

THE GLOBAL MARKET FOR HEALTH CARE: ECONOMICS AND REGULATION

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INTRODUCTION

Prior to the turn of the century, medical services were produced and consumed locally.¹ In part, local consumption of medical services was dictated by the nature of doctor-patient relationships. If the doctor was not physically close enough to speak and touch a patient the doctor could not make a diagnosis. But in part, the local consumption of medical services was greatly related to constraints imposed by the distribution of information, advertising, and transportation. In the bygone days, patients selected providers (doctors and hospitals) based on the local provider's reputation because there was simply no other way of knowing if a better quality provider existed in another town; or on the other side of the world. Until recently, the concept of selling medical services worldwide was almost unthinkable to physicians. A search on PubMed, a web research database of the United States (U.S.) National Library of Medicine, for the word "globalization" reveals that prior to the year 2000 globalization was mentioned in only 203 publications.² In contrast, during the past eight years, 903 publications found on PubMed contained the word "globalization."³

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¹ See Thomas R. McLean, *The Offshoring of American Medicine: Scope, Economic Issues and Legal Liabilities*, 14 ANNALS HEALTH L. 205, 208-11 (2005) [hereinafter McLean, *Offshoring*].

² National Library of Medicine, <http://www.pubmed.org> (last visited Oct. 10, 2008).

³ *Id.* (search for "globalization" between Jan. 1, 2000, and Aug. 7, 2007). A similar distribution of articles for "globalization and medicine" can be found at websites for *Time*, <http://www.time.com>, and the *New York Times*, <http://www.nytimes.com> (both websites last visited Sept. 23, 2008).

When we speak of the globalization of medicine we are really contemplating two markets: medical tourism and telemedicine.⁴ Broadly defined, medical tourism is the delivery of cost-effective private health care in the context of a vacation;⁵ it almost invariably involves a surgical procedure.⁶ Telemedicine is also broadly construed here to refer to the transference of any medical service over a virtual provider network.⁷ Common to both medical tourism and telemedicine is the economic reality that health care services can be purchased substantially cheaper in developing countries where the cost of physician labor is substantially less.⁸ While medical tourism and telemedicine each have unique advantages and disadvantages, both are delivery mechanisms for providing affordable and convenient health care to patients in the developed world. So, it is rather unfortunate that many commentators elect to discuss medical tourism and telemedicine as if they are unrelated.

Accordingly, the purpose of this article is to stimulate discussion on the economics driving the globalization of medical services; and how this global market might be regulated. Part I covers the economics of medical tourism and telemedicine and explains why providers in developing countries have an absolute price advantaged for providing medical

⁴ Conceptually, globalization of medicine could occur by four mechanisms: provider and patient interacting across a border (e.g., telemedicine); patients traveling (e.g., medical tourism); provider setting up a commercial presence in a foreign country (e.g., the Mayo Clinic opening an office in the Middle East); or physician migration. See Thomas R. McLean, *The Future of Telemedicine and Its Faustian Reliance on Regulator Trade Barriers for Protection*, 16 HEALTH MATRIX 443, 485-91 (2006) [hereinafter McLean, *Future of Telemedicine*]. However, a detailed discussion of these latter two forms of medical globalization is beyond the scope of this article.

⁵ G. Sankaranarayanan, *Medical Tourism Is Becoming A Common Form of Vacationing*, EXPRESS HEALTHCARE MANAGEMENT, Mar. 15, 2005, <http://www.expresshealthcaremgmt.com/20050315/medicaltourism02.shtml> (last visited Sept. 23, 2008). Cf. Laurie Goering, *Made in India: Low-Cost Care for Ailing Parents; American Facing Unpleasant Alternatives Finds Novel Solution with Outsourcing*, CHI. TRIB., July 29, 2007, at 11 (describing how India's nursing home industry is even moving into the medical tourism market).

⁶ Atul D. Garud, *Medical Tourism and Its Impact on Our Health Care System*, 18 NAT'L MED. J. INDIA 318, 318-9 (2005), available at http://www.nmji.in/archives/Volume_18-6_November_December2005/issue.htm. Price advantage makes the purchasing of surgical services from the medical tourism market preferable, since this advantage disappears for routine health care services, this same phenomena does is not seen to occur for routine services.

⁷ McLean, *Offshoring*, *supra* note 1, at 233-5. A virtual provider network for practical purposes is a dedicated telecommunication link between two points. *Id.*

⁸ *Id.* at 262-63; Thomas R. McLean & Patrick B. McLean, *Is A Black Market in Telemedicine on the Horizon?*, 3 INT'L J. MED. ROBOTICS & COMPUTER ASSISTED SURGERY 291, 291-293 (2007), available at <http://www3.interscience.wiley.com/journal/112094293/issueyear?year=2007> [hereinafter McLean & McLean, *Black Market*], Thomas R. McLean, *International Law, Telemedicine & Health Insurance: China as a Case Study*, 32 AM. J.L. & MED. 7, 8 (2006) [hereinafter McLean, *International Law, Telemedicine & Health Insurance*].

services. However, an absolute price advantage will not necessarily drive trade-in medical services. Thus, Part I also discusses the Ricadian and Heckscher-Ohlin macroeconomic theories on international trade. Part II focuses on telemedicine and shows how the Mydoc.com business model can serve as a template for a black market in telemedicine. Then, Part III explains why medical licensure and trade barriers, the two principle mechanisms by which countries protect their domestic health care markets from foreign competition, are unlikely to effectively regulate the global telemedicine market. Finally, Part IV discusses two novel mechanisms—involving Internet architecture and the commoditization of telemedicine—for regulating the global telemedicine market. This paper concludes that because economics will continue to expand the global market for medical service, now is time to contemplate how this market should be regulated.

I. TRADE-IN MEDICAL SERVICES

The global market for health care services is composed of medical tourism and telemedicine. While these two sectors of the global market compliment one another, some services may potentially be available in both markets. Medical tourism has been around for some time. For over a century those with means have sought out the best medical care even if such care required a trip overseas.⁹ Over time medical tourism has evolved such that it is now being industrialized as insurers and employers seek the best global price for health care. Telemedicine, on the other hand, is barely a decade old. From the beginning the international sale of telemedicine services has been heavily influenced by whether it was provided by well or poorly compensated physician labor. The cost of physician labor in turn is likely to impact international trade-in telemedicine services under both the Ricardian and H-O models.

⁹ See Nicolas P. Terry, *Under-Regulated Healthcare Phenomena in the Flat World: Medical Tourism and Outsourcing*, 29 W. NEW ENG. L. REV. 421, 422-3 (2007).

A. MEDICAL TOURISM

1. CLASSIC MEDICAL TOURISM

Medical tourism existed during much of the 20th century.¹⁰ Composed primarily of the well-to-do seeking the best medical care in the world,¹¹ the medical tourism market remained small; it was more of a novelty than an economic force. However, during the last seven years the medical tourism market has exploded as the American middle-class has increasingly had to adapt to a crisis in affordable health insurance coverage. Two decades of double-digit medical inflation has made individual health care insurance policies a cost prohibitive luxury for many Americans.¹² Currently, for a healthy twenty-five year old male living in New Jersey, the premium on a \$500 deductible health insurance policy is \$5,880 per year.¹³ The alternative, going without medical insurance coverage, is not an option for most Americans because the cost of treating a major illness without adequate coverage is a formula for personal bankruptcy.¹⁴ Consequently, most Americans have become dependant upon their employers for health care benefits.

Unfortunately, it is not any easier for employers to provide medical insurance coverage. In countries where universal health care is the norm (e.g., Canada) employee health benefits are a non-existent expense.¹⁵ However, in the United States employee health benefits impose

¹⁰ Nicolas P. Terry, *Under-Regulated Healthcare Phenomena in the Flat World: Medical Tourism and Outsourcing*, 29 W. NEW ENG. L. REV. 421, 422-3 (2007).

¹¹ For example, the Duke of Windsor and the Shah of Iran famously traveled to Houston, Texas, to be operated on by Dr. DeBakey. See Stan Mitka, *Michael E. DeBakey, M.D.: Father of Modern Cardiovascular Surgery*, 293 J. AM. MED. ASS'N 913, 913 (2005).

¹² Thomas R. McLean, *Using the Market to Regulate Health Care Price: Why Heart Hospitals Will Have a Competitive Advantage in the World of Post-Diagnostic Related Group Pricing*, Am. Heart Hosp. J., Summer 2004, at 165, 166-67.

¹³ DEVON HERRICK, CTR. ON BUDGET & POLICY PRIORITIES, INTERSTATE COMPETITION IN THE INDIVIDUAL HEALTH INSURANCE MARKETPLACE (June 21, 2006), <http://cdhc.ncpa.org/commentaries/interstate-competition-in-the-individual-health-insurance-marketplace>. Rates vary widely; and a similar policy in Kentucky would cost only \$980. *Id.*

¹⁴ David U. Himmelstein, et. al., *PERSPECTIVE: Discounting the Debtors Will Not Make Medical Bankruptcy Disappear*, HEALTH AFF. (WEB EXCLUSIVES), w84, w85 (2006), <http://content.healthaffairs.org/cgi/content/full/25/2/w84>; *Contra* David Dranove & Michael L. Millenson, *Medical Bankruptcy: Myth Versus Fact*, HEALTH AFF. (WEB EXCLUSIVES) w74, w75 (2006), <http://content.healthaffairs.org/cgi/content/full/25/2/w74> (medical bills contributed to the filing of bankruptcy in only 17% of cases).

¹⁵ See Quentin Young, *A National Plan; Health Costs Making Big Business Ill*, CHI. TRIB., May 15, 2005, at C1; <http://www.grahamazon.com/over/2005/05/canadians-produce-goods-cheaper/>

a significant cost to the production of goods and services. On average, employers pay a premium of \$9,550 to provide an employee and his or her family with insurance coverage.¹⁶ This figure includes just the premium for current employees with families. To cover its existing health benefits for current and former associates, General Motors must add \$1,500 to the price of each car it sells.¹⁷ For General Motors, the price of providing an employee with health benefits is devastating. When General Motors surcharges the price of its cars, all other factors being equal, General Motors' cars sell at a competitive disadvantage in the global market because of the added expense of employee health benefits.¹⁸

In 2003, to help defray the cost of employee benefits plans on manufacturers, the United States government passed the Medicare Modernization Act (MMA).¹⁹ By agreeing to provide prescription drug coverage under Medicare Part D, the MMA went a long way in slashing the health care obligations of major employers like General Motors. Unfortunately, the MMA's corporate relief package was insufficient to remove the competitive disadvantage manufacturers experience in the global market. "Twelve percent of large employers [surveyed in] 2004 and 2005 said that they will not offer health benefits to future retirees."²⁰ Other stalwart American manufactures such as Coca-a-Cola are cutting

("From candy to autos, Canadians can produce goods more cheaply because of their markedly lower health-benefits costs").

¹⁶ Please note that these numbers are ballpark numbers, based off of other numbers found in different sources. See e.g., NATIONAL COALITION ON HEALTH CARE, FACTS ON HEALTH CARE COSTS, <http://www.nchc.org/documents/Cost%20Fact%20Sheet-2009.pdf> ("The annual premium that a health insurer charges an employer for a health plan covering a family of four averaged \$12,700 in 2008); cf. Julie Appleby, *Average Family Health Policy nears \$11,000*, USA Today, Sept. 14, 2005, available at http://www.usatoday.com/money/industries/health/2005-09-14-family-health-policy_x.htm (the average annual premium for family coverage hits \$10,880, with employers paying an average of 74%).

¹⁷ MICHELINE MAYNARD, THE END OF DETROIT: HOW THE BIG THREE LOST THEIR GRIP ON THE AMERICAN CAR MARKET 231, 234 (2003).

¹⁸ This assumption of course is not true. Manufacturers in many countries, like China, are not only able to avoid the added costs of health care benefits, but are also able to purchase labor cheaper than the United States. See Thomas R. McLean & Patrick B. McLean, *Global Trade in Teleradiology: Economic and Legal Concerns*, in TELERADIOLOGY 253, 253-263 (Sajeesh Kumar & Elizabeth A. Krupinski, eds., 2008)[hereinafter McLean & McLean, *Global Trade*]; TED C. FISHMAN, CHINA, INC.: HOW THE RISE OF THE NEXT SUPERPOWER CHALLENGES AMERICA AND THE WORLD 204-6 (2004); See, generally McLean, *International Law, Telemedicine & Health Insurance*, *supra* note 8.

¹⁹ Medicare Modernization Act, Pub. L. No. 108-173, § 109, 117 Stat. 2066, 2173-74 (2003).

²⁰ *More Employers Reduce, Drop Retiree Health Benefits As Costs Increase*, MEDICAL NEWS TODAY, Sept. 28, 2006, available at <http://www.medicalnewstoday.com/articles/52796.php>.

employee health benefits for their current employees.²¹ In particular, major employers are no longer purchasing the traditional \$500 deductible group insurance policies for their employees. Rather, major employers are increasingly purchasing high-deductible medical insurance (HDMI) coverage plans because such policies have substantially cheaper premiums.²² Until this current crisis in health insurance affordability is resolved,²³ it is likely to drive the expansion of the medical tourism market.

Until this current crisis in health insurance affordability is resolved, it is likely to drive the expansion of the medical tourism market.²⁴ The reason is purely economic. Forty-seven million uninsured Americans are looking increasingly to the medical tourism market for affordable medical care because they are unable to secure a job with health care benefits and are unable to afford an individual health plan.²⁵ Consider the cost saving for a coronary artery bypass (CABG) operation. At the high-end, the asking price for a CABG in America is \$70,000.²⁶ For the uninsured—those with the least negotiating power—hospitals actually attempt to collect this amount of money.²⁷ To the extent that hospitals succeed in collecting from the uninsured, the hospitals' actions are likely to stimulate more personal bankruptcy filings (and inevitably a backlash in the form of a class action lawsuit).²⁸ On the other hand, an uninsured

²¹ *Teamsters Converge on Times Square to Protest Coke's Anti-Worker Tactics; Teamsters Put Coke on Notice for Possible Job Actions Over Worker Abuses*, PR NEWswire, Apr. 5, 2007, available at

<http://www.prnewswire.com/cgi-bin/stories.pl?ACCT=104&STORY=/www/story/04-02-2007/0004557941&EDATE>.

²² Kim Dixon, *Employers Up Use of High-Deductible Health Plans*, REUTERS, March 15, 2007, available at <http://www.reuters.com/article/healthNews/idUSN1540172820070315>. In 2008, 9% of employer-sponsored health insurance is expected to be provided as high deductible coverage. *Id.* With HDMI coverage the deductible is usually \$2000; compared to \$500 for traditional indemnity plans.

²³ Medicare Modernization Act § 1201. HDMI/HSAs may have an unanticipated consequence of stimulating demand for foreign produced medical services. *See infra*, pt III.

²⁴ HERRICK, *supra* note 13.

²⁵ *See* U.S. CENSUS BUREAU, HOUSEHOLD INCOME RISES, POVERTY RATE DECLINES, NUMBER OF UNINSURED UP, Aug. 28, 2007, available at

http://www.census.gov/PressRelease/www/releases/archives/income_wealth/010583.html; CTR. ON BUDGET POLICY PRIORITIES, THE NUMBER OF UNINSURED AMERICANS IS AT AN ALL-TIME HIGH, Aug. 29, 2006, available at <http://www.cbpp.org/8-29-06health.htm>.

²⁶ Garud, *supra* note 6. By contrast, the Medicare allowable reimbursement figure for a CABG operation has hovered at around \$2000 for the past decade.

²⁷ Reed Abelson & Jonathan D. Glater, *Suits Challenge Hospital Bills of Uninsured*, N.Y. TIMES, June 17, 2004, §C, at 1.

²⁸ A detailed discussion of the litigation against non-for-profit hospitable for overcharging the uninsured is beyond the scope of this article. *Id.*; *See generally*, Thomas R. McLean, *Why Adminis-*

patient who travels to India²⁹ can purchase a CABG operation for as little as \$5,000.³⁰ Given such cost savings, even with the addition of transportation costs to the foreign country, it is estimated that 30 percent of all American patients in need of an elective CABG could be enticed to purchase this service abroad.³¹ Thus, it is not surprising to learn that in 2006 500,000 Americans traveled abroad to purchase surgical procedures at prices 30-80 percent below those found in America.³²

Critics deride medical tourism as a fad.³³ In part, this is because critics assume that all of the surgery purchased overseas is cosmetic. This is of course untrue because in addition to CABG, kidney and/or liver transplants can also be purchased at a discount in the medical tourism market.³⁴ Purchasing transplants abroad has its own unique advantages as patients have greater control over the date of their operation and can avoid waiting in a line. Critics are also dismissive of medical tourism because they fail to perceive medical tourism for what it is: A new patient paradigm for purchasing health care services.³⁵ Today's surgery patients do not seem to care if their doctor is white, graduated from the University of Chicago, or is triply boarded in Critical Care Medicine, General, and Thoracic surgery.³⁶ Rather, today's patients care more

trators Who Work in Glass Hospitals Should Not Throw Stones, 2 Am. Heart Hosp J., Spring 2004, at 109.

²⁹ *Eye Openers on India's Health Care Industry*. ISB INSIGHT Dec. 2006 at 48, available at http://www.isb.edu/isbinsight/Insight_December2006.pdf [hereinafter ISB]. India has the largest share of the medical tourism market and it expected to earn \$25 billion in revenue from this market by 2020. *Id.*

³⁰ See Garud, *supra* note 6, at 319 ("Open heart procedures which cost from US\$ 75 000 and upwards in the USA and at least US\$ 50 000 in the UK, cost between US\$ 5000 and 10 000 in the best of India's hospitals" That figure is the spread for all heart operations (CABG and others). The Standard CABG figure in India is \$5000.) See also Webblog Posting of Joseph Padua, Managed Care Matters, www.joepadua.com/archives/000761.html (Jan. 9, 2007, 12:09 EST).

³¹ Arnold Milstein & Mark Smith, *Will The Surgical World Become Flat?*, 26 HEALTH AFFAIRS 137, 137-141 (2007).

³² Krysten Crawford, *Medical tourism agencies take operations overseas*, CNN MONEY, Aug. 3, 2006, available at <http://money.cnn.com/2006/08/02/magazines/business2/medicaltourism.biz2/index.htm>.

³³ Jake Solocheck, *The Good, the Bad, and the Ugly of Medical Tourism*, WHIZOFFICE.COM, July 27, 2008, http://www.whizoffice.com/12792/plastic_surgery/thegoodthebadandtheuglyofmedicaltourism.html.

³⁴ Neil Osterweil, *Americans Gamble on Bargain Surgery Abroad*, MEDPAGE TODAY, Aug. 17, 2007, <http://www.medpagetoday.com/Surgery/GeneralSurgery/tb/6404>.

³⁵ McLean & McLean, *Black Market*, *supra* note 8, at 292-93.

³⁶ On the other hand, today's patients do care about my operative mortality rate. See, e.g., Ashish K. Jha & Arnold M. Epstein, *The Predictive Accuracy of the New York State Coronary Artery Bypass Surgery Report-Card System*, 25 HEALTH AFF. 844 (2006) (public report cards do force surgeons with high mortality rates out of local markets).

about avoiding bankruptcy and the ability to purchase convenient health care services. These newer patient demands have created a greater willingness among patients to receive health care from foreign providers and this willingness is unlikely to remain confined to just the medical tourism market.

Moreover, patients' new purchasing paradigm helps to explain the growing popularity of pharmacy clinics³⁷ and it is likely to also pave the way for an explosion in telemedical services. Inspired by the Institute of Medicine's recommendation for fundamental changes to our health care system,³⁸ pharmacy clinics substitute nurse practitioners for physicians as primary health care givers.³⁹ Such demand helps explain the growing number of nurse practitioners in the United States health care market. Between 1990 and 2006, the number of nurse practitioners increased from 30,000 to 115,000.⁴⁰ Already half the size of America's foreign physician labor force, the number of nurse practitioners is expected to skyrocket as more pharmacies open clinics.⁴¹ Wal-Mart, for example, plans to expand its seventy-six nurse practitioners staffed clinics to 2000 clinics over the next five years.⁴²

Some may argue that pharmacy clinics' substitution of nurse practitioners for primary care physicians dilutes the quality of care received in the American health care system. This seems a bit unfair. Many pharmacy clinics have been in business for several years now and

³⁷ Jeffery Fineman, *Wal-Mart, CVS Alarm Doctors as Retailers Push Clinics*, BLOOMBERG.COM, Sept. 7, 2006, <http://www.bloomberg.com/apps/news?pid=20601109&sid=acN1FHJVghiY&refer=home>.

³⁸ INST. OF MEDICINE, *CROSSING THE QUALITY CHASM* (2002); Thomas R. McLean, *Crossing the Quality Chasm: Autonomous Physician Extenders Will Necessitate a Shift to Enterprise Liability Coverage for Health Care Delivery*, 12 HEALTH MATRIX 239, 239-95 (2002) [hereinafter McLean, *Crossing the Quality Chasm*]. In *Crossing the Quality Chasm*, the IOM encourages America to make greater use of physician extenders like nurse practitioners. *Id.*

³⁹ Although a detailed discussion of the legal issues associated with nurse practitioner delivered health care is beyond the scope of this article. See McLean, *Crossing the Quality Chasm*, *supra* note 38.

⁴⁰ Ken Krizner, *Health plan networks are also slowly embrace nurse practitioners*, MANAGED HEALTHCARE EXECUTIVE, Dec. 12, 2006, <http://www.managedhealthcareexecutive.com/mhe/article/articleDetail.jsp?id=389263>.

⁴¹ Compare Krizner, *supra* note 40 (discussing the fact that nurse practitioners are becoming a primary care providers) and Fitzhugh Mullan, *The Metrics of the Physician Brain Drain*, 353 NEW ENG. J. MED. 1810 (2005).

⁴² See Posting of David W. Boles' Webblog Urban Semiotic, "Are Nurse Practitioners and Minute Clinics Good Medicine?" <http://urbansemiotic.com/2007/06/26/are-nurse-practitioners-and-minute-clinics-good-medicine/> (June 26, 2007, 6:55 EST).

the public seems solidly in favor of this mode of health care delivery.⁴³ Nor have any horror stories about the “idiots at Wal-Mart” been published. The absence of negative stories concerning pharmacy clinics is explainable. It is likely that when routine health care is delivered—i.e., one patient, one problem—the quality of care delivered by nurse practitioners is as good as the quality of care delivered by physicians.⁴⁴ However, the key point here should not be overlooked: Like medical tourism, pharmacy clinics are a manifestation of a new patient purchasing paradigm. As it turns out, not only are patients unconcerned about their physicians’ training pedigree, for routine health care today’s patients no longer demand that it be provided by a physician. (We will see shortly that this observation has barring on the development of a telemedical black market)⁴⁵

2. THE INDUSTRIALIZATION OF MEDICAL TOURISM

India is the most “touted” destination in the medical tourism market. India has the largest share of the medical tourism market at 12 percent, which is growing at a rate of 15 percent per year; and is expected to earn \$25 billion in revenue in 2020.⁴⁶ By contrast, the high estimate for the size of America’s health care market is \$2 trillion dollars.⁴⁷ While outsourcing \$25 billion of medical services to India sounds like a lot of money, it is essentially a round-off error given the size of the American health care market. The same is not true for the global medical tourism market. At \$200 billion, or roughly 10 percent the size of the United States’ health care market, the global market for medical tourism already has economic clout.⁴⁸

⁴³ Press Release, CVS/Caremark, *An Innovation in Health Care Opens at CVS/pharmacy Stores in Chicagoland*, (Apr. 26, 2007), <http://phx.corporate-ir.net/phoenix.zhtml?c=183405&p=irol-newsArticle&ID=991282&highlight>. Minneapolis-based MinuteClinic, a division of CVS Pharmacy “has generated more than 850,000 patient visits with a 99 percent customer satisfaction rating.” *Id.* Cf. Bruce Japsen, *AMA takes on retail clinics: Doctors groups say patients in danger*, CHLTRIB., June 25, 2007, at 1C, available at <http://www.chicagotribune.com> (The American Medical Association voices fear over pharmacy clinics without citing supportive evidence).

⁴⁴ Compare Thomas R. McLean, *The Institute of Medicine and the Risk Managed Care Revolution*, 96 BULL. KAN. CITY MED. SOC’Y Apr. 2001, at 16, 16-20 (2001) with McLean, *Crossing the Quality Chasm*, *supra* note 38, at 259-61.

⁴⁵ See *infra* pts. II and III.

⁴⁶ ISB, *supra* note 29, at 48.

⁴⁷ Themedica Medical Industry Overview, <http://www.themedica.com/industry-overview.html> (last visited Sept. 19, 2008).

⁴⁸ TAITRA Core Business: Health Care Services,

There is more to the medical tourism story; if individuals can save money by purchasing health care from the medical tourism market, so can corporate America. In 2006, the story of the industrialization of the medical tourism broke. Blue Ridge Paper, a self-insured manufacturer of packaging, envelope, and writing and printing papers,⁴⁹ offered to send one of its employees to India to undergo elective repair of a rotator cuff injury and have his gall bladder removed.⁵⁰ The company, which stood to save \$80,000,⁵¹ offered to share part of the savings (\$10,000) with the employee.⁵² This sounds like a win-win situation and the employee accepted the offer. However, the United Steelworkers' Union threatened to obtain a temporary injunction against Blue Ridge's program alleging that substandard care would be provided in India, thereby jeopardizing the lives of its union members.⁵³

After this story was splashed across the media in 2006, it quickly faded away. At the time, most of the discussions in the press concerned Blue Paper's economic advantages and whether its conduct was ethical.⁵⁴ Interestingly enough, little comment was made about the potential for other self-insured manufacturers to use the Blue Paper's model to cut their health care benefit expenses. This is not a trivial issue because to the extent a corporation may economically benefit from outsourcing its

<http://sv.taiwantrade.com.tw/business/index.aspx?ID=3&lang=en> (last visited Sept. 19, 2008).

⁴⁹ See Blue Ridge Paper's corporate website, <http://www.blueridgepaper.com> (last visited Sept. 19, 2008) (Only moderate amount of information about Blue Ridge Paper is still available at this site because it was sold to a New Zealand company in July 2007) and KSP Investment Partners, Investment History-Sales, <http://www.kpsfund.com/blueridge.asp> (last visited Sept. 19, 2008). It seems likely that the reason that the story of Blue Ridge Paper's medical outsourcing grew cold is related at least in part to the sale of the company.

⁵⁰ *Offshoring Employee Surgery: Next Trend for U.S. Employers?*, HR.BLR.COM, Aug. 1, 2006, <http://hr.blr.com/news.aspx?id=18856>.

⁵¹ Jeremy Smerd, *Medical Tourism: A Ticket to Lower Health Care Costs*, WORKFORCE MGMT. Nov. 20, 2006, at 29-33, available at <http://www.workforce.com/archive/feature/24/59/80/index.php>. Compare Unmesh Kher, *Outsourcing Your Heart*, TIME, May 21, 2006, available at <http://www.time.com/time/magazine/article/0,9171,1196429-2,00.html> (discusses the fact that a patient could save \$80,000 by going to India for a herniated disk in his neck repaired).

⁵² See Patrik Jonsson, *Companies Explore Overseas Healthcare*, CHRISTIAN SCI. MONITOR, Aug. 16, 2006, at 3, available at <http://www.csmonitor.com/2006/0816/p03s03-usec.html> and <http://www.floridainsurancebrokers.com/FORMS/ARTICLES/Companies%20Explore%20Overseas%20healthcare.pdf>. An argument could be made that Blue Ridge Paper's \$10,000 inducement for the employee to travel abroad for medical care was illegal kickback. See 42 U.S.C. §1320a-7b (2000).

⁵³ *Beyond 555: High Health Costs? Let's Outsource Patients!*, VOICE OF 555 (TRANSPORT WORKERS UNION 555, Dallas, Tex.), Winter, 2006, at 16, available at <http://www.twu555.org/uploads/2006%20Winter.pdf>.

⁵⁴ See *supra* notes 50 and 51.

workman's compensation needs to other countries, the health delivery systems in small and medium sized American cities could suffer.

Depending upon the state, many companies use some form of an "approved doctor list" (APL) as a method to control which providers are allowed to treat injured patients under workman's compensation rules.⁵⁵ Most companies limit their APL to local providers to control transportation costs.⁵⁶ As a result, many medical communities in rural areas become dependant upon the workman's compensation business of a single large employer to retain specialized medical care, like orthopedic surgery.⁵⁷ Thus, if a major employer was to limit their APL to foreign medical tourism providers, the market for specialty medical services in many rural areas could implode.⁵⁸

Even less discussed are the legal issues associated with Blue Ridge Paper's attempt to outsource its health care needs. These legal issues arise from the union's implied allegations that its members would receive substandard care in India.⁵⁹ Surgical care provided in a Joint Commission Accredited hospital in India by a member of the Royal College of Surgeons is unlikely to be inferior to the same care provided in an American hospital with Joint Commission Accreditation by a member of the American College of Surgeons.⁶⁰ Rather, the legal concerns driving the Union's position are likely to be (1) to what extent can an employer mandate that health care benefits be provided thousands of miles from home? (Where a patient loses familial support), and (2) to what extent can such corporate policies undermine a local medical community? On both accounts the Union arguably has some legitimate legal interest in

⁵⁵ See Texas Department of Insurance, Workers' Compensation (WC) Networks, <http://www.tdi.state.tx.us/faq/hwcn/wcfaqprovider.html> (last visited Sept. 10, 2007) (As used here approved doctors list and worker's compensation networks are synomoms. The lists are defined by the network).

⁵⁶ Personal experience of author, Thomas R. McLean, former Medical Director of Goodyear Tire in Topeka, Kan.

⁵⁷ Without a certain volume of clinical material to treat, medical specialists will relocate their practices to a region where they can make more money.

⁵⁸ See TIM FLANNERY, *THE WEATHER MAKERS* 203-04 (2005) (claiming that absent an external subsidy, "urban" regions with less than 10,000 people cannot support a health care delivery system).

⁵⁹ See Transport Workers Union 555, *supra* note 53.

⁶⁰ Some technical differences exist in how the Joint Commission accredits American and international hospitals; however, discussion of these differences is beyond the scope of this article. See KAREN TIMMONS, PRESIDENT AND CHIEF EXECUTIVE OFFICER OF JOINT COMMISSION INTERNATIONAL, *THE VALUE OF ACCREDITATION: WHY AMERICANS NEEDING HEALTH CARE ABROAD SHOULD CHOOSE JCI-ACCREDITED FACILITIES* (Dec. 2007), <http://www.surgerybargain.com/Quality.html> ("JCI accreditation standards are comparable to Joint Commission accreditation standards, but they are different.")

the outcome. However, if the Union ever attempted to obtain an injunction against Blue Ridge paper the Union may never get to raise these points because of two important Employee Retirement Insurance Security Act (ERISA)⁶¹ issues lurking in the background.

The first issue concerns standing. ERISA's scope covers all aspects of employee health benefits.⁶² In general, to have standing a party must demonstrate (1) an injury-in-fact, (2) a causal connection between a defendant's conduct and the injury, and (3) the injury must be redressable.⁶³ If standing cannot be demonstrated the action is to be dismissed for lack of subject matter jurisdiction.⁶⁴ ERISA further limits standing by statutorily defining who may bring an ERISA enforcement case. Under ERISA, plaintiffs who can bring a civil action against a plan are limited to: participants, beneficiaries, the secretary of labor, and plan fiduciaries; furthermore, this list is exclusive.⁶⁵ Thus, absent an extraordinary set of circumstances, unions do not have standing to sue ERISA plans for benefits.⁶⁶ Accordingly, any lawsuit a union could bring concerning the quality of care a plan provided is likely to be dismissed because it alleges a non-redressable injury⁶⁷ and/or because the union lacks standing under ERISA.

Second, over the past twenty-five years, the Supreme Court has steadfastly ruled against any measure that would dissipate the assets of an ERISA plan.⁶⁸ In *Massachusetts Mutual Life Insurance v. Russell*⁶⁹ the Supreme Court held that ERISA's preemption of state medical malpractice laws and its allowance for only non-legal relief meant that victims of wrongful denial-of-medical care decisions by ERISA plans were left without a remedy. Although *Pegram v. Herdrich*⁷⁰ later suggested

⁶¹ Employee Retirement Insurance Security Act (ERISA), 29 U.S.C. § 1001 *et seq.* (2000).

⁶² *See Id.* at § 1001 (b)-(c).

⁶³ *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560-61 (1992).

⁶⁴ *Cent. States Se. & Sw. Areas Health & Welfare Fund v. Merck-Medco Managed Care, L.L.C.*, 433 F.3d 181, 198 (2d Cir. 2005).

⁶⁵ 29 U.S.C. § 1132(a) (2000); *Whitworth Bros. Storage Co. v. Cent. States, Se. & Sw. Areas Pension Fund*, 794 F.2d 221, 228 (6th Cir. 1986).

⁶⁶ *See Local 6-0682 Int'l Union of Paper v. Nat'l Indus. Group Pension Plan*, 342 F.3d 606, 609 n.1 (6th Cir. 2003).

⁶⁷ *See* Thomas R. McLean & Edward P. Richards, *Managed Care Liability for Breach of Fiduciary Duty after Pegram v. Herdrich: The End of ERISA Preemption for State Law Liability For Medical Care Decision Making*, 53 FLA. L. REV. 1, 45 (2001).

⁶⁸ *See generally* Thomas R. McLean & Edward P. Richards, *The Ruling in 'Sereboff'*, NAT'L LAW J., Aug. 21, 2006, at 13; Thomas R. McLean, *Sereboff: How Economics influences Equitable Relief*, 13 J. Controversial Med. Claims Nov. 2006, at 18,19-21.

⁶⁹ *Mass. Mut. Life Ins. Co. v. Russell*, 473 U.S. 134 (1985).

⁷⁰ *Pegram v. Herdrich*, 530 U.S. 211 (2000).

that plan assets could be used to pay for some medical malpractice awards and judgments, the Supreme Court held in *Aetna Health v. Davila*⁷¹ that *Pegram*'s rules were applicable only under a very limited set of circumstances. Most recently, the Court created asymmetry in ERISA jurisprudence. In *Sereboff v. Mid Atlantic Medical Services*,⁷² the Supreme Court held that plans, but not beneficiaries, can recover monetary awards. Lurking behind the holdings in these cases, which collectively helps the plans to remain solvent, is the fact that when a health and pension plan fails, the government pays.⁷³

Viewed in this light, it seems unlikely that the Supreme Court would side with the Steelworkers Union if it were given its day in court to face Blue Ridge Paper. Adopting the Union's position against Blue Ridge Paper would mean that corporate America would retain its competitive disadvantage in the global market because employers would be forced to purchase high-priced health care services from American providers. In the long run, this is not good for America. Continuing to force employers to purchase health care from local providers will cause the employers to either cut benefits or go out of business and leave the government to take over responsibility for running the company's health and pension plan.⁷⁴

On the other hand, judicial support for Blue Ridge Paper's position would aid corporate America. By allowing corporations to purchase

⁷¹ See *Aetna Health Inc. v. Davila*, 542 U.S. 200, 220-21 (2004).

⁷² See *Sereboff v. Mid Atl. Med. Serv., Inc.*, 547 U.S. 356, 361, 369 (2006).

⁷³ A detailed discussion of employee health and pension plan collapse is beyond the scope of this article. Briefly, however, the Pension Benefit Guarantee Corporation (PBGC) "is a federal corporation created by the Employee Retirement Income Security Act of 1974. It currently protects the pensions of nearly 44 million American workers and retirees in 30,000 private single-employer and multiemployer defined benefit pension plans." Pension Benefit Guaranty Corporation, <http://www.pbgc.gov/> (last visited Sept. 13, 2008). When companies can no longer support their employee benefit plans, the plans are taken over by the PBGC and then in essence funded with tax payer dollars. See DAVID C. JOHN ET AL., THE HERITAGE FOUNDATION, ARE PENSIONS THE NEXT FISCAL CRISIS? (June 7, 2005), <http://www.heritage.org/Research/SocialSecurity/wm756.cfm>. Not surprisingly, the benefits provided by the PBGC are not as generous as those granted by the corporation. *Id.* Presently the PBGC has become financially stressed which make it even less likely the Supreme Court would hand down a rule that could ultimately result in government's taking of more health and pension plans. *Id.*

⁷⁴ One of the strategic reasons Delphi and United Airlines sought bankruptcy protection was so that they could shed their employee benefit plans. Paul Gallagher, *The Delphi Case and the Misuse of Bankruptcy Laws*, EXECUTIVE INTELLIGENCE REV., Nov. 5, 2005, at 52, 52, 53, available at <http://www.larouchepub.com/eiw/public/2005/eirv32/eirv32n44.pdf>. See also Stephanie I. Cohen, *Pension Defaults Could Spread*, MARKET WATCH, May 11, 2005, <http://www.marketwatch.com/News/Story/Story.aspx?guid=%7B8A71BBB5-67AB-4483-A0C8E18CB7381E8E%7D>.

foreign made health care for their employees, corporations could slash employee medical expenses in order to become more cost-competitive in the global market.⁷⁵ Healthy corporations would mean that it is less likely that the government would have to take over the health benefit obligations of insolvent corporations.⁷⁶ Of course, if more corporations follow the lead of Blue Ridge Paper and outsource their medical benefits,⁷⁷ the drum beat for universal health care in the United States could get louder.⁷⁸ Indeed, it is interesting to note that one of the best arguments for the adoption of universal health care is that it may be the only way to protect American medical jobs from being off-shored by the industrialization of medical tourism.⁷⁹

B. TELEMEDICINE

1. OVERVIEW

Patients' demand for convenient cost-effective health care, which has fueled the expansion of medical tourism and pharmacy clinics, will also stimulate growth of the global telemedicine market. Digitalization of data in practically every medical discipline coupled with advancements in telecommunications means that virtually every medical service can be delivered telemedically.⁸⁰ While transportation costs for many industries have fallen in recent years,⁸¹ transportation costs will

⁷⁵ See *supra* pt. I.A.1.

⁷⁶ Now that many of America's stalwart manufacturers have seen their bonds down grade to "junk" status, in part due to medical expenses, Rick Popely, *GM, Ford Bonds Are Driven to Junk Yard*, CHI. TRIB., May 6, 2005, at C1, corporate America appears almost desperate to control medical expenses, See Greg Burns, *Health-care Costs Targeted as Cure for Corporate Ills*, CHI. TRIB., May 7, 2005, at C1.

⁷⁷ See generally *Businesses, Insurance Companies Promote Medical Tourism to Reduce Costs*, MARKET NEWS TODAY, Nov. 7, 2006, <http://www.medicalnewstoday.com/articles/55907.php>.

⁷⁸ See generally COMM. ON DATA STANDARDS FOR PATIENT SAFETY, INST. OF MED., PATIENT SAFETY (Philip Aspden et al. ed., 2004) (discussing alternative health insurance systems but leading the reader to the conclusion that universal health care is only viable option).

⁷⁹ Nick Timiraos, *Health Care: Time for Universal Coverage?*, WALL ST. J., June 2, 2007, at A9, available at http://online.wsj.com/article/SB118074895886322279.html?mod=googlenews_wsj (last visited Sept. 27, 2008) (to resolve the problems that flow from the high cost of health care, Republicans favor control of health care costs, whereas Democrats expansion of government-funded health care programs.).

⁸⁰ See McLean, *Offshoring*, *supra* note 1.

⁸¹ David Crane, *Preparing for a Rapidly Changing World; Globalization Will Have Many Winners and Losers*, TORONTO STAR, Nov. 26, 2006, at A21, available at

remain a significant component of the price of medical tourism service. For example, although an American can purchase a CABG operation in India for \$5,000,⁸² it will cost a patient and his or her spouse⁸³ \$2,500 to travel to India if the airfare is purchased two months in advance from Air India.⁸⁴ As the price of CABG is driven down by international competition,⁸⁵ the contribution of transportation costs to total service price will become even more substantial. Moreover, by eliminating transportation costs, telemedicine will change the nature of medical services purchased from foreign providers. Absent transportation costs, even routine telemedical care—like the care now purchased in pharmacy clinics—purchased in a foreign country would be affordable.⁸⁶ Just how affordable such telemedical care will depend on the delivery model, the specific service, and how that service is priced.⁸⁷

2. DELIVERY MODEL

Today, most telemedical services are consumed in the country of their origin.⁸⁸ Yet, two separate models for delivering telemedical services in the global market are already recognizable.⁸⁹ The Nighthawk Model (named after the company that was first in the market)⁹⁰ relocates

http://www.competeprosper.ca/index.php/about/in_the_news/Preparing_for_a_rapidly_changing_world_globalization_will_Have_many_winners/.

⁸² Garud, *supra* note 6, at 319.

⁸³ Years of surgical practice have taught me that it is unrealistic to expect that an individual with a long-term significant other relationship will give up that support to travel abroad to have major surgery.

⁸⁴ Telephone interview with an Air India representative (Aug. 10, 2007) (the price is for economy class).

⁸⁵ Bangkok International Hospital, http://www.bangkokhospital.com/nl/cabg_package_a.aspx (last visited Sept. 19, 2008) (Bangkok International Hospital offers a CABG for 480,000 baht; or about \$15,000 USD. One would expect that as Bangkok providers lower their CABG prices to compete with Indian providers, Indian providers will reduce their prices for CABG to maintain market share).

⁸⁶ See discussion of mydoc.com *infra* pt. II.

⁸⁷ *Id.*

⁸⁸ Robert Steinbrook, *The Age of Teleradiology*, 357 NEW ENG. J. MED. 5, 5-6 (2007).

⁸⁹ Thomas R. McLean & Edward P. Richards, *Teleradiology: A Case Study of the Economic and Legal Considerations in International Trade in Telemedicine*, 25 HEALTH AFF. 1378, 1378 (2006). Because the global market for telemedical services is dominated by teleradiology, unless otherwise specified, models and numbers used to illustrate practices in telemedicine are based on teleradiology.

⁹⁰ This composite description is based on the viewing of several telemedical web pages including but not limited to: Nighthawk Radiology Services, <http://www.nighthawkrad.net> (last visited Sept. 15, 2008); American Radiology Services, www.americanradiology.com/ (last visited Sept. 15, 2007); and Virtual Radiology Consultants, <http://www.virtualrad.net> (last visited, Sept. 15,

fully licensed domestic physicians to a country that is eight to twelve time zones ahead of the home country.⁹¹ Nighthawks pay their physician-employees the prevailing domestic wage.⁹² This model has a number of advantages, including (1) compliance with existing licensure systems, and (2) hospitals doing business with Nighthawks do not need to fear being sued for negligent hiring or supervising of their radiology staff.⁹³ The chief disadvantages of Nighthawk services are (1) by relocating domestic physicians overseas any labor shortage in the home market is perpetuated; and (2) the model is not a price competitive alternative to traditional health care.⁹⁴

The alternative to the Nighthawk delivery system is the Indian Model (named after the country making the greatest use of this model).⁹⁵ Indian providers hire unlicensed indigenous physicians⁹⁶ who are willing to work for one-tenth of the wages of physicians in developed countries.⁹⁷ Although hospitals in developed countries take on increased liability when they purchase telemedical services from Indian providers, these hospitals can profit handsomely on the spread between domestic reimbursement and the expense of the Indian provided service.⁹⁸ In addition, because Indian providers are more price competitive than Night-

2008). However, the composite description provided in this paper does not accurately portray the actual operation of particular company.

⁹¹ McLean & Richards, *supra* note 89, at 1380.

⁹² *Id.*

⁹³ *Id.* at 1380; See McLean & McLean, *Black Market*, *supra* note 8, at 292.

⁹⁴ See McLean & Richards, *supra* note 89, at 1380.

⁹⁵ While the composite description provided in this paper does not accurately portray actual the operation of any particular company, this description is based on reviewing several telemedical articles. See, e.g., K. Vijaya, *Teleradiology Solutions: Taking Expertise to Hospitals in US*, EXPRESS HEALTH CARE MANAGEMENT, Feb. 16-29, 2004, available at <http://www.expresshealthcaregmt.com/20040229/innews07.shtml>; *Mysore Hospital Launches Telemedicine*, THE HINDU, March 25, 2005, available at <http://www.hindu.com/2005/03/25/stories/2005032509060300.htm>. However, the composite description provided in this paper does not accurately portray the actual operation of any particular company.

⁹⁶ Rob Stein, *Hospital Services Performed Overseas*, WASHINGTON POST, Apr. 25, 2005, at A1; Andrew Pollack, *Who's Reading Your X-Ray?*, N.Y. TIMES, Nov. 16, 2003, at §3-1.

⁹⁷ See Fitzhugh Mullan, *Doctors for the World: Indian Physician Emigration*, 25 HEALTH AFF 380, 386 (2006); Pollack, *supra* note 97, at §3-1. Through this paper, it will be assumed that the relationship of physicians' wages in various countries will remain constant. However, anyone who regularly reads the papers knows that this is a precarious assumption because a global recession/depression may be on the horizon; and this economic event will disproportionately impact developed nations.

⁹⁸ McLean & Richards, *supra* note 89, at 1379.

hawks, Indian providers are more likely to drive expansion of the global market for telemedicine.⁹⁹

3. TYPES AND PRICING

Regardless of which labor model is used, the capital requirements to provide telemedicine will vary depending on the cost of technology (i.e., the expense of the hardware and software needed to get into a market), and the cost to operate a remote support network (i.e., the expense of the remote ancillary technicians). Based on capital requirements, telemedicine can be divided into three groups (1) Image Interpreted Telemedicine Services (IITS) (e.g., teleradiology, telepathology, and teleretinology); (2) Cybersurgery (i.e., remote robotic surgery); and (3) Office-Based Telemedicine (OBT) (e.g., telepsychiatry and telecardiology). IITS requires minimal capital. To provide IITS all that is needed is a computer, medical grade imaging software, and a Virtual Provider Network (VPN).¹⁰⁰ These components can be purchased for under \$150,000.¹⁰¹ The cost of a support network is minimal because images are sent directly to the provider for interpretation. That is, when providing IITS, image production costs are externalized to the referring provider.

In contrast, providing cybersurgery is likely to be capital intensive, a fact that may ultimately limit the number of cybersurgery providers.¹⁰² The robotic surgical instrument alone costs \$1 million. The cost of operating a remote network of technicians who operate and maintain the robotic instrument must also be added to this figure. While no cost estimates exist for operating such a network, the cost is likely to be substantial.¹⁰³ Although cybersurgery providers could externalize their support network to the referring provider, doing so would diminish the cybersurgery provider's control over the remote network which would then

⁹⁹ *Id.* at 1380. For this reason, unless otherwise specified the remainder of this paper assumes telemedical services are provided under the Indian model.

¹⁰⁰ See McLean, *Offshoring*, *supra* note 1, at 239; See McLean & Richards, *supra* note 89, at 1379.

¹⁰¹ McLean & Richards, *supra* note 89, at 1379.

¹⁰² GARY FEKETEKUTY, INTERNATIONAL TRADE-IN-SERVICES AN OVERVIEW AND BLUEPRINT FOR NEGOTIATIONS 108 (1988), available at http://www.commercialdiplomacy.org/articles_news/trade_inservices.htm.

¹⁰³ Thomas R. McLean, *The Legal and Economic Forces that will Shape the International Market for Cybersurgery*, INT'L J. MED. ROBOTICS & COMPUTER ASSISTED SURGERY, Nov. 2006, at 293, 294. As with any manufactured good, the price of surgical robots could fall precipitously if China enters the market. FISHMAN, *supra* note 18, at 177.

expose cybersurgery providers to increased liability.¹⁰⁴ As the health care market increasingly demands more provider accountability, cybersurgery providers are reluctant give up control of their remote network, thereby jeopardizing their outcomes and exposing the provider to increased public scrutiny.¹⁰⁵

The capital requirements for OBT would be somewhere between IITS and cybersurgery. Providing telepsychiatry, (which would only require a computer, software, VPN, and a remote receptionist), would likely have capital requirements similar to those of IITS.¹⁰⁶ In contrast, the capital requirements to provide telecardiology, with its greater need for more specialized equipment and technicians, would more closely resemble those of cybersurgery.¹⁰⁷

Dividing telemedicine into three groups based on capital requirements is of more than academic interest. The different capital requirements for IITS, cybersurgery, and OBT are likely to impact how these services are priced in the global market. Conceptually, telemedical services could be priced according to one of four schemes (1) administratively (i.e., by government fiat),¹⁰⁸ (2) at the margin of cost (i.e., sold for slightly more than the expense to produce the next unit of service),¹⁰⁹ (3) discriminately (i.e., by the ability of the buyer to pay),¹¹⁰ or (4) by the market.¹¹¹ Although administrative pricing is used in many countries it has several limitations, including: skewing financial incentives to providers and creating inefficiencies in domestic markets.¹¹² Moreover, in a global market, administrative pricing is likely to be unenforceable be-

¹⁰⁴ Thomas R. McLean, *The Complexity of Litigation Associated with Robotic Surgery and Cybersurgery*, INT'L J. MED. ROBOTICS & COMPUTER ASSISTED SURGERY, Mar. 2007 at 23, 27-28.

¹⁰⁵ See Thomas R. McLean, *Does More PCI in New York State Mean Fewer CABG?*, 6 AM. HEART HOSP. J. 30, (2008).

¹⁰⁶ I am not aware of any published data on this point. This inference is made based on my experience in delivery patient care.

¹⁰⁷ *Id.*

¹⁰⁸ McLean, *supra* note 12, at 165-69.

¹⁰⁹ Howard Paul Forman and Dongping Yin, *Cost Analysis and Practicing Radiologist/Manager: An Introduction to Managerial Accounting*, 166 AMERICAN JOURNAL OF ROENTGENOLOGY 1249, 1251 (1996).

¹¹⁰ See Patricia Danzon and Micheal F. Furukawa, *Prices and Availability of Pharmaceuticals: Evidence from Nine Countries*, HEALTH AFF. (WEB EXCLUSIVES), w3-521, w3-534 (2003), <http://content.healthaffairs.org/cgi/reprint/hlthaff.w3.521v1>.

¹¹¹ See *infra*, pt. V.

¹¹² Thomas R McLean, *Using the market to regulate health care price: why heart hospitals will have a competitive advantage in the world of post-diagnostic related group pricing*, 2 AM HEART HOSP J. 165, 165-9 (2004). See generally DAVID CAY JOHNSTON, FREE LUNCH: HOW THE WEALTHIEST AMERICANS ENRICH THEMSELVES AT GOVERNMENT EXPENSE (AND STICK YOU WITH THE BILL), (2007).

cause nothing compels a provider to respect another country's fee schedule.¹¹³ In short, it seems unlikely that the global telemedicine market will use administrative pricing.

Historically, discriminatory pricing was used in the global health care market. This was and still is because the global market for health care services is dominated by pharmaceutical companies who have used discriminatory pricing as a means to maximize their return on investment.¹¹⁴ The key advantage of discriminatory pricing over other pricing schemes is that it allows for the efficient recovery of capital. Given that major drug manufacturers must spend \$800 million to bring a new drug to market, capital recovery is essential for the survival of the pharmaceutical industry.¹¹⁵ Similar to the pharmaceutical industry, because cybersurgery and certain OBT operations (e.g., telecardiology) will need to recover capital, it is reasonable to expect that these telemedicine disciplines will use discriminatory pricing.

Alternatively, nothing prevents marginal cost pricing (MCP) from being used when IITS and certain OBT services are provided. Using MCP, IITS firms with surplus capacity to interpret radiographic images might achieve profits that are not otherwise possible under other pricing systems.¹¹⁶ That MCP under favorable economic circumstances¹¹⁷ allows for maximum profit taking may explain why traditional radiologists have used MCP for many years.¹¹⁸ However, MCP has not been universally adopted because in many markets with multiple payors and reimbursement schemes the radiologists may receive suboptimal reimbursement.¹¹⁹

Yet, if Indian IITS providers, with their substantially lower physician labor costs, were to use MCP, they could have a formidable weapon. To illustrate, consider the following hypothetical involving India

¹¹³ See *infra* pt IV.

¹¹⁴ See Danzon and Furukawa, *supra* note 110. More generally, because capital-intensive companies need to recover capital, they behave differently than non-capital intensive companies. *Id.*

¹¹⁵ *Id.* In addition to discriminatory pricing, the pharmaceutical industry also uses cross-subsidization of products to recover capital. *Id.* Thus a successful drug like Viagra must not only pay for itself, but also several of the manufacturer's recent failures. *Id.*

¹¹⁶ See Hal P. Varian, *Differential Pricing and Efficiency*. FIRST MONDAY Aug. 1996, <http://www.firstmonday.org/issues/issue2/different/>. Because cybersurgical operations will need to recover a substantial amount of capital, absent a method for cross-subsidization or some other system for capital recovery, MCP is unlikely to be used. *Id.*

¹¹⁷ *Id.* Characteristics of consumer demand tend to be more important in MCP model than with other pricing schemes. *Id.*

¹¹⁸ Forman and Yin, *supra* note 109 at 1251.

¹¹⁹ Karl Muchantef, Howard P. Forman, *Cost Accounting in Radiology: New Directions and Importance for Policy*, 185 AM. J. ROENTGENOLOGY 1404, 1405 (2005).

General Hospital (IGH), Bangalore Teleradiology Associates (BTA), America's Best Hospital (ABH), and Radiology USA (RUSA). Both IGH and ABH provide all support services for images created in their institutions; and both hospitals bill for all radiology services.¹²⁰ The chief distinction between IGH and ABH are their location and bottom line (ABH is running in the red and needs to cut costs). BTA and RUSA are both professional organizations of four radiologists each; and each association has surplus capacity to provide image interpretation at night.¹²¹ For their services, BTA receives \$10 per image interpreted from IGH; and RUSA receives \$100 per image interpreted from ABH.¹²² In this example the MCP for BTA is \$10/image; and for RUSA it is \$100/image.¹²³

If ABH wished to improve its bottom line, it could send its radiographic images generated to BTA (who has surplus capacity because it's nighttime in India).¹²⁴ In this hypothetical it is assumed that BTA continues to charge its MCP (\$10/image) for image interpretation. Conducting business in this matter would be a win-win situation for ABH and BTA. ABH would pocket the \$90/film that it received from the third party payor for the image interpretation while BTA would be enriched for each film it interpreted from America. In this scenario the profit on the spread between American reimbursement rates and lower foreign physician labor rates is so great that even solvent American hospitals may contemplate outsourcing some of their radiology services.¹²⁵

Some might argue that BTA would be better off had it used a discriminatory price scheme rather than MCP to maximize its profits. True, but there is a limit to how much a business like BTA could charge an American hospital. Assume, rather than charging its MCP of \$10 per image, BTA demanded \$70/image from ABH. Here, ABH may walk away from the deal because its profit of \$30/image may not warrant the

¹²⁰ IGH and ABH are fictitious hospitals.

¹²¹ Both BTA and RUSA are fictitious organizations.

¹²² It is assumed that all money received for image interpretation passes through IGH and ABH to BTA and RUSA respectively.

¹²³ In this hypothetical, IGH covers all of fixed costs of doing business. It is also assumed that BTA accrues no tax obligations; nor does it accrue any administrative expenses as ancillary staff is not mention.

¹²⁴ A radiologist who is qualified to interpret radiographs at 2 AM is qualified to interpret radiographs at 2 PM. Robert M. Wachter, *The "Dis-location" of U.S. Medicine-The Implications of Medical Outsourcing*, 354 NEW ENGL. J. MED. 661, 662-63 (2006). So, while the Nighthawk and Indian models of telemedicine were originally designed to provide on-call coverage at night, nothing prevents these methodologies from becoming models for outsourcing image interpretation at all hours of the day. *Id.*

¹²⁵ McLean, *Glass Hospitals*, *supra* note 28 at 109-15(explaining why not-for-profit hospitals earn profits).

risk of doing business with an unlicensed Indian provider. Alternatively, ABH may seek out another provider who would charge only the MCP of \$10/image.¹²⁶

This combination of cheap labor and MCP has been used effectively by Chinese manufacturers.¹²⁷ Indeed, to most American manufacturers the three scariest words are “the China price”; i.e., the lowest possible price for manufactured goods.¹²⁸ So powerful is the China price that one commentator recommended that anyone operating a labor intensive manufacturing business should either exit the market or “bleed to death.”¹²⁹ Given that health care delivery is a labor intensive service business,¹³⁰ and nothing prevents Indian telemedicine providers from combining cheap physician labor with MCP, the question is: what prevents Indian telemedicine providers from establishing an “India price” for medical services? The short answer appears to be nothing. Indeed, the American College of Radiology (ACR) is already acting as if the three scariest words in health care were “the India price.”¹³¹ The ACR reaction is not without some merit as roughly half of American hospitals outsourced some of their radiology services; with India being one of the more frequent destinations.¹³² Furthermore, in 2005, India’s diagnostic testing export market, which is growing at rate of 20 percent per year, earned \$864 million.¹³³

¹²⁶ That is to say, this hypothetical assumes a perfectly competitive market –a necessary condition for the use of MCP. Varian, *supra* note 116. If the market was not perfectly competitive than BTA could use a discriminatory price system.

¹²⁷ FISHMAN, *supra* note 18 at 7, 193.

¹²⁸ *The China price*, BUS. WK., Dec. 6, 2004, http://www.businessweek.com/magazine/content/04_49/b3911401.htm. China’s manufacturing platform can undercut the prices of American manufacturers by 30-50%. *Id.*

¹²⁹ *Id.*

¹³⁰ *What’s Really Propping Up The Economy?*, BUS. WK., Sept. 25, 2006, http://www.businessweek.com/magazine/content/06_39/b4002001.htm.

¹³¹ Am. C. Radiology, Revised Statements on the Interpretation of Radiologic Images Outside the United States (May 2006), http://www.acr.org/s_arc/doc.asp?CID=541&DID=24137.

¹³² Letter from William Bradley, Chair, Department of Radiology, UCSD School of Medicine to Thomas R. McLean (Jan. 18, 2007) (on file with author).

¹³³ Srinivasa Aluri Rao, ICICI Venture Funds Mgmt. Co. Ltd. & Ameera Shah, Metropolis Health Services (I) Pvt. Ltd., Panel 2 Discussion at Conference on Private Equity & Life Sciences (Nov. 14-15, 2006) (program and DVD available at http://www.vcindia.com/conf_past-conf_life-sci.asp) (“The diagnostics and pathology market is currently 2.5 % of the overall healthcare delivery market with 40,000 independent pathology labs in the country. Currently valued at US \$864 million, the diagnostics and pathology laboratory-testing business is growing at a CAGR of 20 percent.”).

4. TRADE MODELS

a. Ricardo's Theory

Yet the ACR may be over reacting. The more complete answer to whether American providers should fear the India price for medical services requires an examination of international trade principles as articulated in the Ricardian and H-O theories. As it turns out, trade is not driven by absolute price, rather trade is driven by a comparative advantage.¹³⁴ Whether a country has a comparative advantage depends on which economic model is used. Under the Ricardian model, the country with the lowest opportunity costs has the comparative advantage and will export those goods or services to other countries.¹³⁵ Opportunity costs, which are not necessarily all monetary, refer to what a country must give up to produce a service.¹³⁶ In health care, because physicians are needed to produce traditional medical and telemedical services, a country's opportunity cost to export telemedicine is that country's decreased access to traditional medical care.¹³⁷

Analysis of India's comparative advantage in telemedicine is complicated by the fact that India essentially operates two domestic health care markets. The urban market, where most of its physicians practice, has twenty-two "super-specialty hospitals" with telemedical capabilities.¹³⁸ India spends 4.2 percent of its gross domestic product (GDP) in this market.¹³⁹ In contrast, 70 percent of India's 1.1 billion

¹³⁴ Lauren F. Landsburg, Comparative Advantage, Library of Economics and Liberty, (2004), <http://www.econlib.org/Library/Topics/Details/comparativeadvantage.html>; Edward E. Leamer, A COMBINED RICARDIAN AND HECKSHER-OHLIN MODEL OF COMPARATIVE ADVANTAGE, 9, 14 (Wein Institute For Advanced Studies, Economic Series Working Paper No. 17, Dec. 1995), available at <http://www.ihs.ac.at/publications/eco/es-17.pdf>.

¹³⁵ Dep't of Econ. Univ. of Pittsburgh at Johnstown, *Comparative Advantage and the Gains from Trade*, <http://www.pitt.edu/~upjecon/MCG/MICRO/COMPADV/CompAdv.html> (last visited Sept. 27, 2008).

¹³⁶ *Id.*

¹³⁷ Shyama S. Nagarajan, *International Trade in Healthcare Services*, EXPRESS HEALTHCARE MGMT., Nov. 2006, available at www.expresshealthcaremgmt.com/200611/analysis01.shtml.

¹³⁸ Sanjit Bagchi, Telemedicine in Rural India. 3(3) PLoS Med e82 (2006); <http://medicine.plosjournals.org/perlserv/?request=get-document&doi=10.1371%2Fjournal.pmed.0030082>.

¹³⁹ See S.P. Sood & J.S. Bhatia, *Development of Telemedicine Technology in India: "Sanjeevani" – an Integrated Telemedicine Application*, 51 J. POSTGRADUATE MED. 308, 309 (2005), available at <https://tspace.library.utoronto.ca/bitstream/1807/6887/1/jp05109.pdf>.

population lives in rural regions.¹⁴⁰ Spending only 0.9 percent of its GDP health care for its rural poor, India has set up only seventy-eight remote telemedicine outposts.¹⁴¹ Regardless of which of these markets is considered, India's current opportunity costs to export telemedicine are minimal. Having functionally denied health care to its rural market, most of India's population would never notice a drop in access to care.¹⁴² In contrast, India's urban market has approximately the same number of physicians *per capita* as the United States.¹⁴³ Thus, the worse case scenario is that India's opportunity costs to export telemedicine from its urban centers are likely to be no more than the United States' opportunity costs. The story is similar in China.¹⁴⁴ In short, the Ricardian analysis suggests that India, with minimal opportunity costs in telemedicine, is likely to have a comparative advantage with the United States in telemedicine.

Nevertheless, India's comparative advantage is likely to be fleeting. Computers are now being sold to the rural poor of developing nations.¹⁴⁵ This improved access to information suggests that it will be only a matter of time before India's rural poor discover the health care they are missing. When Japan's citizens realized that compared to other industrialized counties they were receiving suboptimal oncologic health care, they demanded more Western style health care.¹⁴⁶ Consequently, it is not unreasonable to assume that as soon as Indians in the hinterlands of Kashmir realize what they are missing, they will demand more Western style health care.

¹⁴⁰ Subhash Vohra, *India's Booming Economy is on an Upward Surge* (Voice of America radio broadcast Dec. 27, 2007), available at <http://www.voanews.com/english/archive/2007-12/2007-12-25-voa28.cfm?CFID=19714020&CFTOKEN=78518189>.

¹⁴¹ Bagchi, *supra* note 138.

¹⁴² This is not to say whether health care in India's urban centers approximates the quality and quantity found in the west. India lacks a western style infrastructure for avoiding unforeseen hazards. Somini Sengupta, *Electricity Crisis Hobbles an India Eager to Ascend*, N.Y. TIMES, May 21, 2007, at A1. (New Delhi does not have the capacity to meet its current electrical needs). The potential of a power outage should be considered by anyone contemplating purchasing surgery from India's medical tourism market.

¹⁴³ To understand this statement one must first notice that I am referring to India's urban market. As 70% of India's 1.1 billion population live in rural settings, this means that India's urban population is about 300 billion; or roughly the population of the US. India has 600,000. Therefore the number of registered physicians for India's urban market is about the same as in the United States. See Sengupta, *supra* note 142; Fitzhugh Mullan, *Doctors for the World: Indian Physician Emigration*, 25 HEALTH AFF. 380 (2006).

¹⁴⁴ See McLean, *International Law, Telemedicine & Health Insurance*, *supra* note 8, at 17.

¹⁴⁵ Specifically, China's rural population has become a targeted market for computers. *Lenovo Will Sell Computers to Rural China*, KAN. CITY STAR, Aug. 4, 2007, at C2.

¹⁴⁶ Paul Launders, *Japan's 'Cancer Refugees' Demand More Options—Patients Decry System That's Frugal, Universal but Restricts Choices*, WALL ST. J., Jan. 11, 2007, at A1.

Once public awareness begins to grow, India's opportunity costs for exporting telemedicine will reach a tipping point. India will either have to provide more health care to its rural populations (thereby depriving other sectors of its economy of capital) or attempt to cope with increased social unrest (which will also siphon capital away from other sectors of its economy). The potential for social unrest as an unwanted by-product of exporting telemedicine should scare India. As recently as 1949, the demands of the peasantry for a better lifestyle were a driving force behind the Chinese revolution.¹⁴⁷ Even a cursory reading of Ted C. Fishman's book on the Chinese economy will demonstrate that the opportunity costs associated with the denial of medical care to large segments of a society are an important economic force.¹⁴⁸ Although China's health care opportunity costs have been studied in greater detail, it seems likely that the same issues will soon impact India. If India does start to provide Western style health care to 16 percent of the world's population, it is hard to imagine how India's (or any country's) economy will grow under such a weight.

Nothing ruins a country faster than a rapid influx of easy money.¹⁴⁹ As money rushes into a country from a successful export market it bids up the price of labor, thereby making less labor available for the production of goods and services to be consumed in the domestic market.¹⁵⁰ India's software engineering market has already reached this point.¹⁵¹ It is becoming increasingly difficult to hire competent knowledge based workers in India as competent workers move to the highest

¹⁴⁷ FISHMAN, *supra* note 18.

¹⁴⁸ *See id.* at 41-46. More generally, China's economic prosperity in the 21st century is predicated on some unrealistic assumptions; most notably coal-burning China will not fall victim to climate change and that the United States will continue to buy Chinese Manufactured goods. Both assumptions are in doubt; *see* Flannery, *supra* note 58, at 70, 275. Tracking The Impending World Great Depression and The Global Monetary Reform, <http://un-debt.net/alert.html> (last visited Nov. 18 2008).

¹⁴⁹ WILLIAM BONNER & ADDISON WIGGIN, EMPIRE OF DEBT: THE RISE OF AN EPIC FINANCIAL CRISIS 382 (2006).

¹⁵⁰ Herman E. Daly, *Population, Migration, and Globalization*, WORLD WATCH, Sept./Oct. 2004, at 41, *available at* <http://www.puaf.umd.edu/faculty/daly/WW%20rev%20pop,migr,glob%20copy%201.pdf>. This is because in our modern world, capital flows to where labor is located; rather the historic pattern of labor moving to the country with capital. *Id.*

¹⁵¹ ROCSEARCH, BEYOND THE HYPE: WILL INDIA DELIVER? 4, 6 (2006), *available at* http://www.rocsearch.com/media/knowledge_services_market.pdf); *cf.* For a long time it was believed that China had so much labor price-inflation was unlikely. However, prices have begun to rise in China because of a shortage of labor. Keith Bradsher, *Wages are on the Rise in China as Young Workers Grow Scarce*, N.Y. TIMES, Aug. 29, 2007.

bidder.¹⁵² Software engineers are becoming so scarce in Bangalore that India is already importing these software engineers from the United States.¹⁵³ This shortage of knowledge based workers in India is not just confined to the engineering sector, a scarcity of accountants and investment analysts are allowing these professionals to demand more money.¹⁵⁴ As labor prices sky rocket for knowledge based workers, India stands to lose 45 percent of its service export market by the end of 2007.¹⁵⁵

Should India become successful in exporting telemedical services to the United States, its health care sector is likely to be negatively impacted. Decreased access to care and rising domestic health care prices can be expected to increase India's opportunity costs to export telemedicine. In India, only 10 percent of the population has any form of health insurance coverage.¹⁵⁶ This means that when health care prices in India increase due to the exportation of medical services, Indian patients will have to pay more out-of-pocket for health care. In a country already skeptical of the "trickle-down" benefits from outsourcing, higher prices for health care services seem likely to be a catalyst for social unrest.¹⁵⁷

A country's export capacity is also proportional to the degree of overlap between its domestic market and that of its trading partners.¹⁵⁸ To the degree that trading partners have economies with non-overlapping demands, opportunity costs increase.¹⁵⁹ India needs basic medical care, whereas the average American wants lifestyle improving medical care.¹⁶⁰

¹⁵² Somini Sengupta, *Skills Gap Hurts Technology Boom in India*, N.Y. TIMES, Oct. 17, 2006, at A3.

¹⁵³ Somini Sengupta, *In a Twist, Americans Appear in Ranks of Indian Firms*, N.Y. TIMES, Oct. 17, 2006, at A3.

¹⁵⁴ Saritha Rai, *India's Outsourcing Industry is Facing a Labor Shortage*, N.Y. TIMES, Feb. 16, 2006, <http://www.nytimes.com/2006/02/16/business/worldbusiness/16cnd-INDIA.html>.

¹⁵⁵ Parija Bhatnagar, *Is India's Outsourcing Honeymoon Over?*, CNN/MONEY.COM, Aug. 24, 2007, http://money.cnn.com/2005/08/23/news/international/india_outsourcing/index.htm.

¹⁵⁶ Padma Bhatia, Lecture: Health Insurance in India, (2004), available at <http://www.pitt.edu/~super1/lecture/lec19571/001.htm>. Conditions in China are much the same. See Thomas McLean, *International Law, Telemedicine & Health Insurance*, *supra* note 8, at 17, 18.

¹⁵⁷ See Akash Hosalkar, Editorial, *As an Indian American I have to Think Ten Times Before Investing a Penny in India – India has Betrayed Expatriate Indians on all Accounts*, INDIA DAILY, Jan. 9, 2007, www.indiadaily.com/editorial.15086.asp.

¹⁵⁸ STAFFAN BURENSTAM LINDER, AN ESSAY ON TRADE AND TRANSFORMATION, 15, 17 (1961).

¹⁵⁹ J. Humberto Lopez & Guillermo Perry, *Inequality in Latin America: Determinants and Consequences*, 24 (World Bank, Policy Research Working Paper No. 4504, 2008), available at http://www-wds.worldbank.org/external/default/WDSCContentServer/IW3P/IB/2008/02/01/000158349_20080201123241/Rendered/INDEX/wps4504.txt.

¹⁶⁰ See INFOCHANGE, HEALTHCARE DENIED: VOICES OF THE PEOPLE, (June 2005) www.infochangeindia.org/agenda2_18.jsp.

With little overlap in market demands, as India upgrades its rural health care system it is likely to produce services of little value to the United States. In short, a long run Ricardian analysis suggests that India's capacity to export telemedicine to the United States is limited.

b. Heckscher-Ohlin Theory

Analyzing trade-in telemedicine using a Ricardian model may provide misleading results. First, Ricardo assumed productivity was dependant only on labor.¹⁶¹ While this assumption is questionably valid for IITS (because production is dependant on labor and language skill),¹⁶² it is even less valid for capital intensive forms of telemedicine (where productivity is dependent on labor, ability to attract capital, and language skills).¹⁶³ Second, Ricardo's model assumes that labor's productivity varied in different countries due to the variable diffusion of technology.¹⁶⁴ Again, in a global telemedicine market, this assumption is likely to be invalid because all providers will be using the same technology.

In contrast, the Heckscher-Ohlin (H-O) model for international trade is more realistic because it allows productivity to depend on mul-

¹⁶¹ Roger A. McCain, Other Resources, <http://william-king.www.drexel.edu/top/Prin/txt/trade/qual2.html> (last visited Sept. 26, 2008) ("modern economics recognizes that there are at least 3 'factors of production'").

¹⁶² John F. Bruzzi, *Language Skills are a Prerequisite to Providing Medical Services*, 354 NEW ENG. J. MED. 665, 665-67 (2006). Unlike trade-in-goods, trade-in-services is language-dependant. See ORG. ECON. COOP. & DEV., IS CHINA THE NEW CENTRE FOR OFFSHORING OF IT AND ICT-ENABLED SERVICES? 4 (2007), [http://www.oecd.org/olis/2006doc.nsf/7b20c1f93939d029c125685d005300b1/ce5d0a3965047d58c12572ad004a0a19/\\$FILE/JT03225043.PDF](http://www.oecd.org/olis/2006doc.nsf/7b20c1f93939d029c125685d005300b1/ce5d0a3965047d58c12572ad004a0a19/$FILE/JT03225043.PDF).

¹⁶³ See *supra*, pt. I.B.3 (Cybersurgery is capital-intensive). In the modern world capital moves almost effortless at the push of a button. See RAYMOD W. WAKER, CAPITALISM'S ACHILLES HEEL: DIRTY MONEY AND HOW TO RENEW THE FREE-MARKET SYSTEM 44-46 (2005); DAVID CAY JOHNSTON, PERFECTLY LEGAL: THE COVERT CAMPAIGN TO RIG OUR TAX SYSTEM TO BENEFIT THE SUPER RICH—AND CHEAT EVERYONE ELSE (2003). Thus, when a country develops a capital-intensive industry, the country's individual wealth is less important than its industry's ability to attract capital. See Michael Hennigan, *Ireland's Celtic Tiger 2005: Built to Last or on a Foundation of Quicksand?*, FINFACTS, Dec. 6, 2005, http://www.finfacts.com/irelandbusinessnews/publish/article_10004162.shtml (Ireland outsourcing economy exploded and began to take work away from India—not because of better language skills-but rather because Ireland changed its tax code to make it more attractive to investors). For this reason the modifier "capital-intensive" in reference to cybersurgery is being replaced in this section by the phrase "ability to attract capital."

¹⁶⁴ Thomas M. Steger, Professor, Dep't Econ. at University of Leipzig, Lecture 6, § 7: Differences in Technology (Ricardo Model), available at http://www.cer.ethz.ch/resec/people/tsteger/Class_6.pdf (last visited Sept. 26, 2008).

multiple factors.¹⁶⁵ According to the H-O theory, a country will have a comparative advantage if it exports services made from factors it has in relative abundance.¹⁶⁶ Production of cybersurgery depends on at least two factors (1) labor/language and (2) the ability to attract capital.¹⁶⁷ In order to determine whether (someday) America should fear the India price in cybersurgery, it is necessary to determine whether India has a comparative advantage with respect to labor/language and/or the ability to attract capital.¹⁶⁸

India and the United States each have approximately 800,000 physicians.¹⁶⁹ However, only one-third of India's physicians (200,000 MDs) have some English language skills.¹⁷⁰ On a *per capita* basis India has one-twelfth as many English-speaking physicians as the United States.¹⁷¹ Accordingly, India is unlikely to have an abundance of English-speaking cybersurgeons (or even IITS providers).¹⁷² Nor is it likely that India, when compared to the United States, will have a surplus capacity to attract capital to develop cybersurgery. In general, ability to at-

¹⁶⁵ STEVEN M. SURANOVIC, *The Heckscher-Ohlin (Factor Proportions) Model Overview*, in INTERNATIONAL TRADE THEORY AND POLICY (2006), <http://internationalecon.com/Trade/Tch60/T60-0.php>.

¹⁶⁶ *Id.* Said another way, when a country has a surplus of factors it is in a better position to undercut the prices of its foreign competitors. *Id.*

¹⁶⁷ Here the factor-analysis for telemedicine is being simplified so that the labor and language skills, which are distinct, are considered to be one factor. McLean & McLean, *Global Trade*, *supra* note 18.

¹⁶⁸ In applying H-O analysis to trade-in-IITS, we have previously shown that India is unlikely to have a comparative advantage in this market because of shortage of English-speaking providers. McLean & McLean, *Global Trade*, *supra* note 18.

¹⁶⁹ Dennis Cauchon, *Medical miscalculation creates doctor shortage*, USA TODAY, Mar. 2, 2005, at A1, available at http://www.usatoday.com/news/health/2005-03-02-doctor-shortage_x.htm; *Fact and Stats*, in PBS FRONTLINE/WORLD: INDIA—THE SEX WORKERS (PBS television June 2004), <http://www.pbs.org/frontlineworld/stories/india304/facts.html>.

¹⁷⁰ Prabhudev Konana, *The Healthcare Tourism Conundrum*, THE HINDU, Nov. 24, 2006, available at <http://www.hinduonnet.com/2006/11/24/stories/2006112402361000.htm>.

¹⁷¹ India has roughly four times the population of the United States. The population of India is 1,147,995,904 (July 2008 est.)(India, CIA World Fact Book; <https://www.cia.gov/library/publications/the-world-factbook/print/in.html>), while the population of the United States is 303,824,640 (July 2008 est.)(United States, CIA World Fact Book; <https://www.cia.gov/library/publications/the-world-factbook/geos/us.html>).

¹⁷² Similarly, even if all of India's 5,500 radiologists were fluent in English, it is unlikely that they would have an H-O comparative advantage over the 27,000 radiologists in the American market. Frank Levy F and Kyoung-Hee Yu, *Offshoring Radiology Services to India*, 14 (Indus. Performance Ctr., Mass. Inst. Tech. Working Paper Series, September 2006), available at <http://web.mit.edu/ipc/publications/pdf/06-005.pdf>.

tract capital is dependant upon prior experience in a market.¹⁷³ Thus far, the United States, Canada, and France all have made forays into developing their cybersurgery markets while India has not.¹⁷⁴ This suggests that if a venture capitalist were interested in investing in a cybersurgery project, the venture capitalist would be more likely to invest in existing projects in the United States, Canada, and France. Relative to the United States, India's lack of an abundance of labor/language and ability to attract capital suggests it is unlikely India has a comparative advantage in cybersurgery.

The longer India waits to get into the cybersurgery market the less likely it will be able to attract capital as more money will flow to countries with existing cybersurgery programs. On the other hand, India needs to improve its rural health care system today if it wishes to avoid social unrest. India's need to provide care to its masses arguably means that India has to develop its primary care markets more than it needs to develop its high-tech robotic surgery market. Accordingly, it seems unlikely that India will be attracting capital to develop its cybersurgery market any time soon.

5. TRADE THEORY IMPLICATIONS

Absent a comparative advantage under the Ricardian or H-O theories of trade, it does not appear that India will dominate the telemedicine market the same way China has dominated the manufacturing market. Recognition that the world does not need to fear the India price for telemedical services has implications for India, the English-Speaking Countries of the Southern Hemisphere (ESCSH),¹⁷⁵ and the United States.

In entering the outsourcing market for medical services, India needs to be mindful of its long-term economic interests. For many reasons, 10 percent of India's physician workforce annually migrates to the United States. In the short-term, India's exportation of telemedicine

¹⁷³ See George Rodriguez, *Can Your Small Business Attract Venture Capital Financing?* POWERHOMEBIZ.COM, <http://www.powerhomebiz.com/vol14/vc.htm> (last visited Sept. 26, 2008).

¹⁷⁴ Whereas a French team performed the first cybersurgery operation in 2001, India did not even use a robotic instrument until August of 2006. See Thomas R. McLean, *Automatic Cybersurgery: Innovation or a Means to Close Community Hospitals and Displace Physicians?*, 20 J. MARSHALL J. COMPUTER & INFO. L. 495 (2002); India did not even have a robotic instrument until August 2006. AIIMS Performs First Robotic Surgery in Asia, <http://www.expresshealthcaremgmt.com/200608/innews02.shtml> (last visited Aug. 23 2007).

¹⁷⁵ In particular: Australia, New Zealand, and South Africa.

could have a salutary effect on its physician immigration pattern. As domestic physicians' wages increase, India will find it easier to retain its physician workforce. Telemedicine has already improved practice opportunities in India to a point where some ex-patriot Indian physicians are returning home.¹⁷⁶ Therefore, India will have to weigh these short-term benefits against the long-term potential for social unrest if it fails to provide better health care for its own citizens.

For the ESCSH, exportation of telemedical services offers potential benefits similar to India but with less downside risk. Again, raising wages caused by exportation of telemedicine services would make it easier for the ESCSH countries to attract and retain physicians. However, it is unlikely that physicians' wages in ESCSH would rise to the level of physicians' wages in the United States because the citizens of these countries could no longer afford to purchase health care for their local providers. This observation suggests that ESCSH could price their telemedicine services at a discount to medical services purchased in the United States where the cost of physician labor would be higher. Given that ESCSH telemedicine providers would not have to face a language barrier when doing business with the United States, these countries are likely to have a greater H-O comparative advantage than India. Moreover, the opportunity costs associated with exportation of telemedicine to the United States would be expected to be less than India's opportunity cost because ESCSH have more highly developed health care systems that would not need to siphon capital from other sectors of their economies. That is, in aggregate, the ESCSH may someday become the major exporters of telemedicine services to the United States.

Thus far, the ESCSH have shown little interest in exporting cost-effective telemedicine services. Australia exports telemedical services largely under the Nighthawk model which provides it with no net increase in Australian jobs and does not result in lower prices for United States consumers.¹⁷⁷ In contrast, South Africa's telemedicine capabilities are approximately the same as India¹⁷⁸ and New Zealand has actually be-

¹⁷⁶ Amy Waldman, *Indians Go Home, But Don't Leave the U.S. Behind*, N.Y. TIMES, July 24, 2004, at A-1. (Dr. Arjun Kalyanpur, a U.S.-trained and-credentialed radiologist, returned home to India to establish Teleradiology Solutions Inc, which exports teleradiology services to the United States).

¹⁷⁷ This is because Australia exports telemedicine under the Nighthawk model. *See supra*, pt. I.B.2.

¹⁷⁸ *See* GOV'T COMM'C'N AND INFO. SERV., *Health*, in POCKET GUIDE TO SOUTH AFRICA (2006-2007), available at http://www.gcis.gov.za/docs/publications/pocketguide/2006/026_health.pdf.

gun to import teleradiology services from Indian providers.¹⁷⁹ New Zealand's decision to import teleradiology service is interesting because New Zealand, perhaps more than any other country, knows first hand the disadvantages of allowing its health care system to become dependant on another country.¹⁸⁰

For the United States, India's lack of a comparative advantage means that the United State's health care market should not live in fear of the India price. Notwithstanding the American College of Radiology's implied assertion that Indian telemedicine providers have an unfair advantage, it has been estimated that as few as fifteen English-speaking radiologists comprise India's entire market for exporting teleradiology to the United States.¹⁸¹ Rather, America should weigh the interests of its health care providers against the benefits of purchasing more of its health care from abroad. Importing telemedical services from ESCSH, India, and other countries would tend to (1) drive down the price of domestic health care services and (2) improve access to affordable health care.¹⁸² These benefits would reduce the percentage of GDP that the United States spends on health care, thereby allowing the United States to commit more of its GDP to perfecting newer technologies, including cybersurgery.

Developing cybersurgery is important because it may be a method to create new health care jobs. Growth of the American cybersurgery market may some day allow the United States to export cybersurgery to a country that cannot attract the capital to develop a market for robotic surgery.¹⁸³ By using a discriminatory pricing system, the price of American made cybersurgery could be set at a level that was affordable to the average person in Bangalore, Wellington, or Johannesburg.¹⁸⁴ This would allow American cybersurgery providers to maximize their profits in the same manner the pharmaceutical industry maximizes its profits to-

¹⁷⁹ *Night-hawking x-rays 'risky,'* HAWKE'S BAY TODAY, Feb. 9, 2006 (on file with author) available at http://www.hawkesbaydhb.govt.nz/web_content.asp?ID=100006203 (last visited Nov. 11, 2007). cf. Hawke's Bay Dist. Health Bd., *Hawke's Bay's Teleradiology Service is Safe*, Sept. 1, 2006, http://www.hawkesbaydhb.govt.nz/web_content.asp?ID=100006203.

¹⁸⁰ Catherine Masters, *The Politics of Selling Drugs*, NZ HERALD, July 21, 2007, available at http://www.nzherald.co.nz/category/story.cfm?c_id=278&objectid=10452818.

¹⁸¹ Levy and Yu, *supra* note 172, at 3.

¹⁸² See the discussion of Ricardian and H-O theories, *supra* this section.

¹⁸³ I, like many surgeons, find robotic surgical instruments to be superior to standard instruments. McLean, *Crossing the Quality Chasm*, *supra* note 38.

¹⁸⁴ See *supra*, pt. I.B.3.

day.¹⁸⁵ Outsourcing some IITS services to India, ESCSH, or other countries would decrease some of the existing physicians' jobs. However, the loss of these jobs needs to be offset by jobs that are gained from telemedical technology.

In a more general sense, the Indian model for telemedicine may also impact the American health care market indirectly through medical tourism and/or by stimulating a black market. As noted previously, the medical tourism market has the potential to lure large numbers of Americans to purchase elective surgery overseas.¹⁸⁶ As radiographic imaging is routinely performed after certain operations, some medical tourism providers may elect to subcontract this work to Indian teleradiologists. How much health care service may be lost to medical tourism is unclear, but patient willingness to purchase convenient affordable health care from foreigners portends the rise of health care delivery from unlicensed foreign providers using the Indian model. In order to understand why patients and hospitals would purchase health care services from unlicensed providers, it would be instructive to review the Mydoc.com business model.

II. A BLACK MARKET IN TELEMEDICAL SERVICES

Owned by Roche Pharmaceuticals, Mydoc.com provided a platform for patients to purchase health care services from a group of Indiana based board certified internists.¹⁸⁷ Mydoc.com offered patients convenience: It was open twenty-four hours a day and patients did not need time off work to visit the online clinic. Like pharmacy clinics,¹⁸⁸ Mydoc.com did not make patients wait hours to be evaluated. For these conveniences, patients were willingly to use out-of-pocket dollars to cover the small consultation fee.¹⁸⁹ For Roche, the website was a money maker.¹⁹⁰ Just as pharmacy clinics steer patients to their pharmacy counters, Mydoc.com steered patients to Roche's pharmaceutical products. In fact,

¹⁸⁵ Exporting cybersurgery would also potentially create legal jobs to deal with the complexity of international transactions, which frequently fall apart. See Peter Wonacott and Eric Bellman, *Foreign Firms Find Rough Passage to India*, WALL STREET J., Feb. 1, 2007, at A6.

¹⁸⁶ See generally this section.

¹⁸⁷ Illinois Dep't of Prof'l Regulation v. Mydoc.com, No. 200202945-1 (Oct. 16, 2002)(on file with author).

¹⁸⁸ See Milstein & Smith, *supra* note 30.

¹⁸⁹ See *MyDoc Offers Indiana Residents Quick, Reliable Treatment for Cold and Flu*, BUS. WIRE (Feb. 5, 2003), available at http://findarticles.com/p/articles/mi_m0EIN/is_2003_Feb_6/ai_97307319.

¹⁹⁰ McLean and McLean, *Black Market*, *supra* note 8, at 293.

the reason Mydoc.com charged patients only a small consultation fee was that the profits from Roche's pharmaceuticals sales were so good that Roche could afford to defray some of the internists' professional fees.¹⁹¹ Unfortunately for Roche, Mydoc.com's success was its own down fall. By attracting a significant number of patients, the practices of several Illinois physicians were negatively impacted. These physicians filed a complaint alleging that Indiana internists were practicing medicine in Illinois without a license.¹⁹² Ultimately, an Illinois court ordered Roche to shut down the website.¹⁹³

The important legal-economic point behind Mydoc.com is that the patients did not complain. To the contrary, Mydoc.com was wildly popular with patients whose new purchasing paradigm stresses convenient cost-effective health care over the provider's licensure status.¹⁹⁴ Therefore, if patients are willing to buy health care services from foreign providers in the medical tourism market, there is no reason to believe that patients will not purchase health care services from foreign providers in the more convenient global telemedicine market. Absent the effective mechanism to protect the domestic health care market from foreign competition, patients—especially those who are uninsured or underinsured—are likely to use their keyboards to purchase health care from abroad.

The combination of an Indian model telemedical delivery system with the Mydoc.com business model is so powerful that it is hard not to imagine non-medical Fortune 500 companies entering the global health care market. Federal Express, for example, could hire physicians in Bangalore to operate a telemedical website. These physicians would listen to patients' histories and perform limited examinations via a web video camera.¹⁹⁵ After making a diagnosis, the doctor would write a prescription and charge the patient one-tenth of what an American physician would charge. The Indian physicians would be happy because they would operate at a higher volume. The American patient would be happy because they would spend less out-of-pocket HSA funds and avoid

¹⁹¹ See *Id.* Pharmacy clinics operate on much of the same principles. Michael Johnsen, *Retail Clinics Offer Industry New Growth Opportunity*, DRUGSTORE NEWS, Fall 2006, available at <http://www.drugstorenews-digital.com/drugstorenews/200611/?pg=8> (observing that 90% of patients who get their prescriptions from pharmacy nurse practitioners have the prescription filled at the same store).

¹⁹² *Mydoc.com*, *supra* note 187.

¹⁹³ See Ill. Dep't. Prof'l. Regulations, News, available at http://www.idfpr.com/dpr/news/discpln/0210_dis.pdf; Bhatnagar, *supra* note 155.

¹⁹⁴ McLean and McLean, *Black Market*, *supra* note 8, at 292.

¹⁹⁵ Such cameras are now affordable by most people who own a computer.

having to wait to see a doctor. Federal Express would also be pleased because it would make money delivering the needed medication¹⁹⁶ to the patient by the next morning.¹⁹⁷

Interestingly, non-medical Fortune 500 companies may also contribute to the development of a telemedical black market in other ways. Recall that many manufacturers are jettisoning their traditional deductible health insurance employee benefit in favor of HSA/HDMI. Thus far, the tax benefits of HSAs are not limited to American made health care services. Under the existing rules, HSA-dollars can be spent in the medical tourism market and receive full HSA tax benefits.¹⁹⁸ Since the travel aspect of medical tourism is not for “purely personal reasons,” medical tourists can spend HSA funds to cover travel expenses without accruing a tax penalty.¹⁹⁹ If HSA-dollars can be used to purchase health care from foreign providers in the medical tourism market, it seems reasonable that patients should be able to use HSA-dollars to purchase health care from foreign providers in the global telemedicine market where transportation expenses are nonexistent.²⁰⁰

Some might argue that patients will not purchase routine health care from foreign telemedicine providers because there is no assurance that their provider is a physician.²⁰¹ Clearly the potential exists in telemedicine for “ghosting” (i.e., where some one other than a licensed doc-

¹⁹⁶ Perhaps Fed Ex might even consider purchasing the drugs in Canada, where they can be frequently be purchased for less money than in the United States.

¹⁹⁷ Posting of Tom R. Mclean in response to Uwe. E. Reinhardt, *Insurance: A Closer Look at HSAs*, Health Affairs Blog, <http://www.healthaffairs.org/blog/2007/04/12/insurance-a-closer-look-at-hsas/> (Apr. 25, 2007, 18:25 EST) (I confess that when I sent this business idea to Federal Express, I received no response).

¹⁹⁸ Wiley P. Long, *Using Your Health Savings Account to Pay for International Travel*, Take Care of Yourself Blog, <http://takecareyourself.blogspot.com/2007/07/using-your-health-savings-account-to.html> (2007). Mr. Long is the “President, HAS for America (<http://www.health-savings-accounts.com>)—The nation’s leading independent health insurance firm specializing in individual and family coverage that works with a Health Savings Account.” *Id. Cf. id.* Medicare funds may not be transferred to foreign providers.

¹⁹⁹ Long, *supra* note 198.

²⁰⁰ Here we see an important reason why America will be compelled to move to a system of universal health care. If we do not provide universal health care, patients may be outsourcing large volumes of routine health care to foreign telemedicine providers without anyone knowing. We will momentarily see a set of conditions explaining why simply restricting HSA and Medicare funds may not protect the American health care market from foreign competition.

²⁰¹ As used here, “routine health care” is used loosely. I am specifically referring to a situation where there is one patient/one problem where the likelihood of an adverse outcome is very low. Examples of such care include prescribing antibiotics for a 10-year old with pharyngitis (sore throat); and adjusting a diabetic patients’ insulin doses. See McLean, *Offshoring*, *supra* note 1.

tor actually provides the service).²⁰² Recall, however, that in medical tourism, patients do not care about a provider's nationality; and in pharmacy clinics American patients do not care that their provider is a physician.²⁰³ The experience of Mydoc.com suggests that patients do not care whether their provider is properly licensed. Collectively, these observations strongly suggest that patients would willingly and knowingly purchase health care from a foreign unlicensed telemedical nurse practitioner if the services were priced right.

III. REGULATION OF THE MEDICAL MARKET

The issue that we must now address is "how should the United States—or any country for that matter—protect its citizens from black market telemedical transactions"? More generally, how can a country protect and regulate its domestic health care market where medical tourism and telemedicine are increasingly becoming routine health care services?²⁰⁴ The answer to both questions depends upon whether or not what is being regulated is medical tourism or telemedicine market. In the medical tourism market the answer is easy: Assuming a commitment to free trade has not been made,²⁰⁵ the medical tourism market is to be regulated according to the laws of the country where the service is rendered.²⁰⁶ Thus, the country rendering health care may police its health care market with licensure schemes and protect its domestic market from foreign competition with trade barriers. On the other hand, regardless of a free trade agreement, regulating the global telemedicine market will be

²⁰² See McLean and McLean, *Black Market*, *supra* note 8, at 294. The term "ghosting" comes from the radiology literature. It specifically refers to the situation where a radiology interpretation is provided by someone other than the undersigned physician. *Id.* More generally, ghosting in health care can be thought of as a "bait-and-switch" scheme.

²⁰³ See *supra*, pt. I.1.

²⁰⁴ Market regulations are contemplated narrowly here; as issues concerning medical malpractice liability which impact health care markets are beyond the scope of this article. See generally Marie Bismark & Thomas R. McLean, *Transoceanic Medicine: A New Frontier for Arbitration*, 9 ADR BULL. 41, 41-43 (2006); Marie Bismark and Thomas R. McLean, *Time for Australia to reconsider the Advantage of No-Fault Compensation for Medical Injuries?* 2(9) AUSTRALIAN CIVIL LITIGATION, 3, 3-5 (2006); Thomas R. McLean, *Cybersurgery—An Argument for Enterprise Liability*, 23 J. LEGAL MED. 167 (2002); McLean, *supra* note 81. This is not the right McLean.

²⁰⁵ See *infra*, next section.

²⁰⁶ I have never seen an opinion to suggest the contrary. However, a Google search of the Internet on August 12, 2007 identified many websites for medical tourism providers and brokers that contained sample patient contracts. These contracts included "choice of law" clauses which formalized the selection of the rendering countries laws.

more difficult because licensure and trade barriers are likely to be ineffective.

A. LICENSURE

Historically, the United States has policed its health care market through the use of a state medical licensure system.²⁰⁷ As recently as 2000, the Supreme Court reaffirmed this principle,²⁰⁸ which allows states to use licensure to regulate the quality of medical care within their boundaries according to their fiscal resources and the needs of their populace.²⁰⁹ Absent a medical license, a physician cannot legally practice medicine within a state's geographic jurisdiction.²¹⁰ Unfortunately, regulating medicine according geographic boundaries does not work well in the borderless global market for telemedicine.²¹¹ When a state attempts to use its licensure system to regulate telemedical transactions a number of novel legal issues arise.²¹² First, international law comes into play. The purpose of international law is to facilitate trade. Accordingly, international law views licensure schemes that attempt to circumscribe trade as an anathema.²¹³ Second, as Professor John Blum has observed, it is unsettled whether international law grants the United States jurisdic-

²⁰⁷ Edward P. Richards, *The Police Power and the Regulation of Medical Practice: A Historical Review and Guide for Medical Licensing Board Regulation of Physicians in ERISA-Qualified Managed Care Organizations*, 8 ANNALS HEALTH L. 201, 208-209 (1999).

²⁰⁸ See *Pegram v. Herdrich*, 530 U.S. 211 (2000).

²⁰⁹ Thomas R. McLean, *EP Richards: Managed Care Liability for Breach of Fiduciary Duty after Pegram v. Herdrich: The End of ERISA Preemption for State Law Liability for Medical Care Decision-Making*, 52 U. FLA. L. REV. 1 (2001).

²¹⁰ For simplicity, this article discusses only the licensure of physicians. Hospitals have their own licensure / approval requirements: e.g., Certificate of Need. However, the use of licensure to regulate hospitals is beyond the scope of this article.

²¹¹ See National Conference of State Legislatures, *Telemedicine Legislation*, (2004); *Telemedicine, Telehealth, and Health Information Technology: An ATA Issue Paper May, 2006* available at http://www.americantelemed.org/files/public/policy/HIT_Paper.pdf; Pam Bringer and Melissa McGinley, *Telepractice and Professional Licensing: A Guide for Legislators* (1989), www.clearhq.org/teleguide.htm.

²¹² Herein it is assumed that Dormant Commerce Clause prevents any one state from regulating telemedicine. *Quintiles Transnational v. WebMD*, 5:01 CV 180 BO(3) (E.D.N.C.); UAS Beth L. Rubin, *Quintiles Transnational v. WebMD: The Dominant Commerce Clause Applied to State Privacy Laws*, 2 Dechert Privacy and the Law 10 (2001); <http://www.dechert.com/library/Privacy%206-01.PDF> (accessed 23 August 2007); UAS Vonage v. Minnesota Public Utility Commission, 394 F.3d 568 (8th Cir. 2004) (*State Public Utility Commission has no authority over a Voice-over-Internet Protocol provider as the latter does more than a traditional phone company*).

²¹³ See John D. Blum, *The Role of Law in Global E-Health: A Tool for Development and Equity in a Digitally Divided World*, 46 ST. LOUIS U. L.J. 85, 109 (2002).

tion over offshore providers.²¹⁴ This vortex of ambiguity concerning international law and telemedical market regulation is likely to persist until the volume of trade-in telemedicine becomes substantial enough to attract global attention.²¹⁵

1. INTERNATIONAL LAW

No international agreements exist concerning telemedicine.²¹⁶ To the extent that telemedicine is covered in international agreements,²¹⁷ it is usually covered collaterally when issues of confidentiality, intellectual property, and telecommunication standards are raised.²¹⁸ An important exception to this general rule is the General Agreement on Trade in Services (GATS),²¹⁹ which is the controlling document for the World Trade Organization (WTO).²²⁰ The scope of GATS covers health care services and GATS, when applicable,²²¹ is designed to remove impediments to trade-in services, like the onerous licensure requirements and trade barriers.²²²

Whether GATS is applicable to a particular market depends upon the delivery mode and whether a country has committed a particular sector of its economy to free trade. GATS views services as being

²¹⁴ See *id.* at 89. See also Leah B. Mendelsohn, *A Piece of the Puzzle: Telemedicine as an Instrument to Facilitate the Improvement of Healthcare in Developing Countries?*, 18 EMORY INT'L L. REV. 151, 153 (2004) (discussing the issues related to lack of physical boundaries and jurisdiction); David R. Johnson and David Post, *Surveying Law and Borders: The Rise of Law in Cyberspace*, 48 STAN. L. REV. 1367 (1996).

²¹⁵ Blum, *supra* note 213; McLean, *The Future of Telemedicine*, *supra* note 4.

²¹⁶ Mendelsohn, *supra* note 214, at 153.

²¹⁷ Trade treaties concerning the telecommunication industry (including some part of GATS – specifically the 1997 Telecommunication Annex and the North American Free Trade Agreement) are relevant here, but are beyond the scope of this article.

²¹⁸ Edward M. Zimmerman, Lauren M. Hollender & Mikeisha T. Anderson, *Telemedicine is Redefining the Delivery of Health Care Services: The Delivery of Health Care Services over the Internet has had Legal Implications in the Areas of Medical Licensure, Confidentiality and Malpractice*, in THE HEALTH CARE E-COMMERCE REVOLUTION: LEGAL, FINANCIAL & REGULATORY STRATEGIES 65, 71 (Edward S. Kornreich, chair, 2001).

²¹⁹ General Agreement on Trade in Services, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1B, Legal Instruments – Uruguay Round, 33 I.L.M. 1167 (1994), available at http://www.wto.org/english/docs_e/legal_e/26-gats.doc [hereafter “GATS”].

²²⁰ General Agreement Establishing the Multilateral Trade Organization [World Trade Organization] pmbl., 33 I.L.M. 15 (1994); World Trade Organization, <http://www.wto.org> (last visited Sept. 27, 2008);

²²¹ GATS, *supra* note 219, art. I (“‘services’ includes any service in any sector except services supplied in the exercise of governmental authority”).

²²² GATS, *supra* note 219, at pmbl. and art. XIX-XXI.

delivered by one of four methods or modes.²²³ Mode I transactions occur when services and capital flow freely and bidirectionally across an international border; Telemedicine falls in to this category.²²⁴ A characteristic of Mode I services is “the absences of a regulatory framework” for insurance (including medical malpractice), confidentiality and payment.²²⁵ Considering that the e-health Mode I transactions are already a multiple-billion dollar industry, the paucity of regulation of this market is interesting.²²⁶

In contrast, a Mode II transaction occurs when a service is consumed while a person is abroad. Thus, this mode covers medical tourism. Mode III services are the converse of Mode II; Under Mode III delivery, rather than having the consumer traveling to receive a service, a supplier sets up a commercial presence in a foreign country. Mayo Clinic’s opening of an office in Dubai is an example of health care delivered by Mode III.²²⁷ To date, when a WTO member makes a commitment to free trade in health care it has generally been limited to Mode III services.²²⁸ Mode IV services are delivered by the movement of natural persons, which in health care means services provided by physician immigration.²²⁹

After a service mode is selected, unless a country has made a commitment, GATS does not attach. Countries make free trade commitments for many reasons. In some cases a country makes a commit-

²²³ GATS, *supra* note 219, art. I.2.

²²⁴ See JIM GREISHABER-OTTO AND SCOTT SINCLAIR, *BAD MEDICINE: TRADE TREATIES, PRIVATIZATION AND HEALTH CARE REFORM IN CANADA*, 117 (2004), available at http://policyalternatives.ca/documents/National_Office_Pubs/bad_medicine.pdf [hereafter “BAD MED”]; Matthew Yeo, *Distance Health under the General Agreement of Trade in Services*, 35 J. HEALTH L. 83, 93 (2002).

²²⁵ McLean, *Future of Telemedicine*, *supra* note 4, at 486.

²²⁶ The size of a single contract for telemedical services can be staggering. For example, the UK’s NHS 10-year contract for electronic medical records management was deemed to be worth £5.5 billion. BAD MED, *supra* note 224, at 102. See also Howard Ries, Presentation at the 13th Annual Meeting of the American Telemedical Association: Telemedicine after Dark: a \$1 billion business (Apr. 8, 2008), available at <http://www.americantelemed.org/conf/2008/Presentations/451.pdf> (observing that international teleradiology services alone has already become a billion dollar market).

²²⁷ Debra J. Lipson, *GATS and Trade in Health Insurance Services Background Note for WHO Commission on Macroeconomics and Health 4* (Comm’n on Macroeconomics and Health Working Paper Series) (2001), <http://www.icrier.org/pdf/Debra.pdf>.

²²⁸ See Ian S. Mutchnick, David T. Stern, & Cheryl A. Moyer, *Trading Health Services Across Borders: GATS, Markets, and Caveats*, HEALTH AFF.(WEB EXCLUSIVE) w5-42 (2005), <http://content.healthaffairs.org/cgi/reprint/hlthaff.w5.42v1>.

²²⁹ Line drawing between modes can become complicated quickly. For example Indian model telemedicine is a mode I delivered health care service; but an argument can be made that the Night-hawk model telemedicine is really a special case of mode IV physician immigration.

ment believing it will be better off in the long run. In other cases countries make a commitment to free trade only after they have leverage (e.g., by being granted debt cancellation).²³⁰ Thus far, about half of the WTO member nations have committed some aspects of their health and dental sectors.²³¹

A commitment is a sector and mode specific schedule “made by individual countries allowing specific foreign products or service providers access to their markets.”²³² By making a commitment, a WTO member creates a legally enforceable guarantee that its sector is stable with respect to market conditions; and that its sector is not a target for further regulations that would undermine an investor’s interests.²³³ After a WTO member commits a sector of its economy to free trade, the country is obligated to economically administer that sector with (1) “reasonable, objective, and impartial manner”; (2) provide “adequate procedures to verify the competence of professional or any other member”; and (3) any further regulations should be made to conform to “common international standards” for services.²³⁴

Once a country makes a commitment to free trade, all of GATS’ rules come into play. The general structure of GATS is that of a “top-down” treaty; meaning that, unless a country makes a specific reservation, all aspects of GATS are applicable to that sector and mode of delivery.²³⁵ Under GATS, after a commitment is made, countries are also expected to progressively remove any barriers to trade for that mode and sector of service.²³⁶ The importance of GATS trade liberalizing provisions becomes clear when it is juxtaposed with the domestic restrictions clause, which states that any licensing, certification and technical stan-

²³⁰ NOREENA HERTZ, *THE DEBT THREAT: HOW DEBT IS DESTROYING THE DEVELOPING WORLD . . . AND THREATENING US ALL* 71, 101-05 (1st ed. 2004).

²³¹ Faust, *supra* note 4, at 486.

²³² World Trade Organization, *Overview: A Navigational Guide*, http://www.wto.org/english/thewto_e/whatis_e/tif_e/agrm1_e.htm (last visited Sept. 27, 2008). Thus, if a country committed its health care sectors to free trade for mode II transactions (medical tourism) without more it has not committed its health care sector to free trade for mode I transactions (telemedicine).

²³³ Lipson, *supra* note 227, at 3.

²³⁴ GATS, *supra* note 219, art. VI.

²³⁵ BAD MED, *supra* note 224, at 23. However, some caveats exist: under GATS there are several bottom up-clauses, which apply only to specific industries. *Id.* GATS also contains mechanisms for opting out certain clauses so that a country does have the ability to protect certain industries within a committed sector. *Id.* A detailed discussion of such strategies is beyond the scope of this paper. A detailed discussion of such strategies is beyond the scope of this paper.

²³⁶ GATS, *supra* note 219, at pt. IV.

dards imposed by a nation on a particular sector must not be “more burdensome than necessary to ensure the quality of the service.”²³⁷

GATS recognizes that WTO members have a right to police their economies.²³⁸ However, GATS’ mandate that regulation is to be “as least restrictive as possible,” meaning that after making a commitment there is a limit to how tightly a nation can regulate the market. Thus, if a country were to commit its health care service to free trade, the domestic restriction clause would undermine the use of regulations that mandate the use of “any-willing-providers” laws and payment restrictions laws.²³⁹ Conceptually, the domestic restriction clause even limits the ability of a country to discipline its own market providers to the use of fines and/or adverse publicity.²⁴⁰ It is possible that after a country has made a commitment to health care, that country could no longer suspend or revoke the medical licenses of its providers.

Other GATS clauses impacting health care markets include the Most Favored Nation (MFN), National Treatment (NT), Public Monopolies, and State Enterprises clauses.²⁴¹ The MFN and NT clauses work in combination to prohibit trade discrimination based on nationality.²⁴² The MFN clause is a “favor one, favor all” clause that requires WTO members to give the best trade-in service terms offered to one country to all countries.²⁴³ The NT clause requires WTO member to regulate foreign services providers only to the degree that domestic services providers are regulated.²⁴⁴ The MFN and NT clauses apply not only to explicit discrimination based on nationality, but also to seemingly neutrally worded regulations that in actual practice result in discrimination based on nationality. Thus, if the United States were to open its domestic health care market to free telemedical trade with the ESCSH, it would also have to allow free trade with Indian telemedicine providers. If the United States

²³⁷ GATS, *supra* note 219, art. VI.4.(b). GATS’ market regulation clause prohibits WTO members from regulation market by capping: (1) the number of suppliers; (2) the value of transactions; or (3) the number of persons employed in any service. *See id.* art. XVI. This clause is not found in any other multi-lateral treaty. BAD MED, *supra* note 222, at 30.

²³⁸ *See, e.g., GATS, supra* note 219 art. XIV (noting that nothing in this treaty is to be used to prevent a member country from adopting or enforcing necessary measures “to protect human, animal or plant life or health”); *cf. Lipson, supra* note 225, at 3 (observing that the use of the health-exception clause to regulate the medical sector of a nation economy will be subject to a narrow interpretation of what is “necessary” to protect health).

²³⁹ BAD MED, *supra* note 224, at 31.

²⁴⁰ *Id.*

²⁴¹ *Id.* at 25-27.

²⁴² *Id.* at 25.

²⁴³ *See GATS, supra* note 219, art. II.

²⁴⁴ *Id.* art. XVII.

were to violate the MFN, NT, or any other clause in GATS, crippling trade sanctions could be imposed by the WTO.²⁴⁵

GATS' public monopolies clause prohibits monopolies from abusing their power in sectors outside their monopolies; and requires monopolies to be listed as country specific exemptions to commitments or be eliminated.²⁴⁶ State enterprise raises similar concerns. Under this clause, government may not set up business in a committed sector and then accord these business entities with special privileges.²⁴⁷ If the United States committed its health care sector to free trade, the public monopolies clause could antagonize both the consolidation of the American health care market²⁴⁸ and the activities of the Department of Veterans Affairs (VA).²⁴⁹ For example, because the VA purchases health care as a single entity, it can purchase health care for substantially less than Medicare. Under GATS, the VA could be construed as a monopolistic government enterprise that occasionally exercises market power.²⁵⁰ This, of course, is not allowed. Under GATS, if a nation sets up an abusive governmental enterprise, it must either compensate a foreign service provider for their loss of market share or it must face economic retaliation.²⁵¹ What free trade could mean for the VA remains to be seen.

If the United States committed health care to free trade, collectively GATS' clauses would move the United States towards a national medical licensure system, because it would be the least restrictive way to

²⁴⁵ Trade sanctions can cripple a nation's economy so severely that even the WTO's threat of imposing trade sanctions will cause a country to change its position. See Steve Goldstein, *EU Steel Tariff Retaliation Likely to be Postponed*, MARKETWATCH, Nov. 27, 2003, <http://www.marketwatch.com/news/story/eu-steel-tariff-retaliation-like-ly/story.aspx?guid=%7B0ED3B18E%2D3E02%2D4FB2%2DB482%2D28488B92F674%7D>.

²⁴⁶ GATS, *supra* note 219, art. VIII; BAD MED, *supra* note 224, at 27.

²⁴⁷ GATS, *supra* note 219, art. XVII. As the scope of GATS is limited to commercial services, it is not applicable to essential governmental services. BAD MED, *supra* note 224, at 23-24.

²⁴⁸ Marcus Plescia, Dennis R. Joyner & Teresa L. Scheid, *A Regional Health Care System Partnership with Local Communities to Impact Chronic Disease*, PREVENTING CHRONIC DISEASE (Ctrs. for Disease Control & Prevention, Atlanta, GA), Oct. 2004, http://www.cdc.gov/pcd/issues/2004/oct/pdf/04_0020.pdf.

²⁴⁹ When the government provides health care through the VA, it is not engaging in a governmental activity that would be exempt from GATS.

²⁵⁰ *Senior Citizens Pay More for Drugs Because Congress Refuses to Allow Medicare to Negotiate Like the VA*, SENIOR J., Oct. 12, 2006, <http://seniorjournal.com/NEWS/MedicareDrugCards/6-10-12-SeniorCitizensPayMore.htm>. Cyril T. Zaneski, *VA Buys Drugs Cheaply, Many Veterans Benefit*, BALTIMORE SUN, May 5, 2004, at 1C, available at http://www.pnhp.org/news/2004/may/va_buys_drugs_cheapl.php.

²⁵¹ BAD MED, *supra* note 224, at 27.

regulate its health care market.²⁵² National licensure would have a profound and immediate effect on IITS delivery. Under GATS, the United States could not prevent foreign IITS providers from practicing in America by restricting licensure based on citizenship or the establishment of residence nor could it restrict the transfer of Medicare and HSA funds to foreign providers, as is the current situation.²⁵³ In short, a national licensure system and free trade would mean increased foreign competition in the American health care market.

On the other hand, national licensure would tend to limit the growth of the black market in telemedicine. If the United States found a country harboring large numbers of rogue medical providers, it could lobby the WTO for trade sanctions.²⁵⁴ National licensure would also remove much of the foreign telemedicine providers' incentives to provide black market services. Under the United States' current system of health care market regulation through a matrix of fifty state medical licensure boards—a foreign telemedicine provider may not have the time or money to collect enough state medical licenses to make practicing in the United States cost efficient. However, with a national license, a foreign telemedicine provider would not only have access to every American market but it also would not face the risk of becoming embroiled in an illegal transaction.

Some readers may think that the United States would never commit its health care market to free trade. Such thoughts may merely be wishful thinking. Consumers would benefit from lower priced foreign health care services, just as they have benefited from the lower prices of foreign manufactured automobile and electronics.²⁵⁵ Moreover, if the United States wants to continue to benefit from expanding its capital markets overseas, it may have to open more of its markets to free trade.²⁵⁶

²⁵² After the United States committed gambling to free trade it has found itself having to remove state anti-gambling regulations or face trade sanctions. Jerry Spangler, *Is Gambling Utah-Bound?*, DESERET MORNING NEWS (Salt Lake City), Mar. 26, 2005, available at <http://deseretnews.com/article/1,5143,600121371,00.html>.

²⁵³ See *supra* text accompanying notes 233-38.

²⁵⁴ See *infra* pt. IV (discussing how IP addresses and reverse look-up software technology trace Internet transmissions).

²⁵⁵ Have you ever wondered why the United States and several other countries import about 25% of their physician work force? See Fitzhugh Mullen, *The Metrics of the Physician Brain Drain*, 353 NEW ENG. J. MED. 1810 (2005). Foreign physicians are frequently willing to accept lower paying positions than their American-trained counterparts. So, arguably, we import a large percent of our physician workforce to help hold down physicians' wages, which benefits consumers.

²⁵⁶ See HERTZ, *supra* note 230; cf. Heather Timmons & Katrin Bennhold, *Calls Grow for Foreigners to Have a Say on U.S. Market Rules*, N.Y. TIMES, Aug. 29, 2007, at C1, <http://www.nytimes.com/2007/08/29/business/worldbusiness/29regulate.html?ref=business>

International law attorney Mathew Yeo has observed that it is likely that the United States will have a difficult time exporting its capital markets unless it simplifies or even eliminates the matrix of state law regulations.²⁵⁷

2. LICENSURE ENFORCEMENT. INTERNATIONAL JURISDICTION

Even if GATS never abrogates any state laws or simplifies the federation of medical licensure, America faces a number of legal hurdles in its attempt to enforce its medical licensure laws on foreign black market providers. Three events must occur for an American court to assert jurisdiction over a remote telemedicine provider (1) the foreign provider must be served, (2) the provider must be extradited, and (3) the court must have personal jurisdiction.

a. International Service of Process

In the film *Rush Hour 3*, an American and several Chinese detectives chase a suspect to Paris.²⁵⁸ Immediately after exiting the airplane they are arrested and tortured. Although this movie's scene is offered for its comedic value it does illustrate that enforcement of one nation's laws on foreign soil is fraught with difficulty. As a rule, countries do not appreciate its domestic tranquility being disrupted by foreign agents.

Traditional notions of fairness require that a defendant receive notice from any court planning to assert jurisdiction over that defendant or the defendant's property. In America, statutes exist at the state and federal levels detailing how service of process is to proceed against foreign defendants.²⁵⁹ Massachusetts, for example, requires that foreign defendants are served by legal rogatory²⁶⁰ or a non-binding letter from the state's court to a foreign court requesting a subject to be served.²⁶¹ At the federal level, service of process on an individual in a foreign country is

(suggesting that the ability of the United States to further expand its capital markets may be limited).

²⁵⁷ Yeo, *supra* note 224, at 98-99.

²⁵⁸ RUSH HOUR 3 (New Line Cinema 2007).

²⁵⁹ This discussion assumes that the named defendant does not have a registered agent in the United States, which would greatly facilitate process serving.

²⁶⁰ A rogatory is formal letter by a state court to a court in a foreign jurisdiction requesting that an individual be served. BLACK'S LAW DICTIONARY 924 (8th ed. 2004).

²⁶¹ MASS. GEN. LAWS ch. 223A, § 6(a)(4) (2000).

to be by rogatory or in accordance with international law.²⁶² Regardless of whether service of process occurs under state or federal rules, one must also acknowledge the reality of service of process: unless the service of process concerns a capital criminal offense, a foreign court is unlikely to assist an American court in serving process.²⁶³

b. Extradition

Even when a foreign court does assist in the serving process of one of its citizens, extradition is a formidable hurdle. Again, unless an individual is accused of a capital crime, extradition is unlikely. For instance, not only was Roman Polanski never extradited by the French, he has also managed to remain free long enough to win an Oscar for best director.²⁶⁴ Since violations of medical licensure laws are rarely capital offenses it is unlikely that countries will extradite their physicians. Countries may also refuse to extradite their physicians who export telemedical services because doing so would be contrary to the country's economic policies. For example, India's trade policy is to capture a greater share of the American health care market.²⁶⁵ Therefore, if any Indian telemedicine provider exports millions of dollars of telemedical services, India will view that physician as a patriot. India of course, like many other countries, rarely extradites its patriots.

c. Personal Jurisdiction v. Police Power

Assuming that a foreign telemedical provider is extradited to the United States, there can be no trial unless a court has personal jurisdic-

²⁶² FED. R. CIV. P. 4(f). The Hague Treaty details how service of process on foreign soil is to be pursued. Convention on the Service Abroad of Judicial and Extrajudicial Documents in Civil or Commercial Matters, Nov. 15, 1965, 20 U.S.T. 361, 658 U.N.T.S. 163, available at http://hcch.e-vision.nl/index_en.php?act=conventions.text&cid=17.

²⁶³ The attorneys for the American College of Radiology have opined that in non-capital criminal cases bringing a defendant to justice in the U.S. will be very difficult. See Gerald C Buffo and Sultan Ahmed, International Teleradiology: What Are the Risks?, Physician Insurer, Second Quarter 2005; at 13-16; See Arl Van Moore et al., *Report of the ACR Task Force on International Teleradiology*, 2 J. AM. C. RADIOLOGY 121, 123-24 (2005).

²⁶⁴ See Harriet Ryan, *Polanski Seeks to Have Child Molestation Charges Dropped*, L.A. Times, Dec. 2, 2008, available at <http://latimesblogs.latimes.com/lanow/2008/12/chinatown-and-r.html>. Polanski was convicted of child molestation in the 1970's but fled to the safety of France.

²⁶⁵ See McLean & McLean, *Black Market*, *supra* note 8; McLean & McLean, *Global Trade*, *supra* note 18.

tion.²⁶⁶ Traditionally, a court will determine it has personal jurisdiction over a defendant in civil litigation if the defendant has engaged in purposeful “minimal contacts” within its geographical jurisdiction and if an appropriate long arm statute exists, such that traditional notions of fair play would not be upset by bringing a defendant into the court to answer for alleged wrongdoing.²⁶⁷ The burden of demonstrating both the existence of minimal contacts and appropriate long-arm statute lies with the plaintiff.²⁶⁸ Despite the volume of commerce being transacted in cyberspace, an on point case for determining international personal jurisdiction does not exist,²⁶⁹ although theories for finding minimal contacts in cyberspace are abound.²⁷⁰

Despite the paucity of black letter law on personal jurisdiction in cyberspace, it seems clear that merely operating a website is not enough to create minimum contacts with a forum state.²⁷¹ In addition, minimal contact analysis has been muddled by *Bradley v. Mayo Foundation*;²⁷² a case where international concerns were minimized. Although Mayo

²⁶⁶ Jay Kesan, *Personal Jurisdiction in Cyberspace: Brief Summary of Personal Jurisdiction Law*, LEARNING CYBERLAW IN CYBERSPACE, <http://www.cyberspacelaw.org/kesan/kesan1.html> (last visited Sept. 27, 2008).

²⁶⁷ *Id.* See also *World-Wide Volkswagen Corp. v. Woodson*, 444 U.S. 286, 291 (1980) (affirming that a state court may only exercise personal jurisdiction over a nonresident defendant if there are “minimum contacts” between the defendant and the forum state); *Int’l Shoe Co. v. Washington*, 326 U.S. 310, 316-17 (1945) (due process requires that a defendant have certain minimum contacts within the forum territory so that “traditional notions of fair play and substantial justice” are not offended).

²⁶⁸ *Hoag v. Sweetwater Int’l*, 857 F. Supp. 1420, 1424 (D. Nev. 1994). To simplify this discussion, it is assumed during the rest of this paper that a proper long-arm statute is in effect.

²⁶⁹ See, e.g., Kesan, *supra* note 266; LAWRENCE LESSIG, CODE VERSION 2.0 300-10 (2006) (there has been no founding international constitutional moment resolving a conflict arising from individuals in different jurisdictions living together in an integrated cyberspace).

²⁷⁰ Archie A. Alexander, III, *American Diagnostic Radiology Moves Offshore: Is this Field Riding the “Internet Wave” into a Regulatory Abyss?*, 20 J.L. & HEALTH 199, 204-05 (2007). Alexander provides a nice summary of several legal theories for imposing personal jurisdiction. One of the more interesting concerns teleradiology: the act of interpreting a radiographic image creates a doctor patient relationship. *Id.* at 230-31. As a general rule this is true for malpractice, but may not be applicable to medical licensure. See *infra* text accompanying notes 269-301. Moreover, Alexander’s discussion of personal jurisdiction in cyberspace, like most law review articles, assumes two states, and not two countries, are involved. But cf. McLean, *Offshoring*, *supra* note 1.

²⁷¹ E.g., *Hy Cite Corp. v. Badbusinessbureau.com, L.L.C.*, 297 F. Supp. 2d 1154, 1160 (W.D. Wis. 2004) (no matter how interactive a website is, it cannot form the basis for personal jurisdiction unless a nexus exists between the website and cause of action or unless the contacts through the website are so substantial to be considered “systematic and continuous”).

²⁷² *Bradley v. Mayo Found.*, No. 97-204, 1999 U.S. Dist. LEXIS 17505 (E.D. Ky. Aug. 10, 1999); accord *Vance v. Molina*, 2001 OK 60, 28 P.3d 570 (Okla. 2001) (failing to find personal jurisdiction where the defendant-doctor’s only connection to the forum jurisdiction was follow-up care after providing primary treatment in the doctor’s home state).

Clinic had no offices in Kentucky, its physicians continued to supervise Mr. Bradley's care by telephone and through mail correspondences with Mr. Bradley's local physicians.²⁷³ The supervisory care rendered by the Mayo Clinic in this case was analogous to the supervision given to a surgical resident by an attending surgeon. After Mr. Bradley had an adverse outcome, he filed a medical malpractice action against Mayo Clinic in Kentucky.²⁷⁴ After taking notice that the Mayo Clinic had no physical presence in the state²⁷⁵ and that care given by the Mayo Clinic was subordinate to the care rendered by Mr. Bradley's local physicians,²⁷⁶ the Kentucky court ruled that it lacked personal jurisdiction over the clinic.²⁷⁷

However, a key distinction between *Bradley's* determination of jurisdiction and the jurisdiction that is related to health care market regulation is that *Bradley* is a civil case. In contrast, a state's authority to regulate its health care market rests on its police powers.²⁷⁸ By utilizing its police powers, states protect the public from charlatans by making it a criminal offense to practice medicine without a license.²⁷⁹ This shift from civil to criminal law is significant because minimal contacts are unnecessary in criminal cases where extraterritorial jurisdiction is determined by statute.²⁸⁰ The case, *Hageseth v. The Superior Court of San Mateo County*²⁸¹ is highly instructive for determining criminal jurisdiction in a telemedicine case and one with reaching consequences for anyone who is planning to deliver telemedical services to residents of California.²⁸²

²⁷³ *Bradley*, 1999 U.S. Dist. LEXIS 17505, at *23-*24. A more detailed discussion of this case can be found in McLean, *Future of Telemedicine*, *supra* note 4, at 472-73. For purposes of this analysis it does not matter that the Mayo Clinic's physician managed a Kentucky patient's care via telephone rather than video conferencing.

²⁷⁴ *Bradley*, 1999 U.S. Dist. LEXIS 17505, at *7-*8.

²⁷⁵ *Id.* at *3-*4.

²⁷⁶ *Id.* at *26-*27. Most physicians would not find the court's conclusion to be true.

²⁷⁷ *Id.* at *68-*70.

²⁷⁸ See, McLean, *Crossing the Quality Chasm*, *supra* note 38; Richards, *supra* note 207, at 201.

²⁷⁹ See, e.g., CAL. BUS. & PROF. CODE § 2052 (West 2008). In California it is a crime to practice medicine without a license.

²⁸⁰ *Hageseth v. Superior Court*, 59 Cal. Rptr. 3d 385, 390 (Cal. Ct. App. 2007) (citing *State v. Amoros*, 1999 UT App 060, ¶ 11, 975 P.2d 505, 508 (Utah Ct. App. 1999)); accord *In re Vasquez*, 705 N.E.2d 606, 608 (Mass. 1999); *Boyd v. Meachum*, 77 F.3d 60, 66 (2d Cir. 1996); *State v. Taylor*, 838 S.W.2d 895, 897 (Tex. Ct. App. 1992); *Rios v. State*, 733 P.2d 242, 244 (Wyo. 1987); *State v. Luv Pharmacy, Inc.*, 388 A.2d 190, 193-94 (N.H. 1978).

²⁸¹ *Hageseth*, 59 Cal. Rptr. 3d at 389. I have updated this case as much as possible on April 21, 2008.

²⁸² Matthew Hirsch, *Web Prescription Tests California Medical License Law*, THE RECORDER (S.F.), May 14, 2007, available at <http://www.law.com/jsp/article.jsp?id=1178874288583>.

Dr. Christian Hageseth III, who had his Colorado medical license revoked in the past,²⁸³ was hired by Usanetrx.com, an online clinic much like Mydoc.com. The key difference between the operation of Mydoc.com and Usanetrx.com, however, was that the latter had its server located in Bangalore.²⁸⁴ In 2005, Dr. Hageseth, who never had a California medical license, wrote a prescription for California resident John McKay for ninety tablets of Prozac.²⁸⁵ The drugs were shipped to Mr. McKay from a Mississippi pharmacy.²⁸⁶ According to court records several weeks after Mr. McKay received the drug, he was “intoxicated on alcohol and with a detectable amount of [Prozac] in his blood; McKay later committed suicide by means of carbon monoxide poisoning.”²⁸⁷

In the wake of Mr. McKay’s suicide, the San Mateo district attorney filed a criminal complaint against Dr. Hageseth for willfully practicing medicine in California without a license.²⁸⁸ At trial, Dr. Hageseth argued that the court had no jurisdiction over him because he had no minimal contacts with California.²⁸⁹ After dismissing some procedural points, the trial court began its substantive opinion by noting that this was a criminal case where extraterritorial jurisdiction was applicable.²⁹⁰ The court was aware that in civil cases considerable controversy exists concerning how to determine Internet minimal contacts.²⁹¹ However, this

²⁸³ In 1999, the doctor had his license revoked because he enticed a patient to leave her husband in order to have sex with her. Sonja Bisbee Wulff, *Fort Collins Psychiatrist Loses License*, THE COLORADOAN (Fort Collins, Colo.), Dec. 1, 1999, at 1A, available at <http://www.concernedcounseling.com/Communities/Depression/ect/news/hageseth.asp>; cf. Résumé, Christian Hageseth III, M.D., <http://www.christianhageseth.com/resume.doc> (last visited Sept. 28, 2008).

²⁸⁴ *Hageseth*, 59 Cal. Rptr. 3d at 388.

²⁸⁵ Michelle Durand, *Doctor Can Be Tried for Out-of-State Prescription*, SAN MATEO DAILY J., May 25, 2007, http://www.smdailyjournal.com/article_preview.php?id=75439.

²⁸⁶ *Hageseth*, 59 Cal. Rptr. 3d at 388.

²⁸⁷ *Id.*

²⁸⁸ *Id.*

²⁸⁹ *Id.*

²⁹⁰ *Id.* at 387. More formally this legal principle is known as the “detrimental effects” theory of extraterritorial criminal jurisdiction, and has been incorporated into the Model Penal Code. See *id.* at 395-96; MODEL PENAL CODE § 1.03(1)(a) (Proposed Official Draft 1962).

²⁹¹ *Hageseth*, 59 Cal. Rptr. 3d at 389 (citing A. Benjamin Spencer, *Jurisdiction and the Internet: Returning to Traditional Principles to Analyze Network-Mediated Contacts*, 2006 U. ILL. L. REV. 71 (2006); Joel R. Reidenberg, *Technology and Internet Jurisdiction*, 153 U. PA. L. REV. 1951 (2005); Carlos J.R. Salvado, *An Effective Personal Jurisdiction Doctrine for the Internet*, 12 U. BALT. INTELL. PROP. L.J. 75 (2003); Michael A. Geist, *Is There a There There? Toward Greater Certainty for Internet Jurisdiction*, 16 BERKELEY TECH. L.J. 1345 (2001); Martin H. Redish, *Of New Wine and Old Bottles: Personal Jurisdiction, the Internet, and the Nature of Constitutional Evolution*, 38 JURIMETRICS J. 575 (1998); Jack L. Goldsmith, *Against Cybera-*

was not the case in criminal litigation because “the confrontation clause of the Sixth Amendment bars criminal default judgments.”²⁹² Thus, in criminal law it is “well settled” that “‘minimum contacts’ analysis has no place in determining whether a state may assert criminal personal jurisdiction over a foreign defendant.”²⁹³ Rather, in criminal cases, jurisdiction is established in most states by a statute that grants criminal courts jurisdiction over any “crime committed ‘in whole or in part’” in that state.²⁹⁴

In this case, both California and Dr. Hageseth stipulated that the doctor was not physically in the state at the time the prescription was written for Mr. McKay.²⁹⁵ So, Dr. Hageseth asserted that:

His “act of practicing medicine began and ended with the writing of the prescription in Colorado,” and “[t]he filling of the prescription, which occurred in Mississippi, was an entirely separate act, requiring a separate license,” for which he cannot be held criminally accountable. As petitioner sees the matter, it is irrelevant whether he knew the medication he prescribed would be sent to California because his act ended with the writing of the prescription.²⁹⁶

However, after reviewing the relevant legislative history on extraterritorial jurisdiction, the Court stated that the:

Statutory language therefore appears to apply to an offense consummated within the boundaries of the state by a defendant himself outside the state “through the intervention of an innocent or guilty agent or any other means proceeding directly from said defendant” *regardless whether the agent or other means employed was within the state at any relevant time.*²⁹⁷

The court then quoted Justice Holmes, who had observed that any act:

Done outside a jurisdiction, but intended to produce and producing detrimental effects within it, justify a State in punishing the cause of

narchy, 65 U. CHI. L. REV. 1199 (1998); David R. Johnson & David Post, *Law and Borders—The Rise of Law in Cyberspace*, 48 STAN. L. REV. 1367 (1996).

²⁹² *Hageseth*, 59 Cal. Rptr. 3d at 390.

²⁹³ *Id.*

²⁹⁴ *See, e.g.*, CAL. PENAL CODE § 27(a)(1) (West 2008); *see also* MODEL PENAL CODE, § 1.03 cmt. 1 (“[A] state should have jurisdiction over those whose conduct affects persons in the state or an interest of the state, provided that it is not unjust under the circumstances to subject the defendant to the laws of the state.”).

²⁹⁵ *Hageseth*, 59 Cal. Rptr. 3d at 391.

²⁹⁶ *Id.*

²⁹⁷ *Id.* at 392.

the harm as if he had been present at the effect, if the State should succeed in getting him within its power.²⁹⁸

Having concluded that extraterritorial jurisdiction is applicable when a defendant intended to engage in criminal conduct in the state, the Court was ready to close the loop. The Court stated that by prescribing a drug for any condition in California without a valid California license, the doctor had engaged in a criminal act.²⁹⁹ Moreover, the:

Criminalization of these acts represents a reasonable exercise of the state police power, as the statute was designed to prevent the provision of medical treatment to residents of the state by persons who are inadequately trained or otherwise incompetent to provide such treatment, and who have not subjected themselves to the regulatory regime established by the Medical Practice Act.³⁰⁰

In this case, when Dr. Hageseth wrote Mr. McKay the prescription for Prozac, he knew that he did not have a valid California medical license and that Mr. McKay resided in California. Accordingly, “evidence now shows that petitioner intended to produce or could reasonably foresee that his act would produce, and he did produce, the detrimental effect section 2052 was designed to prevent.”³⁰¹ Therefore, the court concluded that it had extraterritorial jurisdiction over Dr. Hageseth.³⁰²

The *Hageseth* case is important because it gives the states a tool to police online internet providers and online “spam-pharmacies.” Indeed, for most readers who are tired of being bombard with advertisements for Cialis, Viagra, and other drugs from spam-pharmacies, *Hageseth* is a most welcome opinion. Yet, the limitations of this case in the international arena must be recognized: the court found jurisdiction over Dr. Hageseth because he was extradited from Colorado to California. For physicians who flee the country, or for those who have never been in this country, the *Hageseth* opinion is likely to mean relatively little if the

²⁹⁸ *Id.* at 395 (quoting *Strassheim v. Daily*, 221 U.S. 280, 285 (1911)) *see also* *Ford v. United States* (1927) 273 U.S.

593, 620-621; *Lamar v. United States* (1916) 240 U.S. 60, 64-66.

²⁹⁹ *Id.* at 398-99 (citing CAL. BUS. & PROF. CODE § 2052 (West 2008)).

³⁰⁰ *Id.* at 398.

³⁰¹ *Id.* at 399.

³⁰² In the court’s opinion there is a long postscript concerning crimes in cyberspace. *Id.* at 401-05. This discussion is worth reading in the original as further abstraction of the text would not do the court’s concise logic justice. This section of the opinion distinguishes cybercrimes that are truly new (*e.g.*, disruption of documents and identity theft) from cybercrimes that are not new where a computer is used to facilitate a criminal act in the real world. Regardless, the principle of extraterritorial jurisdiction is just as valid in cyberspace as it is in the real world.

provider is not extradited.³⁰³ Another problem with the *Hageseth's* approach to regulating the global telemedicine market is it is inefficient: Each offender must be hunted down and brought to justice one at a time.

B. TRADE BARRIERS³⁰⁴

In addition to licensure, trade barriers have been used to protect domestic markets from foreign competition. Trade barriers, which regulate a class of individuals, are “regulations and measures imposed by [governmental agencies] that *unduly* impede trade in goods or services, in export or import.”³⁰⁵ In many cases trade barriers are integral components to a country’s economic policy, especially when that country wants to protect a nascent industry.³⁰⁶ In the United States, only the federal government can set trade barriers because the power of states to regulate foreign affairs is limited.³⁰⁷ Thus, at the state level only onerous licensure requirements and mandated medical malpractice coverage have been proposed as trade barriers.

In contrast, the federal government can erect a number of trade barriers to protect the domestic health care market. We have already discussed some of these, including restrictions on transferring Medicare or HSA funds. In addition, the federal government might use the Health Insurance Portability and Accountability Act (HIPAA),³⁰⁸ intellectual property laws, and technology standards to protect the American health care market from foreign competition. Compliance with HIPAA’s regula-

³⁰³ At some point, the growth of a foreign provider’s practice might become large enough for the United States Trade Representative to take notice and pressure the forum country.

³⁰⁴ A more detailed discussion of the history and operation of trade barriers can be found in McLean, *Future of Telemedicine*, *supra* note 4, at 478-81.

³⁰⁵ *Id.* at 444. More generally, a trade barrier is any regulatory device used to impede the establishment of a new industry. *New York v. United States*, 331 U.S. 284, 308 (1947).

³⁰⁶ HERTZ, *supra* note 230, at 105 (observing that between the Civil War and the end of World War II no economy benefited as much from protective trade barriers as the American economy).

³⁰⁷ See U.S. CONST. art. I, § 8, cl. 3, art. II, § 3; *State Laws Affecting Foreign Relations—Dormant Federal Power and Preemption*, U.S. SUP. CT. CENTER, <http://supreme.justia.com/constitution/article-2/26-dormant-foreign-relations.html> (last visited Sept. 28, 2008).

³⁰⁸ Health Insurance Portability and Accountability Act (HIPAA) of 1996, Pub. L. No. 104-191, 110 Stat. 1936 (codified as amended in scattered sections of 18, 26, 29, 42 and 45 U.S.C.). A detailed discussion of this subject, which is ubiquitous in current health care law review articles, is beyond the scope of this article. See, e.g., *Security Standard Overview*, CMS REGS. & GUIDANCE (Ctr. for Medicare & Medicaid Servs., Balt., Md.), <http://www.cms.hhs.gov/SecurityStandard> (last visited Sept. 28, 2008). A more detailed discussion of this subject, which is ubiquitous in current health care law review articles, is beyond the scope of this article.

tions is expensive³⁰⁹ and some commentators already view HIPAA's regulations as a form of a federal trade barrier.³¹⁰ However, given China's capacity to reverse engineer technology and its unwillingness to enforce non-Chinese intellectual property laws, it is unlikely that intellectual property laws and technology standards will be effective trade barriers should China wish to compete for American health care business.³¹¹

Finally, immigration laws could be used as a trade barrier. It is an interesting and yet unsettled question as to whether or not an offshore physician who telemedically examines an American patient needs a visa to enter this country.³¹² If we require physicians who immigrate to the United States to have a proper visa, why are we not requiring foreign telemedicine providers to have proper visas?³¹³ Using immigration laws and/or HIPAA as a trade barrier would have three advantages. First, violations of these laws are potentially criminal acts. Second, the capacity of the federal government to conduct a criminal investigation and put pressure on another country to extradite a foreign provider is greater than any state. Third, if criminal activity is involved, extraterritorial jurisdiction would come into play.³¹⁴

Unfortunately, the ability of trade barriers to protect a domestic market is limited. Independent of GATS, economic history teaches us that trade barriers have only a limited life expectancy because competi-

³⁰⁹ See Amy Sokol, *HIPAA after April 14, 2003 – Privacy Security and Complaints*, 12 LEG. MED. PERSPECTIVE 34 (2003) (discussing how the complexity of HIPAA's security rule must be individually customized for a particular provider's situation); Lori Zeller & Doug Smith, *Vox² Healthcare, eHealthcare—Rural Telemedicine Case Study: Community Healthnet*, Presentation to the FCC Rural Satellite Forum: Making the Rural Connection (Jan. 27, 2004), available at <http://www.fcc.gov/cgb/rural/presentations/Vox2communityhealthnet.pdf>.

³¹⁰ See, e.g., Yeo, *supra* note 224, at 89.

³¹¹ See FISHMAN, *supra* note 18, at 222-224. A detailed discussion of the use of intellectual property law as a trade barrier is beyond the scope of this paper. Readers interested in this subject are encouraged to see Blum, *supra* note 213 (discussing the impact of domestic intellectual property laws and agreements like TRIPS on telemedicine market place).

³¹² A detailed discussion of the need for visas in medicine is beyond the scope of this article. See Amy Hagopian et al., *Health Departments' Use of International Medical Graduates in Physician Shortage Areas*, HEALTH AFF., Sept.–Oct. 2003, at 241; Myrle Croasdale, *Visa Complications Snare Physicians; Hospitals Scramble*, AMNEWS, Sept. 15, 2003, www.ama-assn.org/amednews/2003/09/15/prl20915.htm.

³¹³ Letter from Amy J. Sokol, VP and General Consul, Carondelet Health, to Thomas R. McLean, CEO, Third Millennium Consultants, and Attending Surgeon, Eastern Kansas VA Health Care System (Oct. 20, 2004).

³¹⁴ CHARLES DOYLE, CRS REPORT FOR CONG., TERRORISM AND EXTRATERRITORIAL JURISDICTION IN CRIMINAL CASES: RECENT DEVELOPMENTS IN BRIEF (2002), available at http://www.opencrs.com/rpts/RS21306_20020906.pdf.

tion ultimately finds a way to neutralize the barriers.³¹⁵ Moreover, the technologic advancements of the 20th century have substantially shortened the life expectancy of trade barriers.³¹⁶ For example, within a month of China's demand that Google censor its searches, software to defeat Google's censor was available in the Chinese marketplace.³¹⁷ Such experience suggests that the United States is unlikely to be able to use trade barriers for very long to protect its health care market from foreign telemedicine competition.

Lobbying pressure is likely to erode trade barriers. Importation of low-cost foreign telemedical services would save patients and insurers money. We should expect that patient care advocates and insurers will soon start lobbying federal government for greater access for low-cost foreign telemedical providers.³¹⁸ We may even see the WTO apply political pressure to United States to open more of its health care market. At present, WTO trade negotiations have been stalled because of issues arising from agricultural subsidies.³¹⁹ If these negotiations should begin again in earnest, the quid pro quo allowing the United States to retain its agriculture subsidies may be America's opening more of its health care market to foreign competition.³²⁰

IV. POTENTIAL SOLUTIONS

In short, it seems that the two traditional legal methods (licensure and trade barriers) for protecting the American health care market are not likely to protect the American health care market forever. Now is the time to consider two novel technology/legal methodologies to regulate global trade in telemedicine services. The first method was proposed by Professor Lessig, who has suggested that Internet architecture could be used to police cybertransactions.³²¹ The second involves commoditi-

³¹⁵ Thomas R. McLean, *Turf Wars: What Can Modern Medicine Learn from Medieval Guilds*, 3 AM. HEART HOSPITAL J. 169, 269-74 (2005).

³¹⁶ See THOMAS L. FRIEDMAN, *THE LEXUS AND THE OLIVE TREE* (1999).

³¹⁷ Ben Elgin, *Outrunning China's Web Cops*, BUS. WK., Feb. 20, 2006, at 38, available at http://www.businessweek.com/magazine/content/06_08/b3972061.htm.

³¹⁸ Cf. Bruce Stokes, *Protectionism and Politics*, EJOURNALUSA, Jan. 2007, <http://usinfo.state.gov/journals/ites/0107/ijee/stokes.htm> (while protectionism has deep roots, special interests may be able to affect trade policy by manipulating political systems). See also *supra* pt. I.A.2, discussing the industrialization of medical tourism.

³¹⁹ Sarina Locke, *WTO Talks Stall*, ABC RURAL QUEENSLAND (Austl.), June 22, 2007, <http://www.abc.net.au/rural/qld/content/2007/s1959462.htm>.

³²⁰ See MICHAEL LEWIS, *THE NEW NEW THING: A SILICON VALLEY STORY* (2000).

³²¹ LESSIG, *supra* note 269, at 38.

zation of the telemedicine market³²² coupled with the use of criminal law to enforce compliance.³²³

For many years, the Internet was the last bastion of anarchy. The early Internet did not have the capacity to trace the source of transmitted information. As screen names were not self-authenticating (like a person's face) absent a system to credential (i.e., verify) a sender, in the early days of Internet a user could be—as the New Yorker cartoon famously asserted—a dog.

This is no longer true. During the past decade, it became possible to discover the identity of an Internet user if you had a sender's user name and IP address.³²⁴ With this information and “reverse look-up” software, any internet transmission can be easily traced back to origin.³²⁵ Lessig has suggested that this maturation of the Internet could be used to credential Internet users.³²⁶ The identity of the sender would be verified by the use of a password or by biometric technology (e.g., electronic thumb print or retina scan) depending on the degree of security desired.³²⁷ Such authentication and credentialing could even occur automatically, transmitted over the Internet to the receiver, by adding a new protocol layer to the existing Internet architecture.³²⁸

Lessig's Internet credentialing could be further modified to regulate the global teleradiology market. The key would be that after the transmitter's identity was credentialed, the transmitter's identity would be cross referenced against a list of licensed providers. Hospitals, for example, could be required to place this credentialing filter in the firewalls of their servers. The firewall would then be programmed to turn away

³²² See generally, Thomas R. McLean, *Telemedicine and the Commoditization of Medical Services*, 10 DEPAUL J. HEALTH CARE L. 131 (2007) [Hereinafter McLean, *Commoditization*].

³²³ Thomas McLean, *Commoditization of the International Teleradiology Market*, 12 J. HEALTH SERVICES RES. & POL'Y 120 (2007)[hereinafter McLean, *Commoditization*].

³²⁴ LESSIG, *supra* note 269, at 46.

³²⁵ *Id.* By combining reverse look-up technology and IP addresses, it was recently discovered that corporate America is writing and editing Wikipedia. Katie Hafner, *Lifting Corporate Fingerprints from the Editing of Wikipedia*, N.Y. TIMES, Aug. 19, 2007, at A1, available at http://www.nytimes.com/2007/08/19/technology/19wikipedia.html?_r=2&oref=slogin&oref=slogin; MARK HALPERIN & JOHN F. HARRIS, THE WAY TO WIN: TAKING THE WHITE HOUSE IN 2008 (2006) (Halperin and Harris support the position that internet connections are traceable.).

³²⁶ LESSIG, *supra* note 269, at 49-50.

³²⁷ *Id.*

³²⁸ *Id.* at 50-51. But even if the Internet is not restructured, commercial credentialing software is now available. See Tom McNichol, *We Don't Need No Stinkin' Lawyers*, BUS. 2.0, Aug. 2007, at 23-24 (discussing a web platform authenticated by national ID cards that allows users to create legally enforceable contracts).

any telemedical services from providers who were not properly licensed. That is, the authentication/credentialing/filtering software would detect and eliminate (some) black market teleradiology transactions.

An authentication/credentialing/filtering is ultimately dependant upon traditional medical licensure, therefore, it is not a complete answer to the regulatory needs of a global telemedicine market. In today's market, patients are primarily interested in affordable and convenient health care. As we have seen, such patients are likely to use websites like Mydoc.com and Usanetrx.com for routine health care and such patients are relatively unconcerned that a website provider is properly licensed. Patients who want cheap and convenient health care are unlikely to install authentication/credentialing software filters as these filters could eliminate the lowest cost providers. Moreover, because web based transactions between patient and physician are private, they tend to fall below the radar screens of medical boards—until an adverse outcome occurs. In short, Lessig's suggestion to modify Internet architecture is unlikely to eliminate a black market in telemedicine and is likely to allow unlicensed providers, such as Dr. Hageseth, to stay in business.

The use of a commodities exchange, on the other hand, could facilitate enforcement of medical licensure laws. Briefly, rather than allowing telemedical transactions to occur privately, all telemedical transactions would be funneled through a centralized exchange.³²⁹ Telemedicine providers would agree to deliver a certain volume of services to the exchange on a given day.³³⁰ For example, a radiologist might agree to interpret 100 images on August 17th or an internist would agree to provide forty consults on April 3rd. Patients and hospitals would then bid for these services much like commodities traders bid for agricultural, mineral, and financial services. Rather than using an administrative MCP or discriminatory pricing schemes the telemedicine exchange would allow the market to determine the price for telemedicine services.³³¹ The centralized position of the telemedical exchange in the global health care market would make it ideal for credentialing providers, auditing transactions, and certifying the credit worthiness of purchasers. In essence, the exchange would act as a *de facto* global regulatory agency for telemedicine.

³²⁹ McLean, *Commoditization*, *supra* note 323, at 167.

³³⁰ *Id.* A detailed discussion of how a standard medical contract for services could be converted into futures contract is beyond the scope of this article. *See generally Id.*

³³¹ *See supra* pt. I.B.3.

Implicit in this proposal is the need for a multilateral agreement to establish the exchange. Fortunately, because GATS covers telemedicine, a new treaty would not need to be negotiated from scratch.³³² GATS could be amended not only to create the exchange but also to provide an enforcement mechanism. In particular, signatories to GATS would agree that off-exchange teleradiology transactions (1) were *per se* criminal actions and (2) would subject providers to expeditious extradition proceeding.³³³ The criminal nature of the transaction would allow countries to invoke extraterritorial jurisdiction over rogue providers. In addition, because off-exchange teleradiology transactions would be criminal in nature, providers would not be legally entitled to compensation.³³⁴ Hospitals and patients who were caught purchasing off-exchange teleradiology services would be deemed to have waived their rights to use any country's judicial system to sue a telemedical provider after an adverse outcome.³³⁵ Collectively, these incentives are designed to make off-exchange teleradiology transactions prohibitively expensive for radiologists and hospitals.

Creation of a telemedical exchange would also improve the transparency of international telemedical transactions at both the micro and macroeconomic levels. When a dispute between a patient and provider arose, a stored copy of the transaction on the exchanges services could be reviewed. Many "he said, she said" arguments between patients and providers would simply disappear if objective evidence could be reviewed. At the macroscopic level, an exchange would provide a legitimate vehicle for foreign telemedical providers to meet the increasing demands of American patients for convenient and cost-effective routine medical care. By creating a legitimate transparent forum for trade-in telemedicine, the creation of a telemedical commodities exchange would be a significant step towards minimizing a black market.

V. CONCLUSION

Although today's global market for medical services is dominated by medical tourism, it is expected that telemedicine will ultimately be the preferred method for international trade-in health. When it comes to routine health care, it is unlikely that medical tourism will be able to

³³² See *supra* pt. III.A.1.

³³³ McLean, *Commoditization*, *supra* note 323.

³³⁴ *Id.*

³³⁵ *Id.*

compete with the improved convenience and lower costs of telemedicine delivered health care. As a corollary, the shift from medical tourism to telemedicine will be accompanied by a significant degree of economic and legal uncertainty.

In terms of economics, special interest groups are already lobbying for protective legislation that will hurt health care consumers' need to spend out-of-pocket dollars on health care. Granting protective legislation prematurely could be a mistake; as both Ricadian and H-O analysis suggest, that relative to the United States, no country has a comparative advantage sufficient to gain a significant share of the American health care market. This means that America's providers do not need to live in fear of the India price for medical services.

If the United States is to benefit from purchasing low priced telemedical services from abroad, it is not clear that the traditional legal methods to regulate the health care market—i.e., licensure and trade barriers—will be sufficient. Modification of Internet architecture so that providers' authentication and credentialing occurs in real time would be an improvement. However, modification of Internet architecture is unlikely to entirely eliminate black market telemedical transactions. Alternatively, commoditization of trade-in telemedicine that is enforced under criminal laws might substantially reduce black market telemedical transactions as they would provide a legitimate forum for patients to purchase low priced medical services.

Providing a legitimate forum for international telemedicine transactions to occur is important because, as the regulatory history of abortion³³⁶ and prohibition of alcohol under the 18th amendment³³⁷ have demonstrated, merely prohibiting an activity that is in high demand only leads to collateral harm. In the case of abortion, prohibiting the legitimate purchase of this medical service drove these purchases underground resulting in more patients being harmed. Similarly, a blanket prohibition against foreign provided telemedicine services is likely to result in the creation of telemedicine black market. Creation of a telemedical exchange could be an import means to avoid a blanket prohibition on transactions with low priced foreign medical providers.

³³⁶ *Abortion*, HIST. CHANNEL, <http://www.history.com/encyclopedia.do?articleId=200079>.

³³⁷ *Prohibition*, HIST. CHANNEL, <http://www.history.com/encyclopedia.do?articleId=219884> (last visited Sept. 28, 2008).