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# Medical Tourism: Comparing Coronary Bypass Surgery in the U.S. and Abroad

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# MEDICAL TOURISM: COMPARING CORONARY BYPASS SURGERY IN THE U.S. AND ABROAD

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## **ABSTRACT**

*Rising health care costs have employers searching for remedies to the increasing rates they pay for employee health insurance. The development of U.S. health insurance policies, with the option of utilizing medical tourism as a low cost care provider for treatment of cardiac coronary bypass surgery provides a method for receiving treatment. The medical tourism approach to providing treatment for bypass surgery has prompted hospitals in India, Thailand, and Singapore to seek U.S. patients. A comparison of costs for bypass treatment between the U.S. and these countries illustrates some of the issues and concerns that arise when making such comparisons. The overall approach of medical tourism by U.S. employers is one of ‘wait and see.’*

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## **INTRODUCTION**

Rising health care costs within the U.S. places economic strain on employers, employees, and private insurance paying individuals. An increase in health care expenditures for all parties involved often creates a need for these parties to seek alternative measures and destinations to receive and pay for health care (Woodman, 2010; Alleman, et al. 2011; Underwood and Makadon 2010). In recent years, interest in “medical tourism” demonstrates an increase, not only in the U.S., but also in other countries, in part due to escalating health care costs and other health related issues, which are country specific. Medical tourism has generated a growth in new U.S. businesses in the form of medical facilitators (Synder, et al. 2011; Medical Tourism Association 2013; Deloitte Center 2008) and some larger U.S hospitals (Deloitte Center 2008; Smerd 2008) and health insurers (Mitchell 2013) are beginning to establish agreements with several larger hospitals abroad. Some of the larger hospitals in India, Thailand, and Singapore directly market services globally allowing medical tourists to negotiate their own medical care with the hospital (Alleman et al 2011; Turner 2010a).

Medical tourism is becoming a source of economic gain for many countries and regions of the world. (Carruth and Carruth 2010; Hill n.d.; Kahn 2010) Medical tourism increases the economic situation (Munro 2012; Pocock and Phua 2011) in a destination country, provides care for many individuals willing to pay out of pocket, and lowers health insurance costs for U.S. employers and health insurers willing to pay for health care abroad. It is difficult to determine, with any accuracy, the number of persons travelling from the U.S. alone to a foreign country for health care reasons. Estimates of Americans travelling abroad for treatments place the number of persons traveling to India or Thailand for health care reasons in excess of 750,000 persons for 2005 (Herrick 2007; Kahn 2010). A 2003 estimate placed the total number of persons traveling to India, Thailand, Singapore, and Malaysia at 1.4 million persons (Heung, Kucukusta, and Song 2011). This estimate increased in 2010 to 6 million persons, with an economic gain of > \$4 billion, with half of the revenue going to India (Heung, Kucukusta, and Song 2011; Horowitz, Rosensweig, and Jones 2007; Hill n.d.). As medical tourism develops into a multi-billion dollar industry, with steady annual growth projected, estimates of global economic gains vary between \$40 and \$100 billion for destination countries (Zwelling 2011; Herrick 2007).

While the increase of health care treatments and procedures performed abroad involves many elective procedures (Woodman 2010; Synder, Dharamsi and Crooks 2011, Milstein and Smith 2007), which many U.S. health insurers deny payment, there is a growing interest by U.S. health care insurers to pay for more expensive complex procedures, such as Coronary Arterial Bypass Graft (CABG) surgery. Coronary bypass surgery, one of the most common cardiac surgical procedures performed, serves as a “cash cow” for many U.S. hospitals (Crowley 2010). Because cardiac surgery procedures provide high revenue, smaller local hospitals can market as offering a high-profile program in cardiac care even if the hospital has a low volume of bypass cases, thereby increasing patient volume and revenue (Regenbogen, Gust, Birkmeyer 2012). Focusing on coronary bypass, a review of Medicare data (1992 – 2003) demonstrates a decline in coronary bypass surgical procedures from 1992 to 2003, while the number of hospitals performing these surgeries steadily increased (Wilson, et al. 2007). Using Nationwide Inpatient Sample data (2001 – 2008), a study by Epstein et al (2011) supports Wilson’s et al review, demonstrating a decrease in the number of coronary bypass surgeries per hospital, yet a 12% increase in the number of hospitals during this period. In an effort to lure Americans to seek care abroad, coronary bypass procedures have become one of several expensive health care procedures offered by larger health care facilities in India, Singapore, and Thailand. This paper focuses on examining the growing interest of U.S. individuals, employers, and health insurance providers for having coronary bypass performed in India, Thailand, or Singapore.

### **Cost comparison of coronary bypass**

Costs of coronary bypass surgery is cited by more U.S. individuals and companies providing employee health insurance as being the single most important factor of consideration for seeking coronary bypass surgery abroad. Table 1 illustrates the cost comparison of coronary bypass surgery in the U.S. with India, Thailand, and Singapore; these cost comparison figures are promoted throughout the medical tourism industry. A comparison study of costs for coronary bypass surgery in two large hospitals in India, one in Thailand, and the overall California Insurer average cost payment, demonstrates the costs in India and Thailand did not exceed \$15,000 while the California Insurer average (private insurance) exceeded \$50,000 (Milstein and Smith 2007)

Table 1. Cost Comparison of Coronary Bypass Surgery (U.S. \$)

Procedure	U.S. Insurers Cost	U.S. Retail Cost	India	Thailand	Singapore

Heart Bypass	54,741 – 79,071(94,277)	122,424 – 176,835 (210,842)	10,000	12,000	20,000
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Source: Kher., 2006 Outsourcing your heart. *TIME* and Herrick 2007.

Essentially the difference between comparing costs yielding a small or large cost savings result actually reflect the differences in the reference standard used to estimate costs rather than any true difference in the estimated costs of overseas health procedures. Alleman et al (2010) research, based costs comparisons estimates on Medicare data, which demonstrated a smaller than expected cost savings. Milstein and Smith’s (2007) research, demonstrated a higher costs saving, which resulted from using data for comparison based on private insurer payments in California.

Making direct comparisons of costs for coronary bypass procedures between the U.S. and overseas health care facilities is in part somewhat unreasonable due to the presence of factors contributing to the lower costs overseas. Various reasons do exist enabling India, Thailand, or Singapore to offer low costs for bypass surgery, some of which include, lower physician’s earnings, lower labor costs, virtually nonexistent third party involvement, one stop package pricing, limited collaborations between health care facilities, and low malpractice litigations (Herrick 2007; Gill and Singh 2011; Unti 2009; Gan and Fredrick 2011).

While a direct comparison of costs is somewhat unreasonable, it is reasonable to question how the U.S. health care system and providers can bring the costs of coronary bypass surgery and other costly treatments and procedures more in line with overseas hospital costs. A study of 633 U.S. hospitals, which perform coronary bypass surgery, found the variability in hospital specific costs was one of the major contributors to higher costs for coronary bypass surgeries. Quality of care from different hospitals may be relatively the same, yet the pathway for achieving that care may be quite different from hospital to hospital thus creating more costs in some procedures and less cost in others (Kilic et al 2014). Examining such factors as these costs variations may lead to lower U.S. costs for coronary bypass. However, if true cost containment by the American health care system is not established, medical tourism may have more impact upon the system. Focusing on cost containment alone makes medical tourism appear as a way of escaping the true cost problem of the U.S. health care system.

### **Insurers and employer perspective**

Some U.S. private health insurance providers and employers providing health care insurance to employees display an interest in medical tourism as a cost reduction measure. Health care treatments and procedures for major surgeries such as coronary bypass are expensive. The expense affects employer’s costs of providing employee health insurance and employee’s costs of paying the premiums in obtaining health care insurance and associated deductibles (Miller 2013; National Conference of State Legislatures 2013).

Rising health care insurance costs are dipping deeper into the pockets of employers and workers. Employer-sponsored health insurance is the largest source of coverage in the U.S., covering in excess of 149 million (2013 estimates) nonelderly persons. This coverage, expected to continue after implementation of the Affordable Care Act (ACA) in 2014, will undergo changes as ACA regulations take effect. Both single and family plan employer sponsored insurance benefits have seen increases in deductibles with higher deductible plans offered, more out of pocket costs, employee contributions towards premiums, and decreases in coverage for certain procedures (Bodenheimer 2005; Claxton, et al. 2010; Claxton, et al. 2013).

Employers continually seek less costly health care options for their employees and in return, the employer's health insurance vendor can construct a plan allowing the use of overseas health services, all of which are cost savings measures. One of the major problems for this approach becomes "selling" the idea of utilizing overseas facilities and physicians to those covered under the health insurance policy (Deloitte 2008). Selling the idea of medical tourism and its lowers costs to a U.S. patient consumer has advantages and disadvantages (Gan and Fredrick 2011; Sobo, Herlihy, and Bicker 2010, Hopkins, et al. 2010).

U.S. health insurance companies and employers are approaching medical tourism with a wait and see attitude (smartfinance-usa 2013; Youngman 2011, Higgins 2007). Uncertainty of the impacts that medical tourism may have on U.S. health insurers and how they will react if the trend of medical tourism continues remains unanswered. Due to the paucity of valid and reliable current literature, determining health insurers and employer's interest in medical tourism abroad and its utilization for coronary bypass surgery, accurate information is lacking for making any significant determination as to the actual benefits resulting from utilization of medical tourism for more serious and costly procedures. While medical facilitators, employers, and insurers all cite the potential costs savings from utilizing medical tourism for coronary bypass surgery, data collection remains problematic.

Pilot projects from insurers such as BlueCross BlueShield (BCBS) of South Carolina and Aetna are offering employers the option of providing health insurance with a medical tourism option. This option for costly health care procedures and treatments lowers cost outlays for all parties involved (Gan and Fredrick 2011; Gill and Singh 2011; Smerd 2008; Beauvais, Brooks, and Wood 2010). However, the majority of services covered under these plans mostly involve elective procedures (Turner 2010a). From the insurers and employers perspective, each must be prepared to offer savings incentives to entice an employee to travel vast distances for major surgeries such as coronary bypass surgery. The enticement for a lower paid employee, saddled with deductibles, out of pocket indirect expenses and co-insurance payments, the idea of a low-cost alternative may prove irresistible (Marlowe and Sullivan 2007).

Insurer/employer pilot projects have prompted some employers and health insurers to develop health insurance for employees with a domestic medical tourism concept contained within the health benefits employee package. Large U.S. companies such as Lowe's, Wal-Mart, and PepsiCo have introduced domestic medical tourism into their health benefits plans for employees (Glatter 2012). Domestic medical tourism offers advantages, in the way of costs savings for major medical procedures, such as coronary bypass surgery, to insurer, employer, and employee. Some of these benefits include employee receptivity, higher-quality providers, and up-front package pricing from health care facilities, thus eliminating the possible future reimbursement concerns (Wojcik 2009; Youngman 2011; Carabello 2013; and Robinson and MacPherson 2012).

Marlowe and Sullivan (2007) point out for health insurers and employers the concept of savings by utilizing medical tourism can be misleading. While costs savings do exists, specific criteria need met when determining those costs savings. As high cost coronary bypass is the example, making overseas travel for the surgery more cost savings than a lower cost procedure, making the use of medical tourism worthy of the travel. The bypass surgery must be elective and scheduled, with costs for a travel companion included, thus increasing total costs and absenteeism from a job may be longer for a person. Further, eligible individuals covered by a group health plan will most often find the idea of traveling overseas for a life-threatening surgery unattractive. Looking at these and other criteria, selling an employee on the concept of medical tourism, as an alternative delivery for their health care, are unlikely to save more than one to two percent of total medical spending.

### **Waiting lists**

Medical tourism facilitators use the elimination of the extended waiting list for health care

procedures as a tool for marketing and recruitment. Waiting lists for some medical procedures do exist in other countries and studies focusing on a reduction of the waiting times for cardiac surgery have proved insight into the issue of reducing the waiting lists (Chua n.d.; Sobolev, Levy, Kuramoto, and Hayden 2006). Medical tourism has been discussed as a method of reducing waiting lists times in countries such as the U.K. and Canada, where publicly financed health care systems exist (Johnston, et al. 2010). Many surgeries requiring a wait time are elective surgeries where life-threatening consequences of waiting are seen as an insignificant factor for health reasons (Bies and Zacharia 2007). Waiting lists for surgeries are not a common feature of health care in the U.S. If a wait time does occur, it often associates with populations being uninsured or underinsured and it is to this population medical facilitators frequently market (Wilcox, et al. 2007).

### **Quality of care and risks**

As medical tourism increases in popularity, a review of the literature focusing on quality of care delivery concerns and risks involved with utilization of medical tourism for health procedures yields much information (Lunt, et al. 2011; Turner 2010a; Turner 2010b; Lunt, et al. n.d.). The future of medical tourism has prompted the American Medical Association and the American College of Surgeons to adopt safety and quality guidelines for those wanting to receive health care abroad (Unti 2009). The globalization of health care services prompted many overseas health care facilities and organizations, such as some in India, Thailand, and Singapore offering cardiac coronary bypass surgeries, to develop their approach to competing in the international health care arena. These health care facilities redesigned their strategic approach to offering health care services in the international market. As these overseas facilities began to offer health services, quality of care became an issue (Turner 2010b). Selling lower cost health care to international patients is a viable option for receiving care, questionable is the quality of the care received and is it of acceptable health care standards with limited risks involved. As the focus of this paper is to examine cardiac bypass surgery in the U.S. as it compares to India, Thailand, and Singapore the standard of measures for defining quality is that used within the U.S.

Delivering quality health care from a low cost perspective is important for selling medical tourism to a patient. U.S. individuals expect high quality standards and low risk factors. Overseas health care facilities recognize this as an important factor in their strategic approach. Some U.S. hospitals and major health care universities acknowledging the potential benefits of medical tourism have begun to either acquire overseas facilities or develop affiliations with existing facilities (Lunt, et al 2011; Beichl 2009). Hospitals seeking medical tourists recognize the need for U.S. supported accreditation organizations, such as the Joint Commission International (JCI) and the American Medical Association (AMA) (Lee and Chun 2012; Unti 2009).

Literature review of the risks factors involved with medical tourism provides information pertaining to common factors for coronary bypass patients and other medical procedures offered overseas. Some of these factors include nosocomial infections resulting from medical tourism, especially the antibiotic resistant NDM-1 originating from India (Rogers, et al. 2011; Hall 2011; Chan, et al. 2011), increased potential from travel for deep vein thrombosis, hepatitis-B from in hospital and transfusion-related procedures, and continuity of care upon returning to the U.S. (Kirshenbaum 2012; Stuart 2012; CDC 2012; Crooks, et al. 2010).

Hospitals within the U.S. exhibit variation in quality standards when applied to coronary bypass surgery. A comparative analysis of mortality rates for coronary bypass surgery in hospitals in California determined the average mortality rate to be about 3 percent. The variation ranges from one hospital having no deaths over the course of the analysis and a second hospital, with similar bypass procedure volumes as the first hospital, having mortality rates twice the California average and ten times the Cleveland Clinic average. A third hospital, which performs few coronary bypass procedures, had a mortality rate of 13.79%. Two major hospitals, one in India and the other in Thailand, report mortality rates for coronary bypass surgery to be < 1% (Samlan 2010; Herrick 2007). The difference in mortality rates may indicate several areas of

concern as quality standards are viewed as a means of defending medical tourism as a legitimate resource for health care in coronary bypass surgery.

## **DISCUSSION**

The economic gain for India, Thailand, and Singapore is a benefit of medical tourism. The economic gain for U.S. hospitals performing coronary bypass surgery is an important revenue stream for those hospitals. These hospitals are at risk of losing revenue from potential patients opting for overseas hospitals for their bypass surgery. Research indicates coronary bypass procedures are declining within the U.S., yet the number of hospitals performing the procedure has increased. This could prove beneficial for U.S. hospitals if the number of smaller hospitals performing bypass surgery at lower volumes than larger facilities were to eliminate performing the procedure, allowing larger hospitals to become the Center of Excellence for cardiac surgery. This supports the concept of domestic tourism.

The comparison of costs between the U.S., India, Thailand, and Singapore for coronary bypass surgery can be viewed as unfair in several respects. As a substantial difference among these countries in the cost for bypass surgery does exist, an examination of direct and indirect factors contributing to the costs is necessary. The standard of measure used in comparing the costs between the countries needs clearly defined. Further, comparing the treatment protocol in overseas hospitals with the same protocol in U.S. hospitals is important for making costs comparisons. Factors of variation in protocol across hospitals can create higher or lower costs for bypass surgery. As potential patients consider coronary bypass surgery abroad, the true costs estimates are as difficult to define overseas as they are within the U.S.

Quality of care received for overseas bypass surgery needs defined using U.S. standards. While variation in quality among U.S. hospitals performing coronary bypass surgery, individuals traveling overseas for bypass surgery must understand issues of variation in quality of care received and increased risks when having bypass surgery as a medical tourists. Research is lacking comparing the variation of quality measures pertaining to coronary bypass surgery from India, Thailand, or Singapore, making the idea of quality questionable for U.S. medical tourists. Medical tourism hospitals may have JCI accreditation yet the overall quality and risks involved for a foreign patient remains an issue. If affiliations with U.S. hospitals, health care universities, and medical tourism hospitals increase, it is possible this can assist to improve quality of care issues. Providing a remedy to the issues of quality and reduce risks for bypass surgery overseas requires standardization in measurement and data collection. U.S. health insurance providers will need to address the issues of quality and risk in an effort to sell an employer on the concepts of medical tourism.

As many U.S. employers have financial difficulty in providing health insurance to employees, the concept of medical tourism for major health issues may prove difficult to sell to employees. Persons traveling overseas for coronary bypass surgery are doing so on a volunteer basis thereby eliminating many ethical and legal factors they have within the U.S. While pilot projects offer insight into the acceptability of medical tourism for coronary bypass surgeries, obtaining data of the number of persons who did travel overseas for the cardiac surgery is difficult. Additionally, the number of uninsured or underinsured persons traveling overseas for the surgery needs considered.

## **CONCLUSION**

Medical tourism for coronary bypass surgery is an option for care for those who are uninsured or underinsured within the U.S. and those insured through a public funded insurance, such as in Canada and the U.K. For medical tourism to be acceptable within the U.S., for coronary bypass surgery, there remain multiple issues and concerns. Employer sponsored health insurance covers 149 million U.S. nonelderly persons; these

are the individuals where employers and insurance companies must focus attention. Time passage is a factor when analyzing the impact medical tourism may have on the U.S. health and health insurance systems. As coronary bypass surgery serves as a revenue source for many U.S. hospitals the need to create cost savings measures pertaining to the procedure are important for these hospitals. Much data needs collected and research performed before determining significant results from medical tourism as it relates to coronary bypass surgery.

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