

# The Continuum of Care in Cross-Border Health Travel: Implications for Medical Tourism Standards

David G. Vequist IV, University of the Incarnate Word, USA

## ABSTRACT

There are several studies showing that a breakdown in the continuum of care occurs when a person crosses an international boundary for healthcare, such as migrants and medical tourists. This study attempted to measure the impact of a lack of standard continuity on the healthcare outcomes by comparing self-reported perceptions of health among a large population of people that traveled across borders. These travelers, without a discernible continuum of care, were surveyed before and after travel. A statistical analysis of self-reported perception data about general health before and after cross-border travel shows a significant decrease in overall health after cross-border travel. Despite some limitations, a moderate amount of the decline can be attributed to the breakdown of the continuum of care between providers on both sides of the border. The development of standards for cross-border healthcare could potentially improve the healthcare received by migrants and medical travelers.

## KEYWORDS

Cross-Border, Health, Health Tourism, Health Travel, Healthcare, Immigrant, Medical, Medical Tourism, Medical Tourist, Medical Travel, Migration, Standards, Tourism

## INTRODUCTION

The continuum of care (e.g., ongoing communication between a primary care physician and a specialist or another primary care provider in another location) is an important aspect of healthcare that is not well researched when a patient travels across an international border. Interventions to attempt to reduce the lack of fidelity in communication and standards between regional providers have often resulted in positive outcomes for patients including: 1) reductions in emergency department visits; 2) reductions in hospitalizations; and 3) reductions in readmission rates (Anonymous, 2013). In addition, the American Hospital Association (AHA, 2018) found better care coordination across a state could increase the percentage of acute stroke patients who received correct and timely care protocols by 50 percent over a four (4) year period. However, more data is needed to either support the positive results from using proper & systematized cross border communication, reporting, and protocols; or support that there is a negative impact on health outcomes resulting from the lack of these standards.

A fairly common example of the problems with discontinuity in communication and reporting between pre-and-post movement health communications is when a medical tourist (roughly defined

DOI: 10.4018/JHMS.2021010101

This article published as an Open Access Article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>) which permits unrestricted use, distribution, and production in any medium, provided the author of the original work and original publication source are properly credited.

as a person traveling for ‘value’ by going outside of their region or country for a health procedure) travels for care. Often, these patients may be seeking access to a specific healthcare procedure, which will deliver acceptable medical standards/protocols/measures, and is offered at what a patient perceives is a reasonable price (Vequist & Valdez, 2009). There is very little evidence, in the literature, about what type of impact these behaviors had on patients’ healthcare outcomes or how the travel effected their health status.

Another example of problems with the continuum of care is when an immigrant enters a new country and receives healthcare in the destination from a doctor who is not familiar with their individual medical history. Obviously this could have a significant disruptive impact on the patient’s overall health. As Lunt and colleagues (2011) suggest “When medical treatment is sought from abroad, the normal continuum of care may be interrupted.” Therefore it is important to analyze empirical information on how this movement across borders impacts patient health outcomes. For example, a small sample size (n = 24) study analyzing English patients (WHO, 2011), who were treated in Germany, showed a “somewhat mixed picture of the quality of follow-up care” with ten (10 or 41.6 percent) of the patients rating their after-care as “unsatisfactory” and four (4 or 16 percent) who reportedly did not receive any after-care at all (Wisnar, et al., 2011).

This research will look at the role that cross border movement plays on healthcare by analyzing a large data set of potential patients who traveled from one country to another and how this behavior impacted their health. This will add to the body of knowledge on this subject, which is little understood. For example, Lunt and colleagues (2011) stated that “There is scant evidence on long- or short-term follow-up of medical tourists who return to their home countries following treatments at a range of destinations.” In an article evaluating domestic patients, of which 40 percent traveled outside of a region for medical treatments, an article in *Rand Health Quarterly* by Price et al. (2013) found that “More attention needs to be given to understanding the regional burden of disease, patient flows across geographic borders, and regional capacity for cancer care.” Finally, according to Durham and Blondell (2017), in an analysis of 57 academic papers on medical tourism, they found that “There was very limited evidence... in what circumstances this cross-border patient movement impacts the health and the continuum of care of those who travel and the broader health systems.”

The author will analyze a large sample of Mexican immigrants that traveled across an international border to the United States to test whether there is a significant change in the self-reported health status to support the hypothesis that the break in the continuum of care decreases health outcomes. A statistical analysis of self-reported perception data about general health, collected by researchers at Princeton University, over a multiple year period, before and after cross-border travel, will be the sample used in this study. It is expected that ‘before’ international migration measures of health status will be higher than ‘after’ because the movement disrupted establish communication between their previous and current healthcare providers. The objective of this article is to show the impact of international health travel on the continuum of care in healthcare.

## **BACKGROUND**

The continuum of care is defined by the National Cancer Institute as “the delivery of health care over a period of time. In patients with a disease, this covers all phases of illness from diagnosis to the end of life.” Travel has the expected impact of limiting the effectiveness of this delivery by creating barriers of time and space (geographically) between the patient and their primary care providers. The situation that arises is even greater when a person travels across a domestic or international border and needs to access care as is described by Helble (2011) in the following paragraph:

*Depending on the procedure, a medical treatment typically takes place in several steps and may require interventions over a longer period of time. When patients travel abroad, those interventions are often squeezed into a short time span, while follow-up care might still be necessary once the*

*patient has returned home. The continuum of care is therefore often not possible. This may have serious implications not just for the individual but also for the local health system. For example, cases have been reported where doctors have been reluctant to correct a medical problem arising from malpractice abroad, with the consequence that patients have resorted to costly emergency services.*

The interesting finding in public health that has captured researchers' attentions over a number of years is how international immigrants, who often lack even the basic linkages necessary for a 'traditional' continuity of care, often report better health outcomes than native populations. Stanek, et al. (2020) describe this paradox in this way:

*The healthy immigrant paradox describes a phenomenon observed in many countries where immigrants who have just moved to a host country have better health outcomes than the native populations of the host country. An interesting variation of this paradox is when immigrants from high-income societies have worse health results in the host countries than immigrants from low- and middle-income societies. These phenomena have been rightly considered "paradoxical" as migrants coming from the developing world are more exposed to adverse conditions in host countries, which would be expected to take an immediate toll on their health.*

The United States-Mexico Border Health Commission released a report in 2010 that also referred to "the phenomenon of good health status for (immigrant) Hispanics, despite a variety of socioeconomic and other disadvantages as the "epidemiological paradox" or the "Hispanic paradox." However, most of the outcomes in these studies are long-term in nature and greatly impacted by Social Determinants of Health (SDOH) including cultural preferences, shared behaviors, and genetics. In addition, there is recent evidence that people, having traveled across international state lines, might be receiving less frequent (and possibly less effective) primary care after having migrated. According to Tzogiou, et al. (2021) "Previous research showing worse health outcomes in some immigrant groups in Switzerland indicate that the healthy immigrant effect (the paradox from above) likely does not explain the inequalities in doctor visits that we observe." This 2021 study suggests that there may be institutional barriers in the existing health system and/or a breakdown of the continuum of care that prevents international travelers from utilizing primary care (according to the authors, this leads to higher use of emergency departments, also observed in other EU countries). Reasons why this is a problem for new migrants is, according to Tzogiou, et al. (2021), potentially the result of "language problems, lack of health system knowledge or access restrictions" and most likely "eventually affect health status." In addition, previous research like that by the WHO (2011) and the AHA (2018) suggest that some of the blame lies on the lack of standardized communication and reporting protocols across country boundaries.

There exist today specific standards that are currently being used by countries to help harmonize care across borders. However, most of these are aimed at producing similar data and reporting for hospitals and clinics rather than primary care (which is more focused on the work of individual doctors). For example, Carrera and Bridges (2006) give an example of how global health travel has led to the need to provide international medical standards:

*To address the issue of quality of care, apart from recruiting US-trained specialists, tertiary-care providers increasingly seek certification from international accreditation agencies such as the Joint Commission International (part of the American Joint Commission organization) and the British Standards Institute. Indeed, the availability of a common platform will serve as the basis of an assessment of quality of care to allow for comparison of indicators. This is critical in view of the issue that medical treatment from abroad interrupts the continuum of care, which can have serious implications not just for the individual, but also the local healthcare system.*

Example standards for cross border care include interventions that are made to standardize metrics, communication and reporting such as the Southeastern Asian MBDS Network (briefly described earlier in this article), the agreements developed by the European Union (EU- partially described by Wismar et al., 2011), and the work on developing a U.S.-Mexico region program based on engaging community health workers (CHWs), a Community-Clinical Linkage (CCL) model and Linking Individual Needs to Community and Clinical Services (LINKS) along the lines of what is suggested by the Centers for Disease Control and Prevention (CDC) for public health efforts in the U.S. (Lohr, et al., 2019). In the article Lohr and her colleagues (2019) describe the first two as “While the CHW approach was fostered in community settings, CCLs are a health systems approach to address disparities that extends the continuum of care from clinical settings to the community. CCLs were designed to improve patient access to community and public health services.” This innovative approach includes involving many disparate stakeholders in the public health outcomes of Hispanics in the southern border of the United States of America, in particular the (LINKS intervention) has:

*a focus on providing a continuum of care that extends beyond services offered within clinical settings, LINKS CHWs connect participants to health-specific services and social determinants of health such as housing and transportation. CHWs in community settings have a crucial role to play in CCLs, particularly in identifying existing resources and ensuring that their clients have successfully accessed the referred services. Importantly, CHWs in community settings have the capacity and flexibility to develop additional resources by informing their organizations of client needs or cultivating partnerships between community organizations in order to leverage their efforts. Further, in fulfilling the core function of individual and community capacity building... (Lohr, et al., 2019)*

Therefore, based on the research reviewed, the development of clinical, community and healthcare administrative standards for care across borders (to enhance the continuum of care) could lead to the following benefits (Lohr, et al., 2019):

**Possible Benefit One:** Standardization of communication

**Possible Benefit Two:** Standardization of reporting

**Possible Benefit Three:** Better utilization of primary care post procedure

**Possible Benefit Four:** Better healthcare outcomes for travelers

**Possible Benefit Five:** Ability to identify additional resources for patients

**Possible Benefit Six:** Assists in community health capacity building

## **EVIDENCE OF THE CONTINUUM OF CARE IMPACT**

### **Examples of the Impact From Medical Tourism and the Lack of a Continuum of Care**

As discussed previously, Lunt and colleagues (2011), suggested that people traveling internationally for health seeking behaviors may have the unintended impact of reducing communication between established and new medical providers on both sides of the border. Additional analysis by Schweikart (2018) and Suzana et al. (2018) have found that this break in the continuum of care creates the possibility of additional ethical issues for providers and the increased chance of complications for the patients. In a very similar study to this one, Panteli, et al. (2015) surveyed German patients that had travelled outside of the country for a health procedure to determine if there were any negative effects due to the possible disruption to the normal continuity of care that they would be expected to receive in-country. The authors found that although the complications rates were relatively low (although the population size was very small) and there still existed a ‘relationship continuity’ with the physicians both within Germany and in the country they traveled to; the biggest concerns were

that the ‘informational continuity’ (primarily the health records) and the ‘management continuity’ (essentially the ongoing maintenance of health condition) of the care could lead to lower health outcomes over time. Therefore, it is important to look at a larger population of international travelers and measure their health status over a longer period of time to determine if medical travel might have an impact on the continuum of care and overall health. A very similar population was found by the authors that could help model this break in communication between physicians after travelling cross border- international immigrants, who have many of the same issues.

### **Examples of the Impact From of Hispanic Immigration Into the U.S.**

As found in the previous review of the research, there are not many large scale empirical studies that show either a positive or negative impact of continuum of care standards or protocols on the health outcomes of cross border travelers. The data collected in this area is limited and typically has been based on case studies, surveys, and interviews with restricted findings and small sample sizes. Therefore, testing whether disrupting the continuum of care impacts the healthcare of immigrants crossing an international border, which is the focus of this paper, might provide some evidence for the effect for both migration as well as possibly medical tourism/health tourism.

The issues of the two populations, medical tourists and immigrants, in regards to the breakdown of the continuum of care, are comparable. The similarities include receiving care in a foreign nation, most probably not consulting with their primary care physician for services received in the new location, the added complexity involved in the communication between patients and providers, and the additional stress burden of having medical procedures done in a location far from home. These and other parallels make the immigrant population/data a fair equivalent sample for the study of impacts caused by traveling for healthcare and experiencing a disruption to the traditional continuum of healthcare services.

Evidence of immigration’s impact on health outcomes comes from Van Beckhoven, et al. (2015) who found that:

*Migrants’ lower entry and retention in HIV care may be due to emigration after HIV diagnosis or barriers to access care for those remaining in Belgium. Attrition is similar between Europeans and non-Europeans, but consequences of emigration out of Belgium in terms of access and continuum of care greatly differ. While West-Europeans have reliable access to care in their country of origin, this may not be true for East-European and non-European migrants. In fact, reported ART coverage among those in need of ART in numerous non-European or East-European countries was below 50% in 2012 and potentially even lower for stigmatized populations like MSM and IDU. This study does not allow differentiation between documented and undocumented migrants although it is mainly undocumented migrants that face disproportionate barriers to medical care.*

The continuum of care for international travelers may actually be correlated with the ideal model of high quality healthcare delivery systems. In other words, any best practice for the management of healthcare systems would need to include the integration of evidence based standards. For example, in an empirical study from the U.S.-Mexico border, Servan-Mori, et al. (2021) found that the number of immigrant women who did not meet the good standards of continuum of care for maternal healthcare (period between 1994-1997), as defined by frequent antenatal care (at least five antenatal consultations), was 43.2 percent. When Servan-Mori, et al. (2021) summarized the impact this could have on health outcomes; they stated that “Widely accepted as a proxy for quality-adjusted coverage indicators, the continuum of care principle for maternal, newborn and child health aims to reduce the burden of maternal and child mortality by integrating health services throughout the life cycle.” Kerber et al. (2007), also referred to in the Servan-Mori study, developed a best practices continuum of care framework for maternal healthcare which consisted of the following two dimensions:

1. **Time:** Linking of health care during adolescence and pre-pregnancy through childbirth, the immediate postnatal period and childhood; and
2. **Place:** Linking of health care that is provided across different environments, including households, communities and clinical care at different levels.

The previous authors (Servan-Mori, et al., 2021) suggested that having continuum of care protocols could lead to more opportunities for a healthy patients (better health outcomes- including reduced mortality rates for both mother and baby), help to ensure that services are delivered in a standardized & integrated way, assist in avoiding inefficiencies, and control for healthcare costs (usually associated with waste or errors). In a migrant population which lacks these linkages or integrations, the expectation would be that one or more of these measures would be negatively affected.

***MMP Survey of Mexican Immigrants to the USA and Canada***

In order to test the continuum of care problem with a large group of international immigrants the researcher used a publicly-available data source that collects longitudinal/quasi-longitudinal survey data, namely the 2007–2018 surveys (community surveys 115 to 170) of the Mexican Migration Project (MMP). A couple of notes: 1) The MMP is a household survey; 2) it uses the household head as the primary reference for other individuals on the household roster (household members and children of head, independent of residence); and 3) the healthcare information is only collected from the head of household and an adult spouse/partner. The Mexican Migration Project is freely available on their homepage.

The full database contained a sample of 51,571 individuals which included head-of-household, adult spouse/partner, and child/extended family data. The health self-report questions were only answered by the head-of-household, adult spouse/partner which had 2,538 responses. Of those only 1,960 responded with both the initial (Before Migration) and the second (After Migration) questions. Demographics of the sample (below) were based in the initial health self-report sample (n = 2,538). They include the gender (Table 1) and Age (Table 2) of the sample.

The measurement of self-reported health (both Before and After) was captured in a survey on a four (4) point Likert score ranging from Poor to Excellent (Table 3).

***Test of Self-Rated Health Before and After Migration***

To test the 1,960 responses for difference on both the initial self-rated health (Before Migration) and the second self-rated health (After Migration) questions a Wilcoxon matched-pairs signed-ranks test was utilized. The Wilcoxon signed-rank test is the nonparametric test equivalent to the dependent t-test. A Wilcoxon signed-rank test does not assume normality in the data, can be used when this assumption has been violated (when variables are ordinal, such as in this case, for example), and is useful when a dependent t-test would be inappropriate. A Wilcoxon is also used to compare two sets of scores that come from the same participants (repeated measures, such as in this case where the participants were asked to self-rate their health before and after their migration). The descriptive statistics are found in Table 4.

In addition to a Wilcoxon, a Signs test was run in order to visually see a summary of the number of immigrants who had negative differences (after migration health was rated as lower), positive

**Table 1. Gender of the Sample (that answered the initial health self-report question- n =2,538)**

	<b>Frequency</b>
Male	2,021
Female	513

**Table 2. Age of the Sample (that answered the initial health self-report question- n = 2,538)**

	Descriptive Statistics
Mean	47.98
Standard Error	0.28
Median	46.00
Mode	38.00
Standard Deviation	13.90
Sample Variance	193.29
Kurtosis	-0.17
Skewness	0.56
Range	79.00
Minimum	19.00
Maximum	98.00
Sum	121532.00
Count	2,533

**Table 3. Before Migration Self-Reported Health Status (Before n = 2,538 / After n = 1,960)**

	Self-Report Health
Before & After	Quality of health prior to US migration / Quality of health after to US migration
1	Poor
2	Regular
3	Good
4	Excellent
8888	Missing
9999	Unknown

**Table 4. Descriptive Statistics of Self-Rated Health Before and After Migration**

	Descriptive Statistics							
	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles		
						25th	50th (Median)	75th
Before	2378	3.23	.529	1	4	3.00	3.00	4.00
After	1960	2.98	.644	1	4	3.00	3.00	3.00

differences (after migration health was rated as higher), and ties (before and after health were the same). The negative differences greatly outnumber the positives (307 to 19) showing that a larger sample of the immigrants experienced poorer health after migrating. It's hypothesized that the breakdown of the continuum of care could be negatively impacting the self-reported healthcare of this population of cross border travelers (Table 5).

Table 5. Signs Table of Self-Rated Health Before and After Migration

Frequencies		N
After - Before	Negative Differences <sup>a</sup>	307
	Positive Differences <sup>b</sup>	19
	Ties <sup>c</sup>	1634
	Total	1960

a. After < Before  
 b. After > Before  
 c. After = Before

The Wilcoxon found that the mean difference between the ranks was about 20 (164 for the negative or after migration is less than before and 144 for the positive or after migration is greater than before) and the sum of the ranks was much larger. These findings are found in Table 6.

Finally, SPSS performed a two-tailed Z test on the differences to determine if the differences between the before and after repeated measures were significantly different and shown in Table 7.

The results show a significant difference (two-tail  $p < .01$  because it was not known if it was going to be higher or lower) between the Before and After self-reports of health with the migrants giving higher overall scores to their health before they migrated (mean of 3.23) compared to their scores after migration (mean of 2.98). Therefore migrants seem to rate their overall health prior to migration as a (low) good versus a (high) regular after migration. The variances are not as similar as would be expected considering this is a paired self-report survey using the same participants. This may suggest that there may be other mitigating factors at play in their self-report scores (such as their current social, economic, or emotional situation). In the Servan-Mori, et al. (2021) analysis, the authors, in their sample, found an increase in national continuum of care coverage by around 30% from 1994-1997 to 2015-2018, regardless of health insurance status. A similar increase or decrease

Table 6. Wilcoxon Table of Self-Rated Health Before and After Migration

Ranks		N	Mean Rank	Sum of Ranks
After - Before	Negative Ranks	307 <sup>a</sup>	164.68	50557.50
	Positive Ranks	19 <sup>b</sup>	144.39	2743.50
	Ties	1634 <sup>c</sup>		
	Total	1960		

- a. After < Before  
 b. After > Before  
 c. After = Before



Table 7. Wilcoxon Table of Self-Rated Health Before and After Migration

<b>Test Statistics<sup>a</sup></b>	
	After - Before
Z	-14.758 <sup>b</sup>
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test  
 b. Based on positive ranks.

in the MMP sample (of their perceived continuum of care status) could also be occurring leading to slightly different scores over time (e.g., the PPACA was passed in 2010 in the U.S. which could have impacted the immigrants health scores over the latter half of the data collected). Analyzing data that was collected over an 11 year period risks capturing environmental/cultural/economic trends when comparing overall means.

## CONCLUSION

Although the data suggests that when the continuum of care is disrupted (after migration) there appears to be a small negative change in health status- the findings still lend themselves to many possible explanations. This common theme of an interesting and complex paradox (immigrants moving to a more affluent nation but having lower overall reported health outcomes) seems to arise whenever cross border migrant data is analyzed. For example, in a discussion of the ‘healthy immigrant paradox, Stanek, et al. (2020) suggested that:

*To date, several explanations for the healthy immigrant paradox have been provided. One of the most popular explanations is the immigrant selectivity hypothesis. This hypothesis is based on the assumption that immigrants are not a random sample of their home country populations. Those who choose to migrate may differ from their home country population, and this selection may occur on many observable and unobservable traits, including socio-economic characteristics and health.*

In addition, it is possible that the small negative change in self-rating of general health may be partially due to a lack of standards and protocols to deal with the unprecedented surge of immigration at the southern U.S. border over the past two decades. This may have led to a deficiency of infrastructure (both physical and processes) to deal with recent immigrant health issues. Lohr, et al. (2019) found evidence that the systematized social support provided by CHWs (described earlier) could “help improve resilience, a key component of emotional well-being, among Latinos with chronic disease.” In this case, it could be argued that a better healthcare continuum of care for immigrants would help improve their after-migration self-report scores. In a similar scenario, Van Beckhoven, et al. (2015) found that the HIV epidemic in Europe was influenced by travel and migration from other countries. In their study, they suggested the continuum of care for these, mobile and primarily immigrant, populations could be improved by developing cross-border and national tools to facilitate adequate and individual-tailored care of the migrant population diagnosed with HIV in Belgium. Meaning that the heart of the issue may be a “policy-practice gap” which was also found Dias, et al. (2020) who suggested that:

*Migration status may be one of the structural factors impeding access... (but) HIV screening programs should consider this policy-practice gap, and invest more in further reducing thresholds to health care and HIV testing through tailored community-based initiatives or in primary-care settings, in particular for women and those being undocumented.*

An intervention which could improve health outcomes for migrants, and assumedly medical tourists as well, could be encouraging “health stakeholders to communicate in new ways to successfully refer participants to the program and that it takes time to establish efficient collaborations” (Lohr, et al., 2019). In order to develop a more successful healthcare communication standard for cross border health travelers; the important stakeholders would need to include a “process of creating a system of participant identification, referral, and linkage(s)” (Lohr, et al., 2019). For example, having the many healthcare bodies & stakeholders involved, on both sides of the border, coordinate to develop protocols designed to enhance referral processes across regions and various different organizations. Therefore, the solution appears to be the development of better standards to facilitate the continuum of healthcare across borders. This is summarized by Servan-Mori, et al. (2021) who state that:

*Despite demonstrating significant progress in continuum of care coverage over the last 25 years, important inequalities remain in the maternal health care received by indigenous and socioeconomically vulnerable women in Mexico. As well as government interventions to target the improvement of maternal health care received by these underserved populations, current and future health policies should aim to sustain the overall increase in continuum of care coverage. By prioritizing the continuum of care in research and health policy, we can reduce Mexico’s burden of disease, improve health outcomes and the quality of health care, and strengthen our health system, facilitating achievement of... ensuring healthy lives and promoting well-being for all at all ages.*

Not only could better standards potentially have improved the ratings of health status in our sample (benefit #4 from earlier research cited by Lohr, et al., 2019) but it could have arguably positively impacted benefits #3, #5, and #6 as well. In addition, international standards could address some of the underlying issues that result in lower healthcare ratings by mitigating continuity of care breakdowns across: 1) time; and 2) place (Servan-Mori, et al., 2021). This study showed that people who travel cross borders apparently feel that time and distance had an overall negative impact on their health. Just as found in the migrant sample, the same issues will probably be found in medical tourists who also engage in some of the same behaviors and expose themselves to additional risks by reducing the information and management continuity between the in-country and out-of-country providers (Panteli, et al., 2015). This ‘policy gap’ could be addressed by having the standardized protocols followed by healthcare systems on both sides of the border.

Two additional issues that may need to be addressed in regards to standardized communication protocols across country boundaries are the 1) patients’ perceptions of the service delivery; and 2) the expectations that medical travelers have about the care they receive. In regards to the first issue, Guiry and Vequist (2010) found that, in healthcare, “consumers tend to rely on the functional aspects of the service delivery process (e.g., doctors’ and nurses’ attitudes towards patients and length of time waiting for a procedure)” when attempting to evaluate the service quality of the procedures, since they tend to lack the expertise to evaluate technical quality (e.g., accuracy of a medical diagnosis, clinical effectiveness and efficacy). This becomes important when using self-report data to evaluate health status and may also complicate communication between the patient and the providers (both pre and post travel). The second issue is described by Guiry, et al. (2013) “to meet experienced and potential medical tourists’ expectations and deliver each segment’s expected service-quality level, service providers also need to understand and act on (medical tourists’) expectations in advance and if necessary, improve management skills, training programs and front-line employee service delivery

attitudes and behaviors.” Because the continuum of care is typically not systematic in many of these cross border healthcare scenarios, in order to meet patients’ expectations which are important in patients’ perceptions of overall health, it is vital that:

1. Employees dealing with medical travelers get adequate support to do their jobs well;
2. The foreign nationals feel safe in interactions with employees;
3. Facilities in the new country have up-to date equipment;
4. Providers in the new destination tell patients exactly when services will be performed; and
5. Then provide services at the time promised.

## LIMITATIONS

There are several important limitations that need to be discussed in this study including that the researchers used self-reported measures of outcome as variables which are obviously subject to biases such as halo/horns, recency, memory, and/or interpretation. An important distinction that needs to be raised is although there are examples in the literature of immigrants and lower social economic medical tourists having similar behaviors, when it comes to health seeking beyond borders (see for example Kangas, 1996), there can be limitations on the utilization of immigrant populations to make inferences to medical tourism populations. In addition, the time differences between the crossing of the international border and the collection of overall self-reported health outcomes, both pre and post migration, may have an impact on some of the findings and be subject to recall bias. In this research, we explored a subjective indicator of quality of care received, the self-rating of overall health, but have not provided evidence on objective indicators of health. It is quite possible that the health services and interactions with health personnel, because of the lack of English language ability, for example, received by some of the immigrants in the U.S. are inadequate which would impact the results. The geographic regions in which the immigrants settle in the U.S. may also have an impact on their health ratings if they reside in a border region that has a low ratio of health personnel to care for the population. The ability of these immigrants to improve their own health is going to be dependent upon having an adequate number of health providers. In addition, the Social Determinants of Health (SDOH) of the population, not accounted for in this study, including their diet, behaviors, culture, and genetic propensities, are going to have an oversized impact on their health and some aspects, like diet and behaviors, may significantly change post-migration. Another possible set of limitations was found in the Servan-Mori, et al. (2021) study which found “compared with women aged 12-19 years, being in any of the older age groups (20-29, 30-39 and 40-54 years) was associated with a greater likelihood of receiving continuum of care coverage, after controlling for sociodemographic and obstetric characteristics. Having social security and a level of education beyond elementary school is also associated with a greater likelihood of receiving continuum of care coverage.” Therefore population demographics, that were uncontrolled in this analysis, may also be impacting the overall health ratings because certain groups may be experiencing less of a breakdown in the continuum of care after crossing the border. Finally, the limitations of sampling a group of people across time and distance (as well as legal, regulatory, and policy changes) decreases the internal validity of this study.

Overall, the significant difference between before and after migration self-report measures of health suggests that when people travel across borders there could be a possible negative impact on their overall health. The researcher suggest that this could be partially due to the breakdown in communication and processes between the healthcare systems of the two countries. This could then have an impact on both migration as well as medical tourism which has a similar disruptive aspect on the healthcare received on both sides of an international border.

## REFERENCES

- Anonymous. (2010). *Border Lives: Health Status in the United States-Mexico Border Region*. United States-Mexico Border Health Commission (BHC) Report. <https://www.ruralhealthinfo.org/assets/940-3105/health-status-in-the-united-states-mexico-border-region.pdf>
- Carrera, P. M., & Bridges, J. F. (2006). Globalization and healthcare: understanding health and medical tourism. *Expert Review of Pharmacoeconomics & Outcomes Research*, 6(4), 447+. <https://link.gale.com/apps/doc/A232492763/HRCA?u=txshradc2623&sid=HRCA&xid=67c78360>
- Dias, S., Gama, A., Loos, J., Roxo, L., Simoes, D., & Nostlinger, C. (2020). The role of mobility in sexual risk behaviour and HIV acquisition among sub-Saharan African migrants residing in two European cities. *PLoS One*, 15(2), e0228584. doi:10.1371/journal.pone.0228584 PMID:32023309
- Durham, J., & Blondell, S. J. (2017). A realist synthesis of cross-border patient movement from low and middle income countries to similar or higher income countries. *Globalization and Health*, 13(1), 68. doi:10.1186/s12992-017-0287-8 PMID:28851382
- Guiry, M., Scott, J. J., & Vequist, D. G. IV. (2013). Experienced and potential medical tourists' service quality expectations. *International Journal of Health Care Quality Assurance*, 26(5), 433–446. doi:10.1108/IJHCQA-05-2011-0034 PMID:23905303
- Guiry, M., & Vequist, D. G. (2010). The role of personal values in determining U.S. medical tourists' expectations and perceptions of healthcare facility service quality: an exploratory investigation. *Journal of Tourism Challenges and Trends*, 3(2), 115+. <https://link.gale.com/apps/doc/A253305990/HRCA?u=txshradc2623&sid=HRCA&xid=a1c12c10>
- Helble, M. (2011). The movement of patients across borders: challenges and opportunities for public health/ Déplacements transfrontaliers des patients: défis et opportunités pour le secteur de la santé publique/ El movimiento transfronterizo de los pacientes: retos y oportunidades para la sanidad pública. *Bulletin of the World Health Organization*, 89(1), 68+. <https://link.gale.com/apps/doc/A252190655/HRCA?u=txshradc2623&sid=HRCA&xid=4680131b>
- Kangas, B. E. (1996). *Therapeutic itineraries in a global world: Yemeni biomedical treatment abroad* (Order No. 1383572). Available from ProQuest Dissertations & Theses Global. (304297918). <https://uiwtx.idm.oclc.org/login?url=https://www-proquest-com.uiwtx.idm.oclc.org/dissertations-theses/therapeutic-itineraries-global-world-yemeni/docview/304297918/se-2?accountid=7139>
- Kerber, K. J., de Graft-Johnson, J. E., Bhutta, Z. A., Okong, P., Starrs, A., & Lawn, J. E. (2007). Continuum of care for maternal, newborn, and child health: From slogan to service delivery. *Lancet*, 370(9595), 1358–1369. doi:10.1016/S0140-6736(07)61578-5 PMID:17933651
- Lohr, A. M., Ingram, M., Carvajal, S. C., Doubleday, K., Aceves, B., Espinoza, C., Redondo, F., Coronado, G., David, C., & Bell, M. L. (2019). Protocol for LINKS (linking individual needs to community and clinical services): a prospective matched observational study of a community health worker community clinical linkage intervention on the U.S.-Mexico border. *BMC Public Health*, 19(1). <https://link.gale.com/apps/doc/A583177477/HRCA?u=txshradc2623&sid=HRCA&xid=6868b852>
- Lunt, N., Machin, L., Green, S., & Mannion, R. (2011). Are there implications for quality of care for patients who participate in international medical tourism? *Expert Review of Pharmacoeconomics & Outcomes Research*, 11(2), 133+. <https://link.gale.com/apps/doc/A266991631/HRCA?u=txshradc2623&sid=HRCA&xid=38efeefc>
- Panteli, D., Wagner, C., Verheyen, F., & Busse, R. (2015). Continuity of care in the cross-border context: Insights from a survey of German patients treated abroad. *European Journal of Public Health*, 25(4), 557–563. doi:10.1093/eurpub/cku251 PMID:25667154
- Price, R. A., Blanchard, J. C., Harris, R., Ruder, T., & Gresenz, C. R. (2013). Monitoring Cancer Outcomes Across the Continuum: Data Synthesis and Analysis for the District of Columbia. *Rand Health Quarterly*, 2(4). <https://www.rand.org/pubs/periodicals/health-quarterly/issues/v2/n4/06.html> PMID:28083278
- Schweikart, S. (2018). Plastic Surgery Overseas: How Much Should a Physician Risk in the Pursuit of Higher-Quality Continuity of Care? *AMA Journal of Ethics*, 20(4), 357–365. doi:10.1001/journalofethics.2018.20.4.hlaw1-1804 PMID:29671729

- Servan-Mori, E., Heredia-Pi, I., Garcia, D. C., Nigenda, G., Sosa-Rubi, S. G., Seiglie, J. A., & Lozano, R. (2021). Assessing the continuum of care for maternal health in Mexico, 1994-2018/Evaluation de la continuité des soins de sante maternelle au Mexique entre 1994 et 2018/Evaluacion de la continuidad de la atencion sanitaria materna en Mexico entre 1994 y 2018. *Bulletin of the World Health Organization*, *99*(3), 190+. <https://link.gale.com/apps/doc/A656445303/HRCA?u=txshradc2623&sid=HRCA&xid=e5c73fa8>
- Stanek, M., Requena, M., del Rey, A., & García-Gómez, J. (2020). Beyond the healthy immigrant paradox: decomposing differences in birthweight among immigrants in Spain. *Globalization and Health*, *16*(1). <https://link.gale.com/apps/doc/A636906036/HRCA?u=txshradc2623&sid=HRCA&xid=50a20595>
- Suzana, M., Walls, H., Smith, R., & Hanefeld, J. (2018). Understanding medical travel from a source country perspective: a cross sectional study of the experiences of medical travelers from the Maldives. *Globalization & Health*, *14*(1). <https://doi-org.uix.idm.oclc.org/10.1186/s12992-018-0375-4>
- Tzogiou, C., Boes, S., & Brunner, B. (2021). What explains the inequalities in health care utilization between immigrants and non-migrants in Switzerland? *BMC Public Health*, *21*(1). <https://link.gale.com/apps/doc/A656416555/HRCA?u=txshradc2623&sid=HRCA&xid=6e2136ae>
- Van Beckhoven, D., Florence, E., Ruelle, J., Deblonde, J., Verhofstede, C., Callens, S., Vancutsem, E., Lacor, P., Demeester, R., Goffard, J. C., & Sasse, A. (2015). Good continuum of HIV care in Belgium despite weaknesses in retention and linkage to care among migrants. *BMC Infectious Diseases*, *15*(494), 496. doi:10.1186/s12879-015-1230-3 PMID:26530500
- Vequist, D. G., IV, & Valdez, E. (2009). The correlation between medical tourism and biotechnology. *Journal of Commercial Biotechnology*, *15*(4), 287+. <https://link.gale.com/apps/doc/A209043571/HRCA?u=txshradc2623&sid=HRCA&xid=029aedf0>
- Wismar, M., Palm, W., Figueras, J., Ernst, K., & van Ginneken, E. (2011). *Cross-border Health Care in the European Union*. WHO & Euro Observer. [https://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0004/135994/e94875.pdf](https://www.euro.who.int/__data/assets/pdf_file/0004/135994/e94875.pdf)

*David Vequist IV has almost 30 years of consulting, industry, and research experience in issues around the management of people, projects, and technology. He has been an executive of a Fortune 100 company, a consultant at a Big 4 firm, and prodigious speaker and author. He is currently a Tenured Full Professor of Management in the H-E-B School of Business & Administration at the University of the Incarnate Word (UIW) in San Antonio, Texas, U.S.A. In addition, he is the founder and director of the first research institute to focus on patients traveling for healthcare/patient consumerism, the Center for Medical Tourism Research (CMTR). Before that, Dr. Vequist was an executive for Methodist Healthcare (a multi-billion dollar healthcare system in South & Central Texas and part of HCA Holdings) and previously was a consultant for Ernst & Young LLC. In addition, he was the inventor of the Bloomberg BusinessWeek EDGE leadership development program, which was used by many of the largest employers in the world (Walmart, Intel, AT&T, Diageo, Coca-Cola, GE, and more).*