future?” by Srivastava was used to obtain treatment costs in both the United States and India (Srivastava, 2009, p. 140).

Four medical procedures that are non-emergency were selected: liver transplant, bone marrow transplant, orthopedic surgery, and hip replacement. The treatment time was estimated considering the statistical mean recovery time and return visit sessions for each treatment. Time of stay for any non-emergency treatment was calculated by taking into account the proposed surgery time, pre-operation preparation time, and recovery time. Lodging and living expenses for patients were calculated using the cost of a stay at three- or four-star hotels that included breakfast, lunch, and dinner; the total cost was calculated by multiplying the cost per day by the total number of days staying in India. The hotels were chosen depending on the facilities that they provide and the distance from the hospital/health care unit. The hotel costs account for patient and partner as well. All of these hospitals had laundry facilities and quality food facilities (both Indian and American food choices) and included basic needs to provide comfort to

individuals used to western culture. After calculating the total cost of the hotel stay, this value was added to the treatment cost and the travelling charges.

The total value of travel and hotel charges equals the statistical mean of the travel cost from the United States to India added to hotel costs.

## Results

Table 1 provides the travel costs for one individual from the United States to India. The last row indicates the statistical mean of the travel cost from different U.S. cities to India, which is later used to calculate the statistical mean travel cost from the United States to India.

The statistical mean of the travel cost from the United States to India may be considered the mean of these means, or \$1,228.50.

Table 1

*Cost of Travel from the United States to India*

Places	Hyderabad	Bangalore	Chennai	Delhi
Chicago	\$ 1,291	\$ 1,324	\$ 1,230	\$ 1,036
New York	\$ 1,317	\$ 984	\$ 1,056	\$ 1,097
Dallas	\$ 1,330	\$ 1,080	\$ 1,125	\$ 1,368
Los Angeles	\$ 1,283	\$ 1,440	\$ 1,274	\$ 1,425
Statistical mean	\$ 1,305	\$ 1,135	\$ 1,171	\$ 1,303

Table 2 provides the lodging cost calculated for hotels close to hospitals. The cost is noted for a single night and also for a three-month stay, as the maximum time the patient will need to stay in India for treatment and recovery is three months. The statistical mean for lodging at a 5-star hotel may be calculated as \$ 8,910. The statistical mean for lodging at a 3-star hotel was \$3,285. Thus, the overall mean lodging cost is \$ 6,097.50'

Table 2

*Hotel Expenses in India*

Places	Hyderabad	Bangalore	Chennai	Delhi
5-Star Hotel	\$ 63	\$ 100	\$ 100	\$ 133
Statistical mean for 3 months (5-star)	\$ 5,670	\$ 9,000	\$ 9,000	\$ 11,970
3-Star Hotel	\$ 43	\$ 33	\$ 27	\$ 43
Statistical mean for 3months (3-star)	\$ 3,870	\$ 2,970	\$ 2,430	\$ 3,870

Table 3 provides the cost of non-emergency treatments—liver transplant, bone marrow transplant, orthopedic surgery, and hip replacement—in the United States and India. The treatment costs for India in this table include the actual cost of treatment, traveling costs, and lodging costs. The treatment cost in this table for the United States was based on the costs for uninsured individuals. The difference in the treatment cost displayed also shows the percentage savings (the total cost in India divided by the US costs times 100).

Table 3

*Treatment Costs in the United States and in India*

Treatment	United States	India (excluding Travel and living expenses)	India (treatment cost + travel cost + lodging cost)	Cost difference	Percent (%) Savings
Liver Transplant	\$ 300,000	\$ 70,000	70,000 + 6,097.50 + 1,228.50 = \$ 78,136	\$ 221,864	75%
Bone Marrow Transplant	\$ 250,000	\$ 69,000	69,000 + 6,097.50 + 1,228.50 = \$ 77,136	\$ 172,864	71.5%
Orthopedic Surgery	\$ 20,000	\$ 6,000	6,000 + 6,097.50 + 1,228.50 = \$ 14,136	\$ 5,864	46.75%
Hip Transplant	\$ 50,000	\$ 10,000	10,000 + 6,097.50 + 1,228.50 = \$ 18,136	\$ 31,864	75%

## Discussion

The treatment cost for an uninsured person in the United States is very high. It is challenging for a middle-class individual to undergo surgery without health insurance. A developing country—India—has good infrastructure in the medical field and provides treatment to foreigners at an affordable price. In a comparative study of treatment costs between the United States and India for an uninsured individual, the results show that the cost in India is less than that of the United States. The percent treatment cost is calculated for both India and the United States; the percentage cost for India includes the travel cost and living expenses during the stay.

According to Table 3, a liver transplant in the United States costs \$300,000 for an uninsured person; the treatment in India costs \$78,136, including travel and lodging costs. A liver transplant in India would save 75% of the total treatment cost in the United States. The cost of a bone marrow transplant in the United States is \$250,000, and the cost for the same treatment in India is \$77,136. Hence, treatment in India would save the patient almost 71.5% of the treatment cost in the United States. For orthopedic surgery, the cost in the United States is \$20,000 and in India \$14,136, saving 46.75% of the cost in the United States. And hip replacement in the United States is \$50,000 compared to \$18,136 in India, showing that getting the surgery in India cost could save 75% of the cost in the United States.

Table 4 provides the comparison of the treatment costs in India and the United States; the last column provides the percentage of savings off the treatment cost in the United States represented by the Indian costs.

Table 4

*Comparison of Treatment Costs*

Treatment	United States	India	Percent (%) Savings
Liver Transplant	\$ 300,000	\$ 78,136	75%
Bone Marrow Transplant	\$ 250,000	\$ 77,136	71.5%
Orthopedic Surgery	\$ 20,000	\$ 14,136	46.75%
Hip Transplant	\$ 50,000	\$ 18,136	75%

By comparing the cost of all four treatments in India and the United States, it is clear that the treatment cost, including travel and lodging, for an uninsured American is 33% less when treated in India than in the United States. The treatment cost in the United States is equivalent to a statistical mean of nearly 3 times more than the treatment cost in India. Along with saving money, MT also gives an individual the opportunity to enjoy travelling abroad and have a vacation. It would be a good choice to travel to India for non-emergency medical treatments and have an opportunity to explore a different culture in a new place, along with some vacation time during treatment and recovery, all while incurring less cost.

## **Limitations**

There are valid concerns about the efficiency of MT offered by the health care system (Taylor & Francis, 2007, p. 226). Health care specialists with highly specialized equipment are known worldwide. Promises of excellence cannot be offered by health care centers with no proper accreditation. In that case, patients need to make a sensible decision in selecting the proper health care facility while travelling to other countries for medical treatments (Bookman & Bookman, 2007, p. 2). The health care industry is a distinct economy system; bad consequences in this industry also have an impact on marketplace consumers (Taylor & Francis, 2007, p. 226). The cost of travel is calculated based on travel websites such as MakeMyTrip and Priceline; these prices are constantly changing. The study is limited to only four select states in India as well as four cities in the United States; this study is limited to the travel cost and lodging cost in India. Another important limitation of this study is potential changes in the currency exchange rate. For example, with a stronger dollar, prices may be cheaper in India. The comparative study is based on a very broad estimate value for travel cost and lodging and living expenses in India. Most importantly, all of the variables used to compare are subject to change any time depending on the holiday seasons, destinations, and so on.

## **Conclusion**

Treatment costs for the four major surgical procedures were used to calculate the difference in treatment costs between India and the United States. The treatment costs in India were calculated by including travel costs and living expenses during the stay of the patient. After considering these two important factors, the results indicated that the treatment cost in India was only 32.4% of the cost in the United States. In other words, the cost in the United States is 2.94 times more than the cost in India. Traveling to developing countries like India may be beneficial for an uninsured individual. Along with cost benefits, medical tourism also gives an individual the opportunity to travel and explore new culture, food, and take a vacation along with the required medical care.

## References

- Alleman, B. W., & Luger, T. (2011). Medical tourism services available to residents of the United States. *Journal of General Internal Medicine*, 26 (5), 492-497.
- Anand, N. B. (2012). Medical tourism in India: a new avenue. *International Journal Of Biomedical And advanced Research*, 3, 142-148.
- Apollo hospitals. (N.d.). Retrieved November 12, 2013, from [http://www.apollohospitals.com/international\\_patient\\_services/services\\_and\\_facilities.php](http://www.apollohospitals.com/international_patient_services/services_and_facilities.php)
- Bookman, M. Z., & Bookman, K. R. (2007). *Medical tourism in developing countries*. New York: Palgrave Macmillan.
- Burkett, L. (2007). Medical Tourism: Concerns, benefits, and the American legal Perspective. *Journal of Legal Medicine*, 28 (2), 223-245.
- Country rankings for Medical Tourism are provided from the WHO. Retrieved from: <http://www.who.int/en/ on 12 Dec, 2013>
- Edelheit, J. (2013). Medical Tourism Association. Retrieved from <http://www.medicaltourismassociation.com/en/officers-staff-locations.html>
- Hall, C. M. (2012). *Contemporary Geographies of Leisure, Tourism and Mobility: Medical Tourism: The Ethics, Regulation, and Marketing of Health Mobility*. Florence, KY.
- Johnston, R. (2010). What is known about the effects of medical tourism in destination and Departures countries? A scoping review. *International Journal for equity in health*, 9, 1-13.
- Jose, R., & Sachdeva, S. (2010). Keeping an eye on the future: Medical tourism. *Indian Journal of Community Medicine*, 376.

- Kumar, S., & Breuing, R. (2012). Globalization of health care delivery in the United States through medical tourism. *Journal of Health Communication: International Perspectives*, 17 (2), 177-198.
- MakeMyTrip. (N.d.). Retrieved November 15, 2013, from MakeMyTrip:  
<http://www.makemytrip.com/>
- Medical Tourism Facilities Accreditation Standards (2010). *Medical Tourism Facilities*. Retrieved from <http://www.medicaltourismfacilities.com/medical-tourism-facilities.html>
- Norton, L. P. (2009). Medical Tourism Takes Flight. *Barrons*, 24-25.
- Price Comparisons between India, US, India and UK (2006). *Medical Tourism in India*. Retrieved from <http://www.indian-medical-tourism.com/medical-tourism-india-price-benefits.html>
- Reed, C. M. (2010). *Plastic surgical nurse*. American Society of Plastic Surgical Nurses. 42.
- Rory, J., Valorie, A. C., Jeremy, S., & Paul, K. (2010). What is known about the effects of medical tourism in destination and departure countries? A scoping review. *International Journal for Equity in Health*. 1-13.
- Saurabh, S. (2013, March 30). Medical Tourism. *Times of India*. p. 6
- Shetty, P. (2010). Medical tourism booms in India, but at what cost? *The Lancet*, 376 (9742), 671–672.
- Smith, R. (2011). Medical tourism: A review of the literature and analysis of a role for bi-lateral trade. *Health policy*, 103 (2-3), 276–282.
- Solomon, H. (2011). Affective journeys: The emotional structuring of medical tourism in India. *Anthropology & Medicine*, 18 (1), 105-118.

Srivastava, R. (2009). Indian Society for Apheresis and apheresis tourism in India – Is there a Future? *Transfusion and Apheresis Science*, 34 (2), 139-144.

Srivastava, R. (2010). 43 Apheresis medical tourism in India, emergence of a new trend Combined/adjunctive therapeutic membrane filtration apheresis in SLE with Sjögren's Syndrome overlaps. An Indian experience, is it promising? *Transfusion and Apheresis Science*, 3, 23-24.

Taylor & Francis Group (2011). Medical Tourism. *Journal of Legal Medicine*. Volume. 28. 223-245.