



A Geo Mapping Project for Medical Tourism, Health and Wellness: A Technique to Enhance Tourism Revenue

Abstract

Medical tourism (MT) is one of the hottest niche markets in the hospitality and tourism industry. Through 2025, medical tourism is expected to grow by 20% per year, reaching 60 million people and a market value in the neighborhood of \$260 billion (DeMicco, Cetron & Davies, 2018).

The researchers gathered data about health and wellness facilities throughout the state. These data, including facility type, addresses and types of services, were then geocoded so that they could be mapped and shared online, thereby making them more discoverable to potential health seekers.

There is an opportunity to increase tourism revenue in Colorado and in other states in the U.S. from Medical Tourists and health and wellness seekers. Therefore, Colorado can be a destination of choice for medical tourists and medical travelers via inter-state, intra-state and those also traveling from international destinations. This study attempted to identify some of the potential medical, health and wellness destinations around the state. The goal is to expand the use of these facilities in Colorado thereby enhancing overall Colorado tourism.

Keywords: Medical Tourism, Travel, Health Medical Mapping, Online Mapping, GIS

Introduction to the Concept of Medical Tourism (MT) and Market Projection

Medical, health and wellness tourism and health travel is one of the hottest niche markets in the

hospitality and tourism industry. The Organization for Economic Cooperation and Development (OECD) estimates that nearly 50 million patients travel abroad for medical services each year.

Patients Beyond Borders, an online clearinghouse of information about medical tourism. They estimate that 12 to 14 million people travel internationally for care each year. Only one in ten go for medical treatment, and 70% travel abroad for cosmetic surgery or other elective procedures. The remainder seek a variety of “wellness” services like spa visits, supervised exercise, and dieting. The company estimates that medical tourists would spend an average of \$3,800 to \$6,000 per visit, including direct costs for medical services, accommodations, and local and international transportation. This puts revenues between \$40 billion and \$60 billion per year. The firm’s best guess is that the market is now growing by 15 to 25% annually.

Our official forecast: Through 2025, expect medical tourism to grow by 20% per year, reaching 60 million people and a market value about \$260 billion (DeMicco, Cetron & Davies, 2018).

Medical Tourism Mapping

For this study, we partnered with a research librarian at Colorado State University as well as with staff from the Geospatial Centroid, a GIS and mapping service center also in the library. The research and data gathering was conducted by during an 8-week period during fall 2018.

The intention of the project was to gather information, in a semi-structured format, about health and wellness facilities within the state, and then to map these facilities by geocoding their addresses so they could be viewed in a digital map. See Figure 1 below

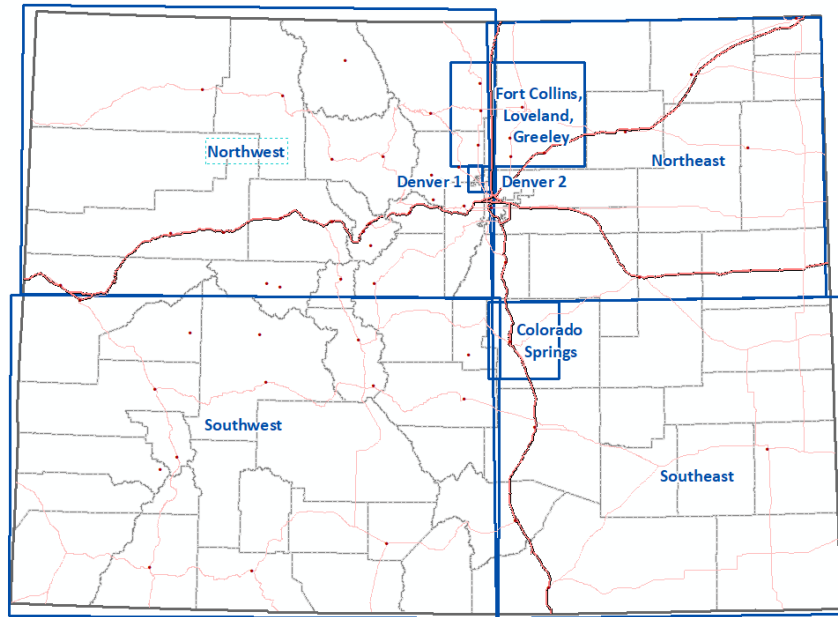


Figure 1: Approximate Division of Groups for Gathering Information about Colorado Medical Tourism Facilities

The first step in this Geo Mapping process was to brainstorm what type of data, or pertinent details, would be useful for someone who was seeking information about medical tourism opportunities in Colorado. A long list of possibilities was generated, but ultimately a total of nine essential elements were selected, as follows:

- Facility Name
- Address*
- City*
- Zip*
- URL or website link
- Point of Service Code
- Walk In or Appointment only
- Specialty
- Age of Patients accepted
- Other Comments

* = required for geocoding process

For each one of these essential elements, possible values were discussed to maintain some consistency in data entry. For instance, while Facility Name would likely be a unique text entry, the Point of

Service Code (or POS) was a coded value between 1 – 6 that represented a certain type of facility:

- 1 = Inpatient Hospital
- 2 = Outpatient Hospital
- 3 = Independent Clinic
- 4 = Rehabilitation Facility
- 5 = Indian Health Service
- 6 = Other

Similarly, it was decided to group the Age of Patients options to five categories:

- Children
- Adult
- Elderly
- All
- Unknown

Once this general structure was determined, the investigators created a spreadsheet template. The researchers gathered information for their region using the various resources provided either online or through the library and filled out their spreadsheet to the best of their ability.

Mapping of Medical Tourism Colorado, Fall 2018.											
MTM Course graduate student project with Dr. Frederick DeMicco, Visiting Scholar to CSU with Sophia Linn, Geospatial Centroid at CSU											
Each student team (n = 8), will fill in a DATA INPUT spreadsheet (see tab below) for their assigned region of Colorado											
Fill in as much as you can; not everything will be available for all facilities.											
Add any comments or suggestions to the last column in the DATA INPUT spreadsheet.											
Save your version of this spreadsheet as follows: CO_MedicalTourism_GroupX (where X is your group number)											
	A	B	C	D	E	F	G	H	I	J	K
Questions?	Facility Name	Address	City	Zipcode	URL	Point of Service Code	(Values for POS)	Walk In or Appointment only	Age of Patients accepted	(Values for Patient Ages)	Other Comments
Sophia.Linn@colostate.edu							1 = Inpatient Hospital 2 = Outpatient Hospital 3 = Independent Clinic 4 = Rehabilitation Facility 5 = Indian Health Service 6 = Other			Children Adult Elderly All Unknown	

Figure 2: Spreadsheet Template for Gathering Details about Health Service Facilities in Colorado.

Once we collected the data, the CSU Geospatial Centroid compiled these data into one master spreadsheet, and made edits both for consistency and for usability in the geocoder. A total of 228 facilities were recorded. The master spreadsheet was loaded into the GIS software program, ArcGIS 10.6, and then the addresses were geocoded using the Esri World Geocoder service. This service takes text-based addresses and converts them into points on a map. See the Figures below.

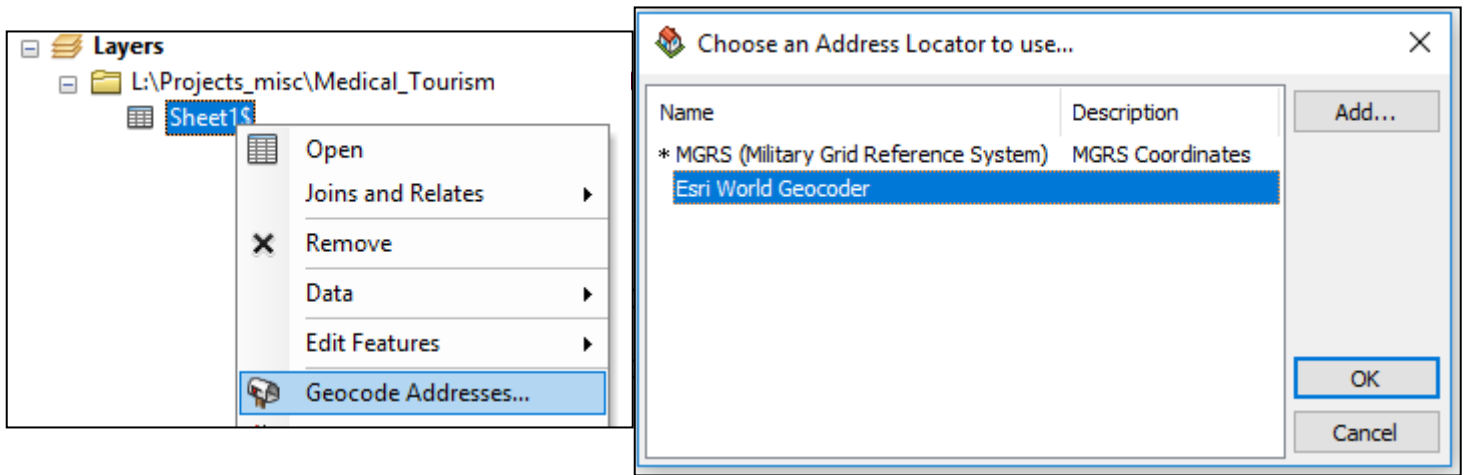


Figure 3: Geocoding in ArcGIS 10.6

A spreadsheet was created using Microsoft Excel where the data would be gathered by the researchers for entry into the GIS software. We used ArcGIS 10.6 and ArcGIS Online for the geocoding and online mapping.

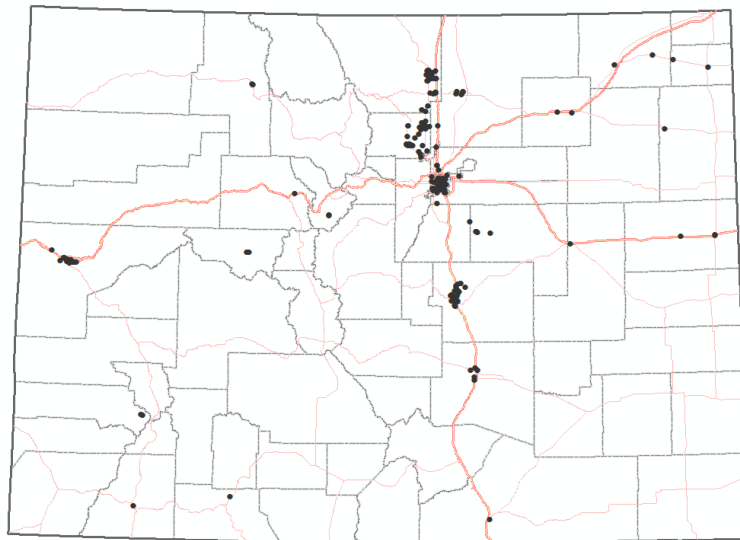


Figure 4: Results of Geocoding. Initial map of medical tourism facilities in Colorado

Once the locations are geocoded, the points—and the attribute data tied to them--can then be used in other mapping applications. As a proof of concept, we created a preliminary interactive map using ArcGIS Online using the Web App Builder. Note that the information shown in the “pop-up” is the data that was originally put into the spreadsheet templates.

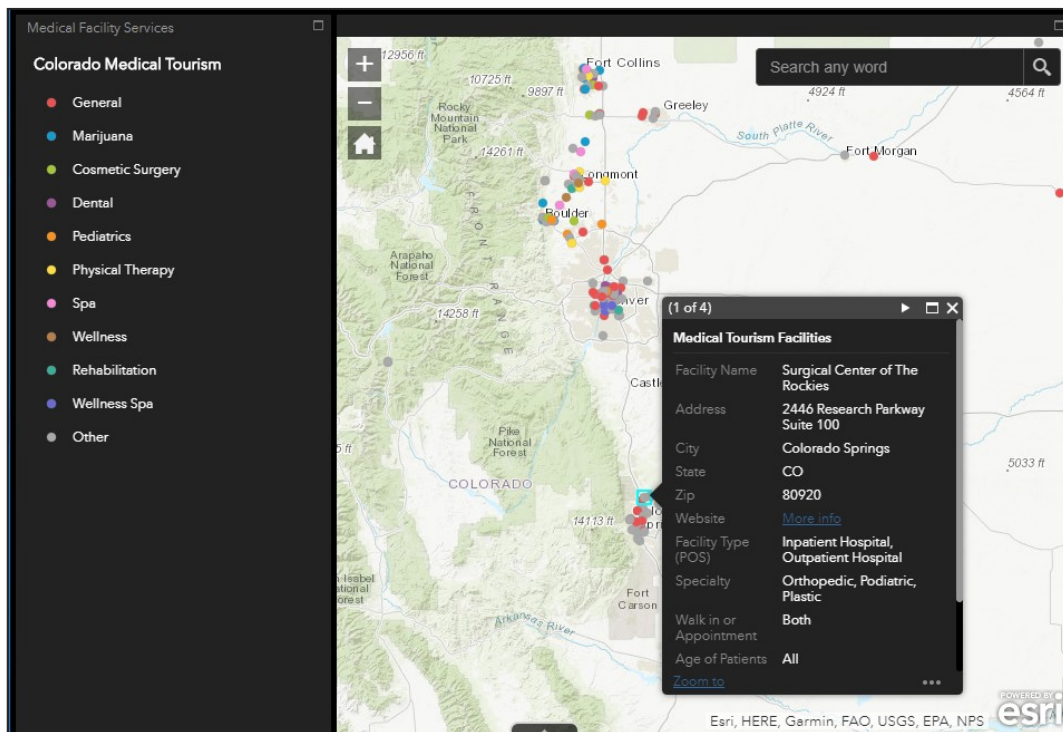


Figure 5: Preliminary Web Mapping Application for Medical Tourism Facilities in Colorado

This interactive map provides an initial example of a platform where medical tourism facilities could be gathered and visualized for the purpose of providing potential medical tourists with a way to discover the many diverse services provided in Colorado. By combining a resource like this, together with links and overlays of other tourist facilities in Colorado, tourists may well be drawn to Colorado for their medical tourism experience.

Conclusions

This study mapped and described some of the potential medical, health and wellness destinations around the state of Colorado. The goal of this project was to expand the use of these medical, health and wellness facilities in Colorado to other states such as Florida, a mecca for medical tourism and wellness travel thereby enhancing overall tourism.

Interactive maps are very useful tools can be used in many other tourism, hospitality and travel destinations to bring awareness to a geographical area. In this case, the state of Colorado vis-à-vis medical, health and wellness tourism. The overarching goal is to enhance tourism awareness of an area and thereby increase the recognition of a geographical area.

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Medical & Health data bases used for this GIS project.

Listed below are a few options from the State of Colorado for searching for medical and health sites around Colorado information related to the GIS project.

<https://www.colorado.gov/pacific/cdphe/find-and-compare-facilities> (Links to an external site.)Links to an external site.

<https://www.colorado.gov/pacific/cdphe/facilities-and-providers-type> (Links to an external site.)Links to an external site.

<https://www.colorado.gov/pacific/cdphe/medicalmarijuana> (Links to an external site.)Links to an external site.

<https://apps.colorado.gov/dora/licensing/Lookup/LicenseLookup.aspx> (Links to an external site.)Links to an external site.

(Courtesy of Jocelyn Boice, MSLIS in the CSU Library as we build our GIS map of MT in Colorado).

References

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ArcGIS Online. Esri, Redlands, CA. 2018.

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Credits

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