

Wikicountry Brazil  
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### Introduction: Brazil

Brazil, also known as the Federative Republic of Brazil, is located in eastern South America along the Atlantic Ocean coastline (“Brazil,” 2015). It is the fifth largest nation in the world in terms of geography sixth largest in terms of population; its territory encompassed approximately 8,515, 770 square km, and housed approximately 202,656,788 people in 2014 (“Brazil,” 2015). It also has a quickly-growing economy with the eighth highest gross national product in the world, although some portions of the country are low-income areas (Mello, 2012). The major ethnic group is white (47.7% of population), but it also has a significant mulatto population (43.1%), followed by black (76%), asian (1.1%), and indigenous people (0.4%) (“Brazil,” 2015). In addition to the people, Brazil is also home to the Amazon Rainforest, a major ecosystem, and thus has an important position in deforestation and sustainability (Mello, 2012). As can be inferred from a rainforest, most of Brazil’s climate is tropical, but the weather becomes more temperate in the south (“Brazil,” 2015). Brazil’s major exports include coffee and sugar (Mello, 2012), but it is also a natural resource of bauxite, iron ore, gold, manganese, platinum, and tin (“Brazil,” 2015).



Retrieved from <http://www.who.int/countries/bra/en/>

Brazil’s political history was influenced by the Portuguese, and Brazil had struggled to find an identity of its own. According Mello (2012) at the University of Vale do Paraiba, Brazil was discovered by the Portuguese explorer Pedro Alvarez Cabral in 1500, but the land had its own native people with as many as 2,000 tribes. The Portuguese introduced slavery to the country by importing African slaves to develop sugar trade (Mello, 2012). When Brazil separated itself from Portugal in 1822, it also ended slavery and began a monarchy that lasted until 1889. After that, Brazil had fluctuated between dictatorships and democracies, and had recently settled with a democracy (Mello, 2012). The current president is Dilma Rouseff, who has been in office since 2011 (“Brazil,” 2015). Today we can see Portugal’s influence on Brazil in its language, as it is a Portugese-speaking nation and the only American nation to do so (Mello, 2012).

### Brazil's Health Indicators, Causes of Death, and Risk Factors

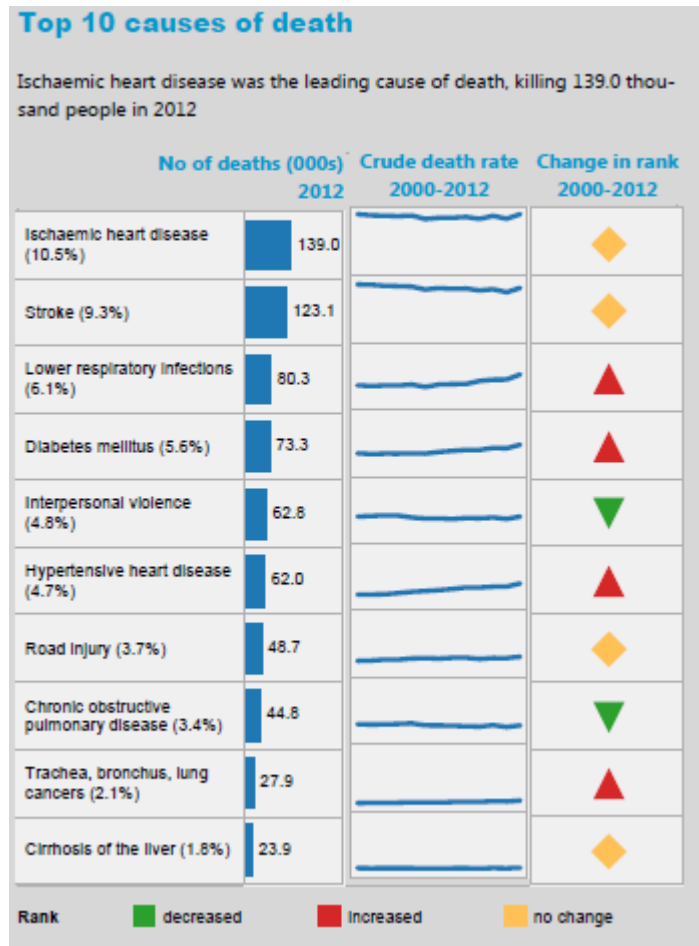
Key health indicators include infant mortality rate, life expectancy at birth, maternal mortality ratio, neonatal mortality rate and the under-five mortality rate (Skolnic, 2012). The World Bank reports health indications for several nations, including Brazil and the United States, with the most recent figures originating from 2013. The following are figures for Brazil: infant mortality rate per 1000 live births, 12; life expectancy in years, 74; maternal mortality ratio per 100000 live births, 69; neonatal mortality per 1000 live births, 8; and under-five mortality rate per 1000 live births, 14. In comparison, The World Bank reports the United States to have the following figures: infant mortality rate per 1000 live births, 6; life expectancy in years, 79; maternal mortality ratio per 100000 live births, 28; neonatal mortality per 1000 live births, 4; and under-five mortality rate per 1000 live births, 7. Generally, those who are born and live in Brazil generally less likely to survive as long as those in the United States. When compared to an affluent country like the United States, Brazil would appear to be trailing behind other first-world countries in terms of the population's survivability. However, Brazil has been improving at a faster rate than the United States in these statistics during the last 20 years. For instance, since 1993, life expectancy in Brazil life expectancy has grown from 68 to 74 while the United States has been relatively stable with a slow growth from 75 to 79 (World Bank, 2015). Brazil's rapid growth suggests that the quality of life has been improving in the past two decades and may keep up with other first-world countries.

Health Status Indicator in 2013	Brazil	United States
Infant mortality rate (per 1000 live birth)	12	6
Life expectancy at birth (years)	74	79
Maternal mortality ratio (modeled estimate per 100000 live births)	69	28
Neonatal mortality rate (per 1000 live births)	8	4
Under-five mortality rate (per 1000 live births)	14	7
Adapted from The World Bank statistics (2015)		

Brazil's Key Health Indicators . Data compiled from  
<http://data.worldbank.org/indicator?display=default>

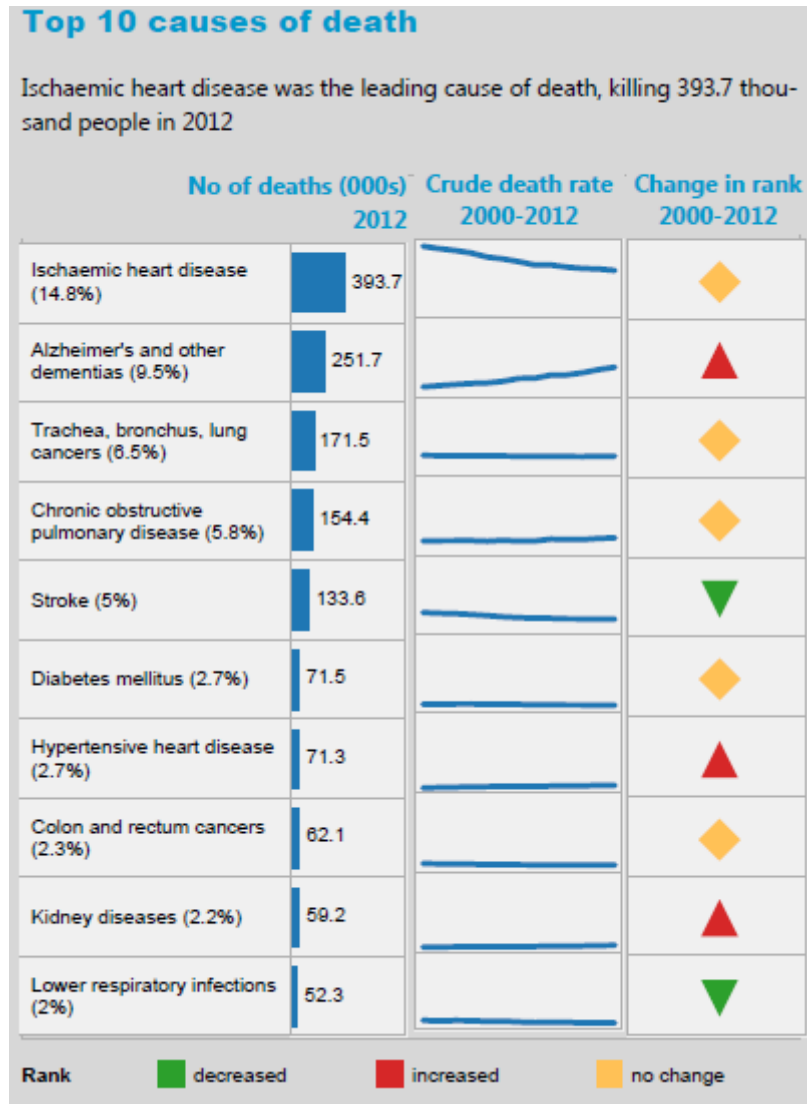
According to the World Health Organization, or WHO, (2015a), the top cause of death in Brazil is ischaemic heart disease, with 139,000 deaths in 2012. The other causes of death from second to tenth include stroke, Lower respiratory infections, diabetes mellitus, interpersonal violence, hypertensive heart disease, road injury, chronic obstructive pulmonary disease, lung or airway cancers, and cirrhosis of the liver. Most of these causes of death are noncommunicable diseases. This list is actually similar to the United States, where the number one cause of death is also ischaemic heart disease; the rest of the causes from second to tenth are Alzheimer's disease, lung or airway cancers, chronic obstructive pulmonary disease, stroke, diabetes mellitus, hypertensive heart disease, colon and rectum cancers, kidney disease, and lower respiratory infections (WHO, 2015b). Like Brazil, many of the causes of death are due to noncommunicable

disease. The main difference between the two nations' causes of death is that Brazil's causes include more external, violent causes, such as interpersonal violence and injury, whereas the United States has causes that are internal, like dementia diseases or cancer.



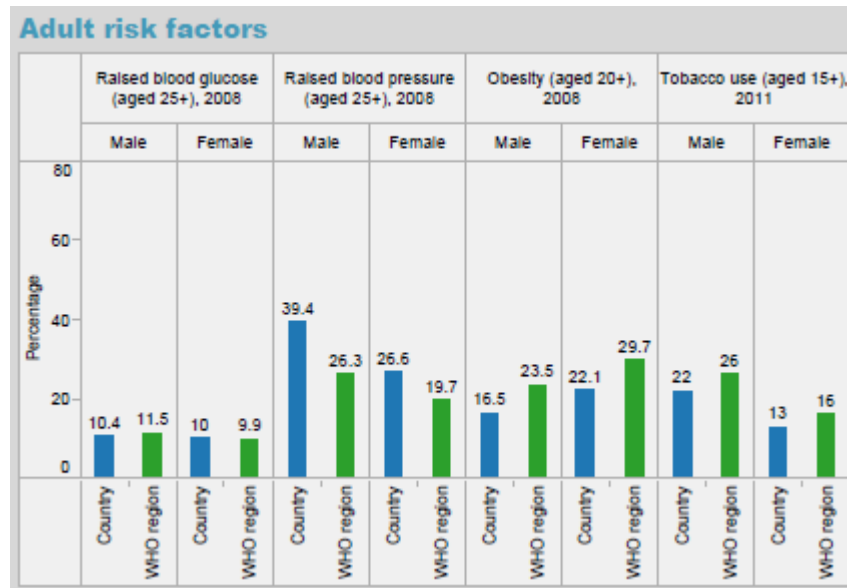
Brazil's Top 10 Causes of Death.

Retrieved from <http://www.who.int/countries/bra/en/>



United States of America's Top 10 Causes of Death.  
Image retrieved from <http://www.who.int/countries/usa/en/>

Risk factors that may affect Brazil's health may be inferred from the nation's causes of death. Three of the top ten causes, ischaemic heart disease, stroke, and hypertensive heart disease are all cardiac related. The WHO (2015a) reports that the blood pressure of males and females in Brazil are higher than the average for countries in the same WHO region. Thus, Brazilians must be wary of their blood pressure. Another risk factor is blood glucose. The country's blood glucose is similar to the average in the WHO region, but diabetes mellitus has raised in rank of causes of death since 2000 (WHO, 2015a). Keeping national control of diabetes may also mean decreasing the levels of blood glucose.



Brazil's Risk Factors.

Retrieved from <http://www.who.int/countries/bra/en/>

### Brazilian Health and Education

Brazil has spent the last ten years improving their education. The Brazilian education system is structured into fundamental (pre-school), intermediate (grade school), and higher levels (college degree) are managed by the Ministry of Education and Sports (World Education Services, 2004). In 2003, the Ministry of Education and Sports had recognized that the country needed to improve the country's literacy, so it initiated the Literate Brazil Program to meet that end (United Nations Educational, Scientific and Cultural Organization, 2015). In 2015, The United Nations Educational, Scientific and Cultural Organization (UNESCO) reports that the youth literacy for both sexes is 98.91% while the adult literacy rate is 92.58%. It is notable that the adult literacy is significantly lower than those for than the youth. It suggests that government has been successful in improving the education system. This result is tangible in the population's health because the maintenance of health is greatly influenced by education and literacy. In one example, diabetic patients at a Brazilian hospital were found to have lower health literacy when they were illiterate or when they were older (Gomes, de Castro, & Brito, 2014). Hopefully, the as the current population matures, so will the health literacy.



Cuban doctors have been brought to Brazil to care in underserved areas. Image retrieved from <https://abrazilianoperatinginthisarea.wordpress.com/2013/08/26/brazilian-doctors-dont-like-foreigners-specially-when-they-come-to-help/>

## Culture and Health

A nation's culture grows from the history from the people, and those behaviors shape how the people approach social situations. The way people approach health is also affected by culture - it includes how they eat, or their nutrition, their hygienic practices, how they perceive illness and disease, and how they treat sickness (Skolnic, 2012). Perhaps a diet will favor vegetables over meat due to a religious belief or a folk healer would be seen to treat an illness that is believed to be the manifestation of an ill-intentioned spirit. In Brazil, the culture has grown from a combination of beliefs from the indigenous and the European colonists.

In the early 1900's, there were essentially two separate populations in Brazil. The coastline had the European settlement population while the interior was home to the indigenous population. In regards to healthcare, the interior used herbal remedies and animal remedies to treat illness, whereas the coastline had western medicine but was not much interested in the interior. The two populations began to unite to improve sanitation as the Chagas illness, malaria, and hookworm became widespread. (Lima, 2007). The Portuguese's influence can be seen in the "medicina rustica" which was a combination of Portuguese, African, and Indian remedies (Lima,

2007). If a person got sick, he would come and see several healers, including western medicine physicians, until he became well.

Gender roles play into Brazil's culture and health in the interaction and sexuality between the people. When the Portuguese colonized the country, they brought the concept of "machismo," which is masculinity associated with authority and strength (Margolis, Bezerra, & Fox). As a result, males are expected to be the source of primary income, while females tend to the family and children. Females are able to have jobs today, but only about 40% have employment; the position is usually low-paying and low-skill, such as textile worker (Margolis, Bezerra, & Fox, 2015). There is a double standard that comes with machismo. Men are expected to express their sexuality and are able to have many partners, but females are expected to be faithful to one man. However, the designation of male and female is based on who is performs sexual penetration. Brazil also has a high population of transvestite population called "travesti," who were born male but considered female (Kulick, 1997). Boyfriends of travesti are not homosexual unless they become interested in the travesti's penis, which is the point they become "not-male" (Kulick, 1997).

## Cultural Practices

### Machismo and Public Health

Machismo is prevalent as a practice such that it affects public health. Men are promiscuous, but the same quality doesn't fit a woman. The promiscuity becomes a problem in light of human immunodeficiency virus (HIV), acquired immune deficiency syndrome (AIDS) and other sexually transmitted diseases (STD). HIV and AIDS became an epidemic in 1994 when it became the third highest cause of death for women ages 25-34 in Rio de Janeiro (Giffin & Lowndes, 1999). However, safe sex and contraceptives have double standard along with machismo. If the female asks to use a contraceptive, then the man might use it, but if the female actively carries a contraceptive, then the female is seen as promiscuous (Deomampo, 2008). This kind of mentality towards sex and contraceptive places risk on the spread of HIV and other STDs. In order to assist in the awareness HIV, AIDS, and STDs, then more gender equality would need to be encouraged.

### Brazilian Standard of Beauty and Health

The other side of the coin of Brazilian sexuality is the female standard of beauty. It is influenced by Portuguese upbringing, the need for social status, and self-image. The ideal appearance itself closely mimics the European Caucasian: straighter hair and lighter skin (Besse, 2005). During the colonization, the indigenous people were considered uncivilized by the European coastal population (Lima, 2007). The sentiment is reflected in the view towards social status today. Little respect is given to those who are poorer (Margolis, Bezerra, & Fox, 2015). Those in pursuit of social status and beauty elect to have plastic surgery, or "plastica," and attempt to achieve a perfect body (Edmonds, 2007). But while natural signs of aging or childbirth are considered normal in American society, they are considered deformity and imperfect, so women have cosmetic surgery to hide them (Edmonds, 2007). Those who undergo repeated plastica argue that it helps their mental health while some cosmetic surgeons feel that they are providing



service to public health to assist the females' self-esteem (Edmonds, 2007). Such pursuit is a reminder that health is not only the physical manifestation of disease, but also the well-being of a person's mind and emotion.



Miss Siliconada. Image retrieved from <http://onlinelibrary.wiley.com/doi/10.1111/j.1467-9655.2007.00427.x/full>

### Religion and Health

Roman Catholicism is the main religion of Brazil, but there are also African and Indian religions such as Umbanda and candomblé (Velho, 2003). When Brazilians become sick, they don't necessarily stick to their religion may approach other rituals as well. (Velho, 2003). Associated with going to groups to heal the sick is the interaction between people that takes place when one becomes ill. The religious groups can be seen as a support group and an outlet for emotions for those going through a trying time (Mello & Oliveira, 2013). Going through rituals through several religions allows spiritual healing to take place, which can be considered another facet of health. While cycling in and out of different practices may seem like the people are faithless, what happens is that each practice gives the people a frame to understand what is happening to the sick (Mello & Oliveira, 2013). In most cases, the religious rituals can be supplemented with medicine to expedite healing.



Basilica of the National Shrine of Our Lady of Aparecida. Image retrieved from [http://en.wikipedia.org/wiki/Basilica\\_of\\_the\\_National\\_Shrine\\_of\\_Our\\_Lady\\_of\\_Aparecida](http://en.wikipedia.org/wiki/Basilica_of_the_National_Shrine_of_Our_Lady_of_Aparecida)

### **Brazilian Etiquette**

Etiquette is generally informal in Brazil, as physical contact is used often. Men may shake hands or pat each other on the back and women may kiss each other's cheeks as greetings (Kwintessential, 2014). If a female greets a male, then she should extend her hand first (Kwintessential, 2014). The class system plays a role in etiquette because appearance is important – dressing in suits usually indicates that a person is of a higher ranking, and direct eye contact while speaking indicates rank equality (Kwintessential, 2014). Similarly, a person's linguistic skill is an indicator of upbringing (Margolis, Beverra, & Fox, 2015). Face-to-face communication is valued over written communication because Brazilians prefer to work with those they are familiar with (Kwintessential, 2014). Spending time with small talk will help a Brazilian become more comfortable with a stranger. Interjection and interruption are expected during conversation and are not considered rude. Therefore, the conversation may develop slowly, but Brazilians prefer not to be rushed (Kwintessential, 2014). Generally, the communication style is very relaxed but opinionated (Kwintessential, 2014).

### **Brazilian Occupational Health, Environmental Health, and Nutritional Health**

People's health is affected by their situation. A few of these dimensions include occupational health factors, environment factors, and nutritional factors. Occupational health is about health in the workplace, such as an office or in a field. Environmental factors include the living space that directly affect health. Nutritional factors involve the ability to obtain food, the type of food, and the quality of food (Skolnic, 2012). While each of these factors apply to different situations, it's important to remember that they are not mutually exclusive and sometimes overlap, such as in the Goiania Radiation Incident. In this incident, an abandon hospital's cancer treatment machine had its caesium-137 source stolen. This occupational hazard was exposed to the environment, and radiated into the soil air, then entered the people's food (Leite & Roper, 1988). So, an understanding of one facet will require the understanding of the other facets.

Occupational Health Factors

Mining is a significant industry in Brazil because of it is a source of chrome, magnesium, quartz, aluminum, bauxite, hematite, copper, lead, oil, gas, and asbestos (Franklin & Camara, 1991). As miners perform their duties, they must take care to protect themselves: the noise of machines may cause hearing loss, accidents may lead to traumatic injury in rock falls, fires, explosions, equipment failure, entrapment, and electrocution (Donoghue, 2004). Dust or chemicals can saturate mine air, so proper lung protection is also important (Donoghue, 2004). Particularly important in Brazilian mining history is asbestos because of its role in lung cancer and mesothelioma (National Cancer Organization, Brazil has been separating itself from the mining of asbestos, but dust and other irritants during mining has been decreased with proper ventilation (Donoghue, 2004).



“A Firsthand Look at Mining Operations in Brazil” Video retrieved from <https://www.youtube.com/watch?v=8loe2fqXPvI>

Another well-known occupational situation revolves around “catadores,” which are informal recyclers that repurpose trash (Gatberlet, & Baedert, 2008). Catadores are involved in physical work when collecting waste, and it is an occupation by the poor. A study by Gatberlet & Baeder (2008) found that the population faces high risk of injury in backs, legs, shoulders, arms, and especially in the hands. It can also expose workers to flu and bronchitis. A later study also revealed that catadores may take the trash home to separate the recyclables and waste. Meanwhile, their psychological health is also affected because they face a stigma and are separated from society (Gatberlet, Baeder, Pontuschka, Felipone, & dos Santos, 2013). Despite the hazards, the catadores deal with a significant amount of waste reduction and management in Brazil outside of the government service (Gatberlet, Baeder, Pontuschka, Felipone, & dos Santos, 2013)



Catador reviewing trash. Image retrieved from <http://www.mobilizadores.org.br/noticias/unb-discute-inclusao-social-de-catadores-de-material-reciclavel/>

### Environmental Health Factors

Air pollution has spread because of rapid development in the country. Lung complications from pollution kills about 49,000 per year, and both indoor and outdoor pollution contributes to the figure (Larsen, 2015). The WHO set a standard of for air pollution where particles sized 2.5 thousandths of a millimeter should only occupy 10 micrograms/cubic meter of air, but the cities may range 7-28 micrograms/cubic meter and indoor air may range 115-265 micrograms/cubic meter of air (Larsen, 2015). Outdoor pollution is attributed to the rapid urbanization of cities and towns, whereas indoor pollution occurs because rural areas cook with wood and charcoal as fuel (Larsen, 2015). Unfortunately, the younger population is who is greatly affected by this pollution level. The air pollution contributes to the neonatal mortality rate in Brazil (Lin, Pereira, Nishioka, Conceição, Braga, & Saldiva, 2004).

Deforestation of the Amazon Rainforest affects environmental health factor on a large scale. The rainforest deforestation contributes to Brazil's declining air quality because the fallen trees release carbon dioxide when cut and the deforested land results in excess dry dust (Betts, Sanderson, & Woodward, 2008). Climate is also affected because the dry season gets longer and the rainy season becomes shorter (Costa & Ferreira, 2009). Meanwhile, the ecosystem gets disrupted and certain species survive in natural selection. One example would be *Anopheles darlingi*, a mosquito that has become more prevalent due to deforestation and has been a vector

for malaria in both Peru and Brazil (Martins-Campos et al., 2012; Vittor et al., 2006). In a sense, deforestation seems to be a feedback loop where an occupation causes nature to change, and in return, nature affects the people.



Border of Amazon deforestation. Image retrieved from <http://www.nationofchange.org/amazon-deforestation-increases-28-percent-one-year-1384837966>

### Nutritional Health Factors

Diet affects the people's health as the food provides the nutrients for the body. Vitamin A deficiency affects much of the world, including Brazil. Vitamin A is a nutrient involved with eye development, cell growth, fetal development, immune system strength, and metabolism (Custodio et. al, 2007). Deficiency is also a risk for protein-calorie malnutrition, decreased zinc, and iron deficiency anemia because those nutrients share similar food sources as vitamin A. Surprisingly, it does not necessarily correlate with poor nutrition (Custodio et. al, 2007). According to research in Brazil, about 60% of the population has vitamin A deficiency (Custodio et. al, 2007). The figure includes children, and a study by Custodio et. al (2007), had revealed that the children may have the condition but not show clinical symptoms of vitamin A deficiency. Instead, clinical symptoms indicate a more advanced stage.

While eating more would seem to improve the incidence of vitamin A deficiency, Brazil recently also needs to be wary of obesity. The Brazilian government has been promoting nutritional intake because of conditions like vitamin A deficiency (Montero, Conde, & Popkin, 2004). Since then, obesity's morbidity had increased. During 1975-1989, women who were underweight outnumbered obese women two-to-one. Then, in 1989-1997, the figure changed vice-versa and obese women outnumbered underweight women two-to-one. The results were similar in both low-income and high-income women (Montero, Conde, & Popkin, 2004). The reason may be attributed to the country's rapid urbanization (Montero, Conde, & Popkin, 2004). It may also be due to the increasing popularity of western diet, which includes butter or margarine, sodas, milk, and deep-fried foods (Sichieri, 2002).

## Health Promotion for Factors

An ongoing promotion that Brazil has been undergoing is about recognizing the catadores. Before the public began to open up to the catadores, they were ostracized by society because of their low socio-economic class (Gatberlet, Baeder, Pontuschka, Filipone, & dos Santos, 2013). Brazilian communities have begun to accept catadores as members of the waste management occupation, as they are knowledgeable about what can be recycled and repurposed (Gatberlet, Baeder, Pontuschka, Filipone, & dos Santos, 2013). Potentially, this would improve the city environment by decreasing solid waste and supporting a more sustainable society. Meanwhile, the catadores can gain more respect and become more able to maintain their health.

Possible health promotion should address the air quality and safety. First, education about air pollution and lung health should be given to the people so that they may understand risks in the environment and workplace. This would garner public support for interventions that decrease air pollution, like exhaust filters in factories, a transition to fuels, or a different approach in deforestation. The people would also be more knowledgeable how to protect their lungs in high-risk places, like in mines, and wear appropriate masks or have proper ventilation. Awareness may begin with advertisements in the streets so that the information become part of the small talk that Brazilians engage in. Hopefully, the impact of air pollution will gradually decrease.

## **Common Diseases in Brazil**

### Non-communicable Diseases

The theme that Brazil is a developing country in a transitional stage continues in the diseases that are becoming prevalent. Non-communicable diseases had taken 72% of Brazilian deaths in 2007, with cardiovascular disease and cancer with the highest mortality rates (Schmidt et al., 2011). The cancer statistic includes all types of cancer, and the top cancers in Brazil are melanoma, prostate cancer, and breast cancer (Moura, Pacheco-Santos, Peters, Serruya, & Guimares, 2012). Meanwhile, the highest morbidity are neuropsychiatric diseases. The nation has seen a rise in diabetes mellitus and hypertension, which have increased as Brazil undergoes urbanization (Schmidt et al., 2011). Obesity has become prevalent in all demographic groups, but especially in women and children (Moura et al., 2012).



Brazilians have become more obese recently. Image retrieved from <http://www.cnn.com/2014/07/09/health/beating-the-bulge-brazil-obesity/>

### Communicable Disease

Communicable disease continues to have presence in Brazil. The European Centre for Disease Prevention and Control (2014), or ECDC, identifies major diseases as influenza, tuberculosis and vector-borne diseases as major communicable diseases in Brazil. Influenza is present year-round in Brazil and does not have seasons in the fashion that United States does, although that there is an increase in cases between May and August in central west, southeast, and Southern regions. Tuberculosis has a high incidence rate with new cases every year, especially in urban areas. It is especially difficult to treat because there are strains that are resistant to isoniazid and rifampicin treatment (ECDC, 2014). Those with tuberculosis are also often co-infected with human immunodeficiency virus. Vector-borne diseases have been hot topics because of deforestation, environment change, and mosquito population, as mentioned above. In addition to malaria, dengue fever and yellow fever have been slowly rising since 2000 (ECDC, 2014).



*Anopheles darlingi*. Image retrieved from <http://www.scientistsagainstmalaria.net/vector/anopheles-darlingi>

### **Challenges in Facing Brazilian Disease**

#### **Non-communicable Disease Challenges**

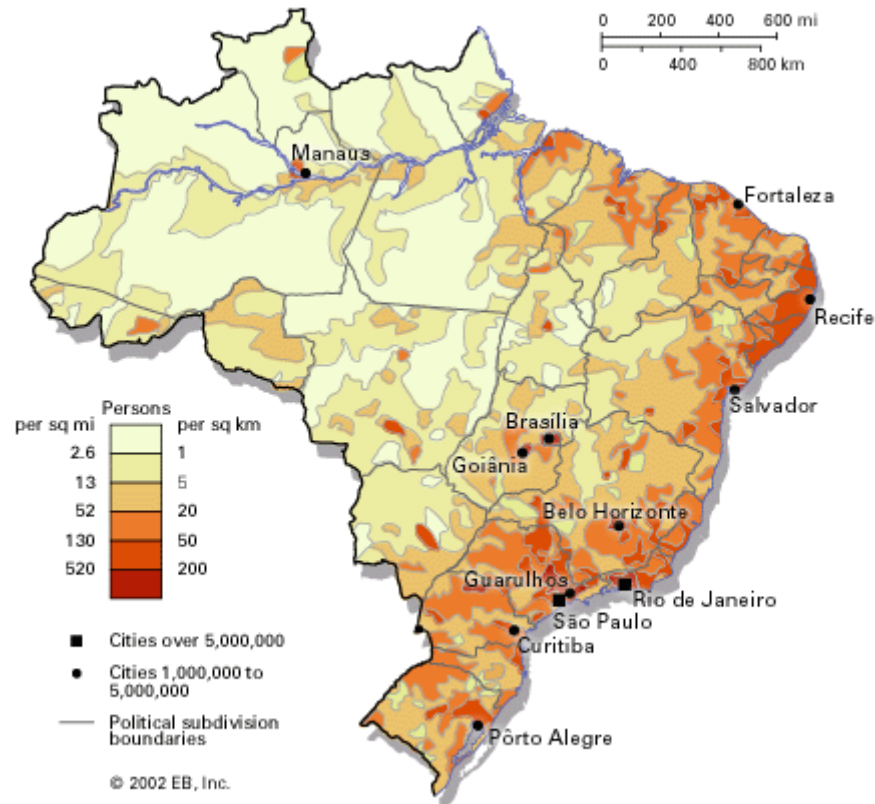
Non-communicable disease has been rising in Brazil because of lifestyle change that comes with urbanization. As mentioned above, obesity has been influenced by changes in diet to deep-fried western food. Unfortunately, obesity and the closely related hypertension is a risk for other non-communicable diseases (Moura et al., 2012). The more common obesity becomes, the more people will be at risk for cardiovascular disease and diabetes. Another challenge is the increasing older population because people are generally living longer, but age is a risk factor in cardiovascular disease and cancer (World Bank Group, 2005). Income is also a challenge because the poor are more likely to smoke and less likely to engage in health maintenance and early disease detection (World Bank Group, 2005).

#### **Communicable Disease Challenges**

An interesting challenge for controlling communicable disease is the distribution of the population. Brazil's population density has been changing from rural areas to urbanized areas. All kinds of communicable disease, including vector diseases, tuberculosis, and sexually transmitted disease become are more difficult to control in the city because there are more hosts available (Tauil, 2006). It is much easier to quarantine an isolate house in the country than a town house by a busy street. Poverty has also moving from rural to urban areas because population has been growing without a similar economy growth (David, Mercado, Becker,



Edmundo, & Mugisha, 2007). Poor urban planning might exacerbate the health of impoverished areas because access to health facilities may be limited (David et al., 2007). The poor also face discrimination and are often unacknowledged by the public, like in the case of the earlier mentioned catadores. Environmental change also comes with urbanization, and natural barriers to diseases may diminish or change, such as the case with *Anopheles darlingi*, deforestation, and malaria.



Brazil Population Density. Image retrieved from <http://www.brazilmycountry.com/brazil-map/brazil-population-map/>

### Measures to Protect, Prevent, Control, or Improve Disease

The Brazilian has acknowledged the changes that the nation has been going through and the status of their people's health. Research initiatives have begun to assess and explore solutions for diseases. Estudo de Riscos Cardiovasculares em Adolescentes, or ERICA is an initiative for hypertension risk and obesity, Estudo Longitudinal de Saude do Adulto has several research centers for diabetes, and cancer research centers are based in the northeast, middle west, and southeast regions (Moura, et al., 2012). Legislature has provided laws to decrease drunk driving and smoking. The government could also potentially establish education programs to inform the public of healthy diet choices, physical activity, and health risks. The World Bank Group (2005) suggests a salt regulation in food to decrease risk for hypertension. To improve communicable disease, the government has been gradually improving sanitation and promoting vaccinations for

vector diseases (ECDC, 2014). Tauil (2006) also recommends that the government begin decentralizing the disease control centers to the state and municipal area in order to react to region-specific disease quicker. On the community level, the people should begin to advocate for each other in all social classes so that all people be healthy. The health needs of people are similar regardless of social class.



Brazil National Cancer Institute. Image Retrieved from <http://www1.inca.gov.br/english/>

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