CHAPTER 4

THE HUMAN GEOGRAPHY OF CHOLERA

Introduction

Human geography controls the initiation of Asiatic cholera epidemics. This relationship between cholera and people was first noted by late nineteenth century British medical geographer Macnamara, who claimed cholera progresses no faster than its migrating victims. The eruption of cholera depends primarily on living conditions and lifestyle, socio-economic status and population density. Its spread or diffusion is defined by transportation, which has an important military history attached to it. The epidemic remains within a region to become an endemic due to the biology of its pathogen, *Vibrio cholerae*, and the physical geography of the region. This development of a nidus takes place for reasons independent of human geography.

A human geographic review of the history of cholera behavior provides important conclusions about how the nineteenth century Asiatic cholera epidemic behaved spatially. This information in turn can be used to provide an explanation as to how and why cholera has since become a global epidemic or pandemic and remains pandemic to this day. More importantly, this reviews of *Asiatic cholerae* Classical provided by nineteenth has direct applications to studies of the more current *Vibrio cholerae* El Tor.
Living Conditions and Lifestyle

Living conditions and lifestyle impact cholera diffusion by way of personal habits, occupation, foodways, and social behavior. Many of the human behaviors responsible for cholera transmission are multicultural in nature, although they often also have some form of ethnic or cultural history attached to them. The ways in which each of these behaviors are practiced depends in large part on the living environment and personal lifestyle and education involving such activities as selection of place of stay or residency, methods used to secure water supplies, toilet and water closet habits, and the level of common knowledge regarding sanitation and disease-prevention practices. In theory, knowledge of these cholera-inducing features may help prevent its initiation, although in actuality, the relationship of living environment to other cultural features such as poverty and economic status make the total prevention of cholera onset quite difficult, if not impossible.

Living Conditions. Illinois physician Hall noted “local causes existed, sufficient to form a bed for the poison . . . in those who had the disease . . . hard labor, and liquor, made them susceptible to the influence of the poison, while others in the neighborhood, not so much predisposed, did not have cholera” (Hall, 1855, 159). Illinois physician Hamill paid particular attention to domiciliary differences and their relation to the openness of the living space, the purity of its air in regard to warmth, dryness and moisture content, and the use of “the air-tight stove” within an “air-tight house.” Hamill considered domicile houses to be “relaxing and enervating” (Hamill, 1867, 169), whereas the puncheon floor of an “ill-impovised cabin” and “[t]he drinking water was procured either from the neighboring slough, or from the wells or holes dug in the ground to the depth of from two to six feet, lined with boards or a barrel . . . “ (Hamill, 1867, 159) made these same houses quite unhealthy.
Lifestyle. The initial spread of cholera from Canada into the United States in 1832 took place as a direct result of a lifestyle managed by lower class families residing along the St. Lawrence River. Following the death of an individual on board the *Voyageur* during a trip from Quebec to Montreal, a mattress used by the cholera victim was thrown overboard by the ship captain due to its contamination by vibrio-rich rice-water stools. This mattress was subsequently picked up by a French-Canadian fisherman residing in Sorel who brought it home for his family to make use of, only to result in the death of his entire family within a day or two (United States Government, 1875, 564). Likewise, in the Village of Contra-coeur, the Captain of another contaminated ship, while bringing a deceased victim ashore by raft for burial along the St. Lawrence River, came upon a local fisherman of French descent whom he asked to bury the corpse on the mainland. The raft and body were subsequently taken ashore for burial, only to result in the introduction of cholera to the fisherman’s home town (United States Government, 1875).

The fate of the French-Canadian relatives near the Saint Lawrence also impacted a number of French-American families residing along the Mississippi, Missouri and Ohio Rivers, where some of the original settlements of New France were placed. As new French emigrants came to settle the Northern part of the Midwest in January and February of 1854, they inundated these rivers with cholera victims on board the steamboats passing through the numerous French communities of St. Charles, Gasconade, Chariton, Lafayette, Cape Girardeau, and St. Genevieve, a number of which were impacted greatly by cholera (United States Government, 1875, 636?).

On possible reason for this tendency for cholera to strike the French communes pertained to land survey practices. French surveyors defined their properties by placing as many landowners as possible in contact with the waterways and therefore in direct contact with cholera-contaminated waters. In theory, this made the
French communities more likely to catch cholera by making contacting with the fecal waste of cholera victims or the victims themselves thrown overboard. However, little to no mention of cholera impacting French communities was made in the medical literature. This suggests that either French families residing along the rivers were less frequently impacted by cholera due to proper sanitation practices, that there was a greater lack of case reporting involving French homesteads, or that because of the narrow land claims, French homes, wells and latrine settings were placed far enough away from the rivers and potentially-contaminated watersheds.

The impact of cholera on a French Reformed Socialist commune in Illinois was quite different. Settled near Nauvoo, Illinois, as a utopian Icarian Colony in 1849 (Cabet, 1856), a few years after their settlement the Icarians experienced their first cholera fatalities in 1852. The significant number deaths which ensued resulted in the loss of their gardeners, engineers, surveyors, scientists, and political leaders (Mortality Records, Illinois, 1852).

The different outcomes of these three French communities in North America represents the varying effects of cholera on social settings and communes, determined by the living conditions of those communes. In theory, the incidence of French cholera victims should have been greatly increased by their traditional land use patterns. In fact, such an increase was only noted in the historical writings on United States cholera for French residents residing along the United States-Canada border, where low income residents resided, most likely along the coastlines and within the lowlands and in the more rural, hinterland communities near the Great Lakes and well to the north of this border where many of the property claims were designed by British surveyors. As for the traditional French communities residing along some of the Midwest rivers, the lack of references to a high rate of cholera incidence suggest the distance of their homesteads from the waterways to be the cause for their immunity from cholera. The
French Icarian colony on the other hand suffered the most, primarily due to its proximity to the Mississippi River and residency directly on the flood plains, a place of stay that had a direct impact as well on the nearby Mormon settlement in Nauvoo that same year (ibid).

**Unsanitary Living Conditions and Filth.** Personal living conditions impacted cholera activity due to the unsanitary nature of certain types of homesettings. Such was the case for one of the first sets of cholera victims in New York City, who resided in a basement apartment (______) as well as in Baltimore in 1849 when an almshouse attic living space was contaminated by “a foul overflowed privy and drainage from the washhouse and dead-house” (United States Government, 1875, 612). Likewise a large number of deaths took place amongst the newly-arrived emigrants residing in “filthy, ill-ventilated, and already-crowded courts, alleys, or tenements” (United States Government, 1875, 636). In Nashville, the first family afflicted with cholera in June of 1848 resided in a house judged to be “in a most miserable condition” due to the surrounding water (Shapard, 1859). In New York, the cholera discharges of victims travelling by railroad were deposited directly on the rails, resulting in the contamination of local water supplies used by low income communities located between train stations. Likewise, Carroll noted the inhabitants of Illinois residing below a railroad depot more frequently caught cholera and died, whereas those residing uphill from the railways didn’t (Carroll, 1854, 322).

“Filth” was one of the most common cause for cholera still noted in many writings on the prevention of the disease. However, “filth” alone was not the major cause for cholera. During the mid-nineteenth century, other factors which came into play in regard to cholera onset and epidemic initiation were sociological in origin and relate to such features as occupation, foodways, shared clothing practices, and social gatherings. Each of these aspects of life style elicited some form of cholera exposure
resulting in turn in the continuation of an epidemic as a rural and suburban issue prior to its becoming an urban issue.

**Occupation.** Socio-economic features such as career or occupational status and poverty are directly related to the onset of cholera. Those occupations most at risk according to the published medical journal articles were morticians, gravediggers, and health care practitioners. Exposure to the dead bodies of emigrants and Euro-American settlers was fatal to the morticians and coffin-makers at Ange Gardieu and the Native American gravediggers in the midwest (United States Government, 1875) (United States Government, 1875, ). Health care providers were prone to cholera due to their direct contact with the victims before and after death. Most importantly, physicians of cholera-afflicted regions, depending upon their type of practice and place of occupation, provide an example of how middle and upper income communities may develop cholera due to their contacts with the members of the lower income communities. Similarly, theological health care givers including church leaders, spiritual healers, and nuns employed as nurses died due to cholera exposure, spreading it from the underprivileged lower class communities into their own communities.

Transportation service employees were susceptible due to their proximity to the first victims. Ship captains, surgeons and crew members experienced cholera due to their proximity to the victims, their rice-water discharges, and their personal belongings contaminated the bacterium (United States Government, 1875 ). Similar causes for death existed amongst railroad and canal employees.

Railroad and canal workers spread cholera from transportation routes into communities adjacent to these routes. In August of 1852, emigrants working on the Bellefontaine and Indiana Railroad caught cholera and died, whereas very few others not employed by the railroad were afflicted (United States Government, 1875 ). In
the District of Columbia in 1832, 7000 laborers working to improve a canal, became afflicted with "malignant typhus fever," in turn leading to a full-fledged cholera epidemic in the heart of the city over the next month (United States Government, 1875). According to Shapard, when cholera struck Tennessee in the Rim region, the Irish workers drilling a tunnel for the Nashville and Chatanooga Railroad through a limestone mountain "lived without any regard to the laws of hygiene" and so were greatly afflicted by cholera (Shapard, 1879, 128).

Through the act of simple handling of a cholera victim's belongings, merchandise handlers had the ability to spread the disease. A hotel washerperson, contaminated by contact with the clothes of an earlier victim spread the disease first to a friend in jail and then to a number of children who made contact with the victim's clothing left outside to be cleaned (United States Government, 1875). In 1833, William Cooke of Lancaster, Kentucky purchased some cholera-contaminated merchandise in Lexington. His wagoner and two store assistants unloaded the merchandise into his store died from cholera by noon the next day, followed by another 113 deaths within the surrounding country during the upcoming weeks (United States Government, 1875).

**Foodways.** Foodways commonly related to cholera include seafood, especially oyster, crabs, and certain bottom-feeding fish. In New Castle, Delaware, cases erupted on an oyster boat in 1832, of which "[a]ll who ate oysters had the disease" (United States Government, 1875, 583). In 1832, members of a Mexican community succumbed to cholera following the consumption of freshly caught fish. Most likely these deaths took place due to the preparation of this fish as ceviche, in which the fish is marinated and then eaten raw, a traditional Mexican meal known as responsible for the spread of cholera even in modern times in and around the Gulf of Mexico communities (Blake, 1994).
Certain poverty-related foodways set the stage for the earliest cases of cholera in New York City in 1832. A poor Irish family succumbed to cholera by subsisting on a piece of rancid meat handed to them by a person in contact with a cholera victim (Rosenberg, 1987, 59). The French-Canadian, French Icarian, German, and Irish settlements and communes also had poverty to blame in part for their high rate of epidemic fatalities due to cholera.

In more recent accounts of cholera epidemics, improperly cooked horsemeat was blamed (Pollitzer, 1959, 857), along with numerous raw foods and undercooked foods likely to harbor Vibrio and cause cholera [Table]. Certain selective fishing practices may increase cholera likelihood as well; in Southeast Asia, the harvesting of bottom-feeding fish for consumption may have given way to disease in Japan, the Philippines, and India (Pollitzer, 1959, 858-860).

Finally, the lack of adequate food supplies indirectly leads to cholera onset by way of inducing malnutrition, a primary cause for increased cholera susceptibility. Increased cholera incidence has also been associated with alcoholism, by increasing one’s susceptibility to cholera onset by way of inducing a condition known as achlorhydria in which stomach acidity is greatly reduced.

**Shared clothing.** In a review of the Chicago and Detroit cholera epidemics, one author posed an important question about the passage of cholera along the Ohio River mostly by Irish emigrants: “Why should emigrants coming from the infected ports of Europe, in infected vessels, be attacked to the exclusion of other persons? Plainly, to my mind, because they are carried about with them, in clothing or baggage, a poison capable of regenerating itself and spreading abroad an influence that in the warm months produced a general epidemic.” (United States Government, 1875, 635). Cholera was introduced into Canada in 1832, in spite of a long journey overseas during which time the likelihood for vibrio survival was greatly reduced. Contaminated
clothing and blankets were packed away in steamship lockers until the arrival of the passengers. During this time, vibrio remained dormant until its re-exposure to human cholera candidates. In Bangor, Maine, similar cases ensued due to a chest filled with clothing worn by a former cholera victim from the Baltics (United States Government, 1875, 581-2). The spread of cholera into Chicago, but not New York State, took place when thirteen Swedish emigrants making their way through New York City and Buffalo unpacked their clothing just prior to their arrival in Chicago (United States Government, 1875).

Social Gatherings. Forts, prisons, pubs and hotels serve as temporary way points for cholera due to their high population density and confined living spaces. Likewise the various cultural practices conducive to overcrowding may cause cholera epidemics, including popular religious gatherings, local fairs, celebrations, and festivals. Whereas the countries of origin for travelers to Mecca have historically defined the boundaries for cholera dissemination prior to the region's British occupation, this route was perpetuated further along the routes travelled by local caravans and missions. Likewise in Carthage, Illinois, in 1854, cholera was brought into Carthage by way of a travelling circus company (Hall, 1855).

Attending the funerals of a cholera victim was highly conducive to the further spread of the disease, a social practice which gave way to cholera cases in Chatham, New Jersey in _____ (United States Government, 1875, 583?), and brought it from Marysville, Kentucky, into the more susceptible populations residing in the suburbs and rural townships in 1833 (ibid).

A unique trait about areas in which communal lifestyles and religious gatherings is that they could experienced high death rates in short time periods of time in spite of their sparse populations. The outdoor gatherings of the Baptist and Methodist communities of Kentucky and Tennessee could have enabled than likely
enabled new small scale epidemics to erupt locally. Likewise, as cholera made its way westward along with these emigrants, for example in California near Marysville and San Francisco, the continuation of these outdoor religious gatherings provided for yet another means to spread cholera between cities, towns and farming communities.

Ethnicity and Socio-economic Status

Ethnicity and socio-economic status are population aggregate or group-related features which relate to cholera incidence in several ways. Attached to ethnic identity are cultural attributes which increase the likelihood that cholera will infect and then diffuse throughout a given social group. This increased likelihood for cholera fatality within certain groups has been noted to exist due to heredity and the lack of acclimatability of certain migrating peoples. Secondly, socio-economic status effects cholera diffusion and behavior due to the living conditions attached to poverty, and the impact of cultural beliefs on these living conditions on and related human behaviors.

Historical evidence for the impacts of cultural behavior on cholera dispersal appear repeatedly throughout the mid-nineteenth century medical literature. This vibrio behavior often led to the initial contamination of the borderland and suburban communities of numerous cities in Europe and the Americas. Such an initiation of cholera is usually then followed by the development of a full-scale epidemic within the more densely populated urban center.

Whereas regions inhabited by low income social groups were often the first to suffer cholera and the first to be blamed for it, the greatest and more prolonged impact of these low income neighborhoods was on the medium to high income communities. In England for example, the low income neighborhoods of were the first to suffer cholera due to poor water sanitation practices. The prolongation of this cholera
epidemic in England was attached to low income groups who became the last to suffer the 1832 epidemic, the poor people residing in the ghetto-like environments of London ( ). In addition, the continuation of cholera throughout parts of Tennessee and Kentucky between 1832 and 1837 may in part be due to the low income status of many of its Appalachian and Ozark mountain communities.

**German and Irish Settlements.** The most common social groups associated with the 1832 and 1848/9 epidemics in the United States were the Irish and Germans making their way from Europe to North America during this time. These migrations, often made in haste, took place due to the poverty and malnutrition suffered within the homelands. Once new settlements were developed in the United States, a repeat of these impoverished living conditions ensued thereby increasing the likelihood that cholera might once again erupt in these ethnic communities.

The predisposition of German settlers to cholera is best seen in the published accounts of the 1848 to 1852 Louisiana and Ohio epidemics. When the introduction of cholera into New Orleans in 1848 took place, it was the German emigrants making their way from the New Orleans seaports to the boarding houses just outside of New Orleans who carried the disease into the rest of the southern Interior Valley. When Cholera struck Ohio, it first infected the German settlements at Minster and Bremen, resulting in a loss of 150 of the governing political leaders of these settlements in 1849 (Anonymous, 1849. Incidents). In 1852, blame for the epidemic was in part placed on the “lower German population” of St. Louis, who suffered the most from it (United States Government, 1875). Similarly, during the early to mid-1850s the German settlements in Texas were impacted by the 1852 to 1854 epidemic spreading westward to the Pacific Coast (Bosch, 1855).

In 1850, blame for cholera was placed on German settlers due to their habit of closing the window in order to avoid an invasion of “choleraic miasma,” even during
the hottest days of the year in St. Louis (McPheeters, 1850, 109). This behavior, related to the strong German history of medical climatology research, led American medical geographer Carroll to write "the German . . . in his humblist relation with civilization . . . [has] a horror of free ventilation" (Carroll, 1854, 322).

Like the German settlers, Irish settlers were highly prone to experiencing cholera. The first known emigrants to introduce cholera into Canada in 1832 included a number of Irish emigrants, residing in low-income boarding houses frequented by other Irish families. According to Carroll, "the Irishman . . . in his lowest degradation" was prone to cholera and numerous other diseases for similar reasons (Carroll, 1854, 322). Their tight living quarters in New York and within the lowland hamlets situated near various creeks and riverways throughout the Midwest enabled carriers to rapidly spread cholerathroughout their communities. A recent medical geography study of cholera in Buffalo in 1849 noted the Irish settlement to experience the greatest number of deaths (Cotter and Patrick, 1981).

The best evidence for this high degree of cholera incidence amongst German and Irish settlements appears in a study of Cincinnati cholera deaths (Carroll, 1849), depicting the distinct differences in cholera mortality and survival due to ethnicity [Figure ]. According to Carroll, German and Irish settlers were more likely to die from cholera than British and Euro-American settlers (Carroll, 1854). Even more important, whereas the greatest number of deaths took place within the Irish community, it was the Germans who suffered from the highest percent mortality rates.

Carroll attributed this high rate of cholera avoidance, prevention and survival by EuroAmerican citizens to acclimation. No clear reason was given for the survival of British settlers, although acclimation was again strongly eluded to. Each of these ethnic findings lends credence to the possibility that cholera was first introduced to the southwest by local ethnic groups already exposed to cholera in their mother country.
Another possible reason for the high number of German deaths may relate to the simple tendency for German emigrants to reside more often in the Midwest (Johnson, 1951).

One of the more important issues posed in relation to ethnically-defined epidemic experiences relates to whether or not certain living habits within a given community were disease-preventing and health-promoting. The relatively high number of cases of infected Irish settlers in Cincinnatti suggests that either the Irish population count was high, or the living space and living habits related to Irish communalism made it more likely that close contact could take place, resulting in increased cholera dispersion. Similar questions can be posed about the high percentage of deaths which took place amongst members of the German communities in Cincinnatti in 1849. Although both of these groups experienced a considerable amount of prejudice, the higher percentage of deaths amongst German residents suggests that a German-defined cultural behavior might be responsible for this greater number of fatalities which ensued following disease onset, including more crowded living conditions, increased family participation in tending to ailing relatives, reliance upon less effective preventative and therapeutic therapies, or a lessened reliance on public health health care provisions. Most importantly, since most of these ethnic features impacting cholera incidence and fatality dealt mainly with sociocultural behaviors, the absence or presence of health care had little impact on the total mortality rates during the mid-nineteenth century cholera years.

African-Americans. Cholera mortality among migrating Africans and enslaved African-Americans was quite prevalent. In 1832, a crowded slave ship transporting Africans to Havana, Cuba experienced the greatest number of deaths in a single living space when it lost half of its one-thousand passengers before reaching its final destination. The remaining half perished soon after their removal to the local
plantations, thereby spreading cholera across the region (Anonymous 1833). In Campeche, Yucatan, Perrine noted “Negroes and their mixtures are a very small part of the population, and were as great sufferers as the Indians--possibly greater--in proportion to their numbers. Even the different shades of Indian and Negro blood, seemed to invite the disease in the ratio of their darkness.” The most susceptible of these colored families were “the servants of large families... swept of without exception, while the white members were not even attacked” (Perrine, 1833, 335).

A comparable high incidence of cholera fatality took place amongst African-Americans residing in the urban setting of Kingston, Jamaica. Paul James’s review of cholera in Kingston demonstrated that in spite of their placement within the same urban setting as Euro-Americans, African-American populations experienced greater mortalities than white populations residing within and around the same city (James 1851). Regarding African Americans residing in British Honduras, Hamilton noted them to be more likely to succumb, claiming “they seem at once to lose all hope, and seldom recover” (Hamilton, 1863, 110).

Matching findings of high mortality amongst African-American residents in the United States could not be found as easily in the literature. According to a writer in Clarksville, Tennessee, the majority of cholera victims were negro and members of the “destitute white population.” Those least affected by cholera were women, children, and “white persons residing in the more cleanly portions of the town, and enjoying the comforts of life” (Haskins, 1849, 3). In an 1873 study of ethnicity, race and cholera carried out by the United States Government, the ethnicity of cholera deaths due to the 1866 epidemic of the Interior Valley [Table].

Such a deviation from the suspected outcome in regard to race and fatality noted by the United States Government study may be due to the unreporting of African-American deaths by members of the impoverished communities.
Alternatively, the multiethnic distribution of low income residents in this part of the Interior Valley could explain the multiethnic distribution of cholera deaths. Finally, according to Shapard, these epidemics took place primarily in that part of Tennessee which was more heavily settled, namely the more developed farming communities already established and well-settled by caucasian families (Shapard, 1879). In sum, the most likely reasons for the increased cholera mortality in ethnic communities are numerous. Low income status may be associated with poverty, malnutrition and alcoholism, behaviors conducive to increasing cholera fatality regardless of race and ethnicity. Poor sanitation practices in the domestic and surrounding outdoor environments may also be conducive to high cholera mortality. Lack of adequate public health related knowledge and provisions in an environment which supports cholera behavior might also serve as a causative factor, especially within the more impoverished Ozark and Appalachian Mountain communities.

**Native Americans.** The 1833 Campeche epidemic led Perrine to write about the tendency of indigenous groups to suffer the most from it when, on the 24th of September, cholera struck the Mayas near Yucatan, many of whom died. According to Perrine, the white population residing nearby experienced fewer deaths (Perrine, 1833, 334-5). Perrine in turn blamed the Mayan mortality not on the contagion, but instead on the sensitivity of certain cultural groups to it as residents of “sensitive community” bearing a “the weakness of the mind” (Perrine, 1833, 338).

In the United States, Native American cholera incidence was poorly documented but most likely present. Brief mention of natives succumbing to cholera were made by . . .

At first, the incidence of Native deaths is expected to be low due to the location of Native settlements deep into the hinterlands of the Interior Valley and Far West. However, with the increase in westward migrations by the late 1840s, Native exposure
to cholera is expected, and was noted briefly by several fort records and early township records.

This impact of cholera on Native communities was most likely a sequel to the introduction of highly contagious diseases. Since cholera required high population density to become an epidemic, some of the Native groups may have had the population density requirements required for epidemic onset. However, poor sanitation practices in a single area are also required for cholera to take hold of a region following its introduction. The tendency for native groups to migrate from one place to the next may have greatly reduced the likelihood of cholera epidemic eruptions within their place of stay. The increase in sedentary lifestyle noted to take place in tribal settings increasingly exposed to Euro-American settlements like forts and villages, due to desired provisions, may have made the Native American settlements more prone to diseases brought on by insanitation and contagiousness.

The Native American population clusters forming in the Midwest during the 1840s provide an example of this scenario for cholera introduction into Native American communities, and the way in which Native living behaviors prevented its further spread westward. The Northwestward cholera route along the Missouri River initiated in 1837 due to the arrangement of forts along the Missouri River and was re-activated by the 1849 epidemic. By the early summer of 1850, cholera made it as far as Fort Pierre where it killed two white men and then made its way through the Blackfeet, Pawnees, Ottoes, and Sioux Indians due to their proximity to the forts at the time of their initial exposure. According to Indian Agent Major Hatton, the tribes were able to subsequently reduce the likelihood of catching the disease and experiencing its epidemicity by “dispersing the contagion” and scattered into well-distanced groups of “not above five or six lodges” (Hatton, 1850).
Acclimation. Ethnicity and acclimation are often used to formulate arguments about fatality and disease. During the late eighteenth and early nineteenth centuries, British writers speculated that due to their nativity to Africa, African-Americans were more “adapted” to diseases endemic to their region than incoming European explorers and settlers ( ). This same argument was in turn used to blame disease on the lack of acclimation by caucasian groups. Inhabitants of the Panama Isthmus for example, since they were naturally exposed to the endemic Panama or Chagras Fever, experienced less morbidity and mortality due to yellow fever. Regarding this impact of heritage on disease and its relationship to settlers passing through this region on their way from the East Coast to California, medical climatologist William Buel wrote: “[t]he climate is not friendly to the white races. The light-complexioned children one meets about the streets, are pale and anaemiated, with narrow chests and slender attenuated limbs . . . Panama has the reputation of being a place of extraordinary insalubrity--a sort of hot-bed of disease--where the fever which bears its name reigns with undisputed supremacy” (Buel 1859).

Regarding the incidence of cholera in the United States, Thomas Carroll posed a similar argument for the large number of deaths experienced in Cincinnati in 1854. Carroll blamed these fatalities on the lack of acclimation by its settlers, one third of whom were of German and Irish descent and the remaining of English, Scotch, Welch, and French descent. He then concluded “[t]he poor foreigner possesses not only filthy habits in his mode of living. . . [but] had all the citizens of Cincinnati been natives of the United States, or of America, the mortality which we suffered would probably have been diminished by half” (Carroll, 1854, 325). Similar arguments were again posed for deaths in the Interior Valley of Norwegians (Williams, 1855) and Swedish and German settlers (Hall, 1855) between 1849 and 1854.
This ethnocentric interpretation of cholera incidence was not unique to the United States. French geographer Boudin also discussed the relation between acclimatization and ability to settle a given region (Daniel, 1857). In 1832, a British writer noted the 1832 epidemic in Campeche noted to be more fatal to the nearby native populations (Perrine, 1833, 335). When cholera came to Cuba in 1833, it was blamed on indigenous people, the first groups impacted by it (Anonymous, 1833). Again, similar claims were made about the susceptibility of native populations in Jamaica to cholera (Newcastle, 1853) and the native population in Grenada (Carreno, 1856).

Conclusion

The initiation of a cholera epidemic is an event that takes place at a particular site due mostly to human geography features. The features most conducive to cholera initiation relate to living style, cultural behaviors, and socio-economic related behaviors.