BA thesis

Cholera

Anthropology and Epidemiology

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Geir Gunnlaugsson

June 2018

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FÉLAGSVÍSINDASVIÐ
FÉLAGS- OG MANNVÍSINDADEILD

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Anthropology and Epidemiology

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Abstract

Haiti suffered the biggest outbreak of cholera in human history and what happened there demonstrates the larger picture of this disease: the political and social aspects of it, and the fear and suspicions it instils in an entire society. The work surrounding the quest for a cure of infectious diseases is mainly a medical one while the social aspects of a disease is the task of anthropology. This essay is about the history of medical anthropology and the importance of not just the clinical side of an epidemic but of the human side as well. The case-study is cholera and all the problems it brings, but also the problems that causes it. Despite the fact that cholera is a preventable disease, people in the thousands die because of it every year. Its impact is most severe in countries with poor sanitation, poor access to medical care and poor knowledge about how to prevent it. This paper will explore the evolution of cholera, and the contribution of medical anthropology to the field of epidemiology.

Preface

I am interested in medical anthropology and the role it plays in the field of epidemiology. I find this relation particularly interesting because although epidemiology is a medical science, it does need other disciplines within the health professions to function properly within a community, including the fieldwork of anthropologists. To be successful in fighting an outbreak of an infectious disease we need to look at local customs, we need to understand the role that traditions and beliefs play in fighting the disease and, most of all, we need to listen to and respect the voices in the local communities. The skills of an anthropologist are valuable for such a quest. We need to assess the situation, get a grip on the environment and its people and once we have established trust we can start with the more medically inspired interventions. I would like to thank my teacher and instructor Geir Gunnlaugsson for his assistance and patience during the process of writing this thesis.

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Acronyms

CMA	Critical Medical Anthropology
EU	European Union
GAO	Government Accountability Office
HIPC	Heavily Indebted Poor Countries initiative
IHCR	Interim Haiti reconstruction Commission
IMF	International Monetary Fund
MINUSTAH	Mission des Nations Unies pour la stabilisation en Haïti
MSF	Médecins sans Frontières (Doctors without Borders)
NGO	Non-Governmental Organisation
NPR	National Public Radio (American)
SDG	Sustainable Development Goals
UN	United Nations
WHO	World Health Organization

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1 Introduction

The acute diarrhoeal disease of cholera is estimated by the World Health Organization (WHO) to kill 100,000-120,000 people a year with 3-5 million cases annually. The number of cholera cases is increasing every year despite improved scientific knowledge and technology.

Epidemic disease is classified as a disease in human population where it spreads quickly and extensively, affecting many individuals in one area at the same time (Merrill, 2017). Generally, epidemic diseases appear at a high rate in over-crowded populations, where health conditions are bad and medical services cannot be provided (Merrill, 2017). There are some famous examples of epidemic diseases, for example the Black Death during Medieval Europe and the Great Influenza Pandemic by the end of First World War (Hays, 2005).

Severe diseases have been a part of society and human life for as long as we have been around. The influenza virus is one of the most notorious viruses world-wide, and strains of it have killed tens of millions of people over the course of our human history. The Greek physician, Hippocrates produced the first known record of a flu epidemic in 412 BC (Dumar, 2009). From an evolutionary perspective, infectious diseases have probably been one of the primary causes of natural selection, eliminating human hosts who were weaker and therefore more likely to get infected, while sparing those who were more resistant—Darwin´s Survival of the Fittest (Huxley, 2003). Individual biological factors that gave protection from a specific disease could and probably would eventually be selected for in the human populations living where the disease was common. Nature is no fool (Hays, 2005).

Lately, we have had outbreaks of AIDS, Ebola, Bird flu and cholera, dangerous epidemic diseases that threaten the health of entire populations. These diseases normally occur as a result of three important factors known as “The Epidemiology Triangle,” that is *agent*, *host*, and *environment* (Merrill, 2017). *Agents* are the cause of epidemic diseases, the *host* increases the effects of diseases and the *environment* (that is, how we live our lives) enables the host to be exposed to the agent. Therefore, these three factors should be of special concern and if possible, should be predicted and then hopefully prevented to cause harm to human population,

Diseases that reach epidemic proportions thrive in dense populations. Person-to-

person contact is often necessary to spread the bacteria or virus, and groups of people, like caregivers or schoolchildren are particularly vulnerable. In the case of cholera, it spreads through contaminated water sources. Human behaviour and its social and cultural habits are also vital when trying to understand how a disease spreads and how we can contain it (Merrill, 2017). There is growing awareness of how people interact culturally and the direct consequences behaviour has on a disease and the way it may spread. To be able to prevent disease, we need to first figure out how it spreads and how people interact socially.

The field of applied anthropology can help us to better understand the reasons why one particular disease spread so quickly in certain areas and not in others, and more importantly, how it spreads. There are two important ways in which anthropology can contribute to the control of infectious disease. The first is in identifying and describing concerns and understandings of the disease among populations, including local knowledge of the cause and treatment that are relevant to disease control. The second is in translating local concerns into appropriate health interventions, for example by providing information that can be useful within the educational system and guide communication strategies for disease control (Joralemon, 2010).

The field of medical anthropology is influenced by social, cultural, biological, and even linguistic anthropology. It improves understanding of factors that influence health and wellbeing, the experience and distribution of illness, the prevention and treatment of sickness and the healing processes (Joralemon, 2010). It plays an important role when it comes to understanding the local context of disease diagnosis, of the treatment, and most importantly, the preventive aspects of it

In this thesis I will delve further into the cholera epidemic in Haiti in 2010, contributing factors to its explosive spread, and why it hit so hard. I have been following the outbreak of cholera in Haiti ever since it started. I am not sure why that particular epidemic caught my attention, but the more I read about it, the more questions were unanswered, and the more interesting it became. It encouraged me to find out more, not only about cholera but also about Haiti as a society, their culture and their rituals. Natural disasters are always intriguing, horrible but intriguing. I became curious to find out how much nature contributed to getting the epidemic started. As it turned out, nature was not to blame for this one, but rather the direct result of human action.

In January 2010 an earthquake hit the nation with a magnitude of 7.0 on the Richter scale. The epicentre was a coastal town about 30 km away from the capital Port-au-Prince. According to the Red Cross around three million people were affected by the quake and between 80.000 and 230.000 people died (depending on who was doing the counting). Nine months after the earthquake the world´s greatest cholera epidemic grabbed hold of the already torn-apart nation. At the end of it, it had killed more than 9000 people and hundreds of thousands had been infected (Frerichs, 2016).

2 Medical anthropology

Medical Anthropology is one of the most exciting fields of anthropology, it is the study of how a society shape health and illness, how it is experienced and understood in the light of political and historical forces.

2.1 History and application

Before the 1950s, medical anthropology was not yet a field of study in its own right but was included in cultural and social studies (Baer, Singer, & Susser, 1997). Anthropologists working within the field of ethnomedicine were basically just asking the questions: how do other people deal with sickness and, generally, how do they improve personal health? Today, medical anthropologists have taken an interest in a much wider spectrum of health and disease and they are no longer only interested in how other people look at health, as they also look into the health practices of their own people. According to Strathern and Stewart (2010) the field has undergone what they call a circular migration from the jungle to the city, and back again.

To understand the methods of research that are used today within the field of medical anthropology we must first understand this circular movement. There are, however a number of different approaches to medical anthropological theory (Brown, 2016)One could argue that there are three positions. These view the theory of knowledge differently and use different methods, validate their findings differently, and how to make the distinction between justified belief and opinion. First out is ethno-medical anthropology, that is a theory that focuses on local health models (Nichter, 1996). These methods are most closely related to the methods used when the field was in its infancy. The analysis was based on a theoretical opposition of what was called the “personalistic” and “naturalistic” medicine. The “naturalistic” one was western medicine, based on scientific facts and empirical research. The “personalistic” one was non-scientific, non-empirical medicine such as witchcraft and shamans, herbalism and healings. They argued we needed to consider both to understand health.

Second, medical anthropology, or Critical Medical Anthropology (CMA), is based on a political economy approach. The CMA views disease not only as a biological entity but also as a social construct (Baer et al., 1997). This approach examines the power structures

in social settings and institutions. Who has the power over them, how is that power expressed, and how is power delegated? This is a way to try and show that in all aspects of science there is both a cultural and a historical side of things, even in the medical field. So, if you wish to study disease you need to start with environmental conditions, economic, political and social settings that are active within that society. One needs to fully understand the context and the composition of a group to understand the medical system within that particular group. One representative of this position is Paul Farmer (1959) MD/PhD who is an American anthropologist and a physician. He is well known for his work and has received many awards, including the Margaret Mead Award from the American Anthropological Association and a MacArthur Foundation "Genius" Award (Weiss- Block,2018). He is working towards providing health care to people in low-income countries, and he has become something of a celebrity in medical anthropology. He has also worked on fighting infectious diseases and is vocal in the promotion of basic human rights, for example in South America, Africa, Russia and not the least Haiti, the country in focus in this thesis. Being a physician and a medical anthropologist, he has a unique insight into native healers and their work while being able to offer his own medical treatment.

The last theoretical position in medical anthropology is known as the clinical approach. It basically deals with the healing process itself. It holds the position that sickness can be viewed as a social practice, a position held for example by four Harvard professors who wrote the book "Pain as human experience: An Anthropological Perspective" (Good, Brodwin, Good, & Kleinman, 1994). In the book, they look into the experience of pain and how that feeling, and its cures, differs from nation to nation and from culture to culture. They concluded that how we perceive pain is directly linked to our cultural upbringing.

To sum up, the history of medical anthropology is quite interesting. It has developed from the side-line of anthropology to become a dynamic and very diverse sub-discipline. It considers a wide range of theoretical positions and addresses an array of topics in order to reach logical conclusions.

2.2 Anthropological contributions to the study of cholera

An epidemic outbreak is an ideal opportunity for an anthropologist to analyse the social aspects of a disease. In the midst of an epidemic, people are still reacting to it in real time, their experience is fresh in their memories, and they are still angry and afraid

of what happened (Trostle, 2005). Those feelings reveal prejudices and assumptions for example about hygiene, pollution and social differences. An epidemic will expose split in a society, and identify groups of people who decide who should be treated first and which diseases deserve immediate attention.

During an outbreak, there are three steps an anthropologist takes: (1) identification of disease events worth studying; (2) interview of people to get descriptions of the event itself; and (3) compare collected information against what people expected. How do they interpret what happened? The inquiry also includes information from other sources about, for example, on when the disease started, about the exposure, how people interact with health services during an outbreak, and their overall reactions to it.

There are many reasons anthropological methods should play a much bigger part in public health interventions than is currently the case (Trostle, 2005). One reason is their familiarity with a community or a society that will make it easier for them to bond with individuals and gain their trust compared to other professions. With that trust they will be in better position to contribute good practice and conduct better research. The need for ethnographic data about social interaction, the different classes of a society and sensitivity to different topics is just as relevant in intervention design as public health research on the medical aspects of disease. The "knowing where people stand" is vital to a successful investigation (Trostle, 2005).

Because anthropologists focus on the links between behaviour and health, between what you know and what you do, they can effectively assist in community health interventions. James Trostle writes in" Epidemiology and Culture" (Trostle, 2005). of four levels of intervention, that is educational, managerial, legislative and environmental

Educational intervention is what it sounds like, that is information on behaviour and the importance thereof (Trostle, 2005). People can only change their behaviour if they fully understand why they need to do it, and they will only do it if it directly affects themselves. For example, in the case of cholera hygiene is of major importance and something as simple as washing your hands may help prevent it from spreading. However, it is not only the message itself that is important, but how it is delivered. In the report "Health Education and Cholera in Rural Guinea-Bissau" (Einarsdóttir, Passa, & Gunnlaugsson, 2001) there is an example when an educational message is transmitted by radio. But when people explain the message to one another they get it wrong, hence

making the message faulty. Another problem is that people may understand perfectly well what they need to do, but that knowledge does not translate into action (Einarsdóttir et al., 2001). Knowledge influences so many levels at once, just learning how to read will increase health and well-being. But knowledge does not come from books alone. “Local Knowledge” is something that has interested anthropologists for a long time and it is often in conflict and competition with widespread and internationally accepted truths. “People are not empty vessels waiting to be filled with the latest and most advanced knowledge” (Trostle, 2005). People form their own realities from their beliefs and behaviour. For example, the study of the cause of cholera may show that you get sick from drinking contaminated water and that boiling it first will reduce that risk. But an intervention to make sure people boil their water will only ever succeed if everybody has the opportunity to do so, that is they need pots and pans, a heat source and obviously water. Most of the time it is not the unwillingness to boil water that is the cause of the disease, but the lack of resources to do so.

Managerial level intervention takes place in the workplace, and includes for example rules about how we keep records, and how in-house education is carried out (Trostle, 2005). Schools may use this to improve nutrition for their students or the health of their teachers. It is environmental health promotion more than physical, an occupational health intervention in order to prevent people getting sick from work.

Legislative interventions are larger interventions and may cover society as a whole (Trostle, 2005). Such interventions can for example include tax incentives, penalties and rewards.

Environmental intervention includes changes that are bold as they take human choice out of the equation (Trostle, 2005). A successful example here in Iceland is adding vitamin D to milk, and elsewhere chlorinating water at its source rather than leave it to the individual to keep his/her waters source clean. If the people of Haiti had access to clean drinking water the cholera epidemic that struck in 2010 would probably not have happened.

3 Cholera

3.1 Background

Cholera is often described as a classic water-borne disease because it is commonly associated with water. The only animals that can keep and carry the virus are shellfish and plankton. However, this is not completely accurate since it can also spread through food. Contaminated water is often mixed with food, we might use water to rinse off our vegetables for instance, allowing either the food or the water to act as the main vehicle for the disease (Bhandari, 2016). There is a pattern to this. In low-income countries it is more often contaminated water that will spread the bacteria while in high-income countries it seems more common that contaminated food (especially undercooked seafood) is the villain. Cholera is also fairly seasonal, for instance, in Bangladesh where cholera is endemic, there are two peaks a year, that is in the warmer seasons before and after the monsoon rains. In Peru, epidemics only occur in the warm season and during the epidemic that started there in 1991 cholera bacteria were spread through the communal water system, which obviously resulted in extremely high rates of infection in the urban population (Bhandari, 2016). The bacteria reached a lot of people very quickly. In the countryside however, where people use rivers or their open wells for drinking water, cases tend to be more concentrated and cluster among people living close to and drinking from contaminated water.

The ability of bacteria to grow rapidly in warm temperatures is probably related to its potential to spread. In endemic areas, like India, the annual amount of cases is highly variable, probably because of environmental changes and changes in climate (Piarroux, 2011)If we had a better understanding about the relation cholera has to climate change we would be better at planning for these epidemics. Yet, the main reason cholera spreads is normally not environmental but rather linked to our behaviour, the human behaviour.

Although the typical symptom of cholera is severe diarrhoea, in fact, most people who get infected with the bacteria *Vibrio cholerae* show no symptoms what-so-ever or get only mild diarrhoea, impossible to distinguish from just a “normal” case of mild diarrhoea (Bhandari, 2016) *Vibrio cholerae* is a species of bacteria. Certain strains of *Vibrio cholerae* cause cholera, others do not. There are many types of so called serogroups but there are only two that cause epidemic cholera. That is serogroup O1 and

serogroup O139 (O139 is only found in Asia). The other serogroups of cholera are known as non-O1 and non-O139 *Vibrio cholerae*. They can still cause diarrhoea but not as severe and not epidemics (Bhandari, 2016). The strain of bacteria that hit Haiti in 2010 is called *V. cholerae* El Tor 01 Ogawa.

Whether or not people get severe diarrhoea depends on many factors, including local intestinal immunity (from previous natural exposure or vaccination). Another factor is the patient's blood group. For unknown reasons, people of blood group O are at much higher risk of becoming infected and dying from severe cholera from El Tor *vibrios* than people with other blood groups (Bhandari, 2016). This special susceptibility to the cholera bacteria may be a contributing factor to the lower than normal proportion of people with this blood group in the Ganges delta area. The good thing about the cholera bacteria is that you need a high infectious dose (10^8 bacteria) to cause severe cholera in otherwise healthy people.

In cholera-endemic areas, cholera tends to attack children aged 2–4 years, while in newly infected areas the attack rates are similar for all (WHO, 2017). One could argue then that in endemic areas the older population have developed an immunity for the bacteria. This brings out the anthropological perspective of the disease, and the human factor. Further, the disease keeps spreading during funeral feasts as a result of traditional but unhygienic practices, in some countries the funeral ritual gets very personal and the bodies of the deceased are washed by their relatives, which makes for a perfect opportunity for the bacteria to spread (Gunnlaugsson et al., 1998).

As a contrast to for example *Salmonella typhi*, people do not become chronic carriers of cholera bacteria; long-term carriers are rare and are not important in the transmission of the disease.

Since cholera outbreaks have the potential to become massive epidemics, they must be reported to the national health authorities. If possible, cases of suspected cholera should be confirmed by a laboratory. Even without laboratory confirmation, cases should be reported if they meet the WHO definition which basically states that if a patient older than 5 years old suffers from severe dehydration or dies from acute watery diarrhoea, or if there is an increase in patients with those symptoms, especially if they have what is referred to as rice diarrhoea typical of cholera (WHO, 2018a).

3.2 History

Every year 3-5 million people around the world are infected with cholera and 100,000-120,000 people die from the infectious disease, according to UNICEF (UNICEF, 2011). The disease is of ancient origin as epidemics of cholera have been reported since time-immemorial. It has for example been recorded in the ancient medical works of the Hindus, the Arabs, the Chinese in Asia as well as in the works of the Greeks and in Roman Europe. The first recorded instance was in 1563 in an Indian medical report but in more modern terms, the story of the disease begins in 1817 when it spread from its ancient homeland of the Ganges Delta in India to the rest of the world (Beaubien, 2016). Since that time, millions have been infected and died from this preventable infectious disease.

The word 'cholera' appeared first in the Hippocratic corpus (460–377 BC) and was referred to as a sporadic diarrhoeal disease. Galen (129–216AD) also described an illness that is now believed to be cholera (Hamlin, 2009)Later classical writers including Celsus, Aretaeus and Caelius Aurelianus described a condition under the same name. The word itself "cholera" most likely comes from the Greek word 'chole' (bile) and 'rein' (to flow), so its literal meaning is the flow of bile. However, in 1622 Alexander Trallianus had another theory of the origin of the word and claimed that the word came from 'cholades' which means intestine because of the texture of the diarrhoea (Barua & Greenough, 1992). By late 1669, Thomas Sydenham (1624-1689), an English physician and the English Hippocrates of the 17th century, started using the term 'cholera morbus' to describe an epidemic in London (Langslow, 2006). This term was also commonly used throughout the 17th and 18th century in Western Europe to describe endemic or sporadic diarrhoea.

In India, Sushruta Samhita, an ancient Sanskrit text on medicine and surgery, and one of the most important books of its kind on this subject to survive from the ancient world, mentions a diarrhoeal disease known as Visucika. It was reported that it was a violent form of diarrhoea in which the stools were almost completely watery and in after only hours the patients became very weak (Bhishagratna, 1963). As many of the symptoms of cholera did not appear in Sushruta Samhita, such as cramps, fever and the severe vomiting there is almost no recorded evidence of the presence of 'true cholera' in India, except for the description in Sushruta Samhita. The Sanskrit name usually means a disturbance of stomach and intestines generally.

The Portuguese explorer Gasper Correia described cholera in the early 16th century. In his writings he described a cholera epidemic and the death of 20,000 men or so as early as 1503 in the "Lendas da Indie," published in 1543 (Lowery, 1990). Correia apparently also encountered a cholera epidemic in the spring of 1543 in Goa, India which was called 'moryxy' by the local people. The mortality was so great and there were so many bodies that they had trouble actually finding burial places for them all. The disease was marked "by vomiting, with drought of water accompanying it, as if the stomach was completely parched up, and cramps that fixed the sinews of the joints" (Nelson, 2013). Cholera was also described in 1563 by Garcia da Orta, a Portuguese physician, in one of the earliest books printed in Goa (Orta 1563). Orta gave a vivid description of cholera as he witnessed it in Goa. He wrote that the Arabs called the disease 'hachaiza' or 'haiza', the name that it is still called in India today (Srabani, 2012).

3.3 John Snow and death in the Well

John Snow (15 March 1813-16 June 1858) was an English physician and a leader of medical hygiene and even though he died at the relatively young age of only 45, his name is forever engraved in medical history for his systematic approach to identify the origin of the cholera epidemic in Soho, London 1854. The epidemiological methods he used to track the disease were also ground breaking ("Dr. Snow's Report," 1855) and he is widely considered to be the father and founder of modern epidemiology. But his work in London also made some headway in the field of medical anthropological research, a subfield of cultural anthropology which examines cultural, social and other factors to explore how they influence health. His major contribution to the anthropological research method is his work in tracing the source of the cholera outbreak in Soho, London, (Cameron & Jones, 1983). In addition to John Snow being the first epidemiologist, one could possibly argue that he was the first medical anthropologist.

The last week in August 1854 a violent cholera epidemic started in the area around Broad Street and Cambridge Street in London (Hempel, 2007). During the first 10 days five hundred people died. At this time, cholera had been a fairly regular occurrence in London, but this was the worst outbreak to date and those who could abandon the area did so. On the night of the 7th of September, the church council had a meeting in St: James parish. The situation was critical, they could not really do anything about the outbreak, but the

dead bodies had to be removed and the looting of the abandoned shops had to be stopped. The meeting was attended by an unlikely and surprising guest, a man who was rarely seen on the poor side of town. His name was John Snow. Dressed in a black shirt, stripy trousers and a walking cane he came in and had a strange proposal: “Let us remove the handle from the well on Broad street. The bacteria are in the water,” he said (Vinten-Johansen et al., 2003).

The other people that attended the meeting thought it was strange that Mr Snow did not mention anything about the fact that cholera is caused by excessive strain on the body as well as on the mind, nor did he mention that men should refrain from changing their everyday lives (all of these beliefs were a common misconception on the origin of diseases at the time), not a word was mentioned about inducing vomiting, the practice of bleeding, cupping or leeches on the stomach (Ajanki, 2001). The only thing John Snow said was that they needed to make the well un-usable. Then the epidemic would slow down. For some reason, the church council obeyed him.

Snow had an actual case because in contrast to his peers at the time he did not subscribe to the myths and stories about cholera, and he drew his conclusions from actual practical work, not fanciful theoretical stories. By following and systematically mapping the severe but mostly short-lived cholera outbreaks he had found a pattern. The outbreaks were much more common in the parts of London that received their water from a company called Southwark and Vauxhall, and they got their water from the lower part of the Thames. The other major water company drew its water from much higher up the river. He then concluded that every cholera outbreak in London was within close vicinity to the water supply in the different boroughs. Poor, overpopulated and dirty areas had always been those most affected. He saw the epidemic on Broad Street as an extra-ordinary opportunity to test his theory.

Snow wrote a report in the fall of 1854 where he presented his conclusions on the outbreak ("Dr. Snow's Report," 1855). He stated that the cholera outbreak on Broad Street was probably the most severe in England, ever. Within a radius of 250 meters from the crossroads of Cambridge Street and Broad Street, 500 people had died in 10 days. The mortality in this area was so great that more victims had probably never died in such a small space, not even during the plague. Death was swift, most of the people who got infected died within a few hours. The number of dead would without doubt have been

even higher if the population had not tried to run away from the disease. First tenants moved, then others followed. They left everything, their furniture, cooking wear and clothes and tried to find safer quarters elsewhere. In less than six days after the onset of the disease the streets of London were getting eerily empty. More than two thirds of people living around Broad Street left (Ajanki, 2001).

After a thorough mapping effort and some intense detective-work Snow found that, almost exclusively, people who fell ill took their water from the Broad Street pump. He felt confident that his findings were correct. But there was a brewery very close to the pump and no workers had died from cholera, Snow thought this was a bit odd, so he went to talk to the owner of the brewery, Mr Huggins. After speaking to him, Snow could confirm that there were approximately 70 people working in the brewery and none of them had fallen ill. The workers got some beer during the day, but they did not drink water, and no one had gone to the Broad Street pump for any water. So, his theory still held up. Armed with this information John Snow went back to the church council and on the 8th of September the handle on the pump was removed (Vinten-Johansen et al., 2003). After that the epidemic slowed down and disappeared … for now.

The mortality from cholera was very high and death came quickly. The infected suffered from severe vomiting and watery diarrhoea that dehydrated the body in only a few hours. In the hospital there were special cholera beds with a hole so that the watery diarrhoea would run directly into a bucket underneath the bed. When the patients needed to be transported there were special covered beds to minimize the chance of spreading it. Snow had now proved his point. Cholera worked through water. Many decades before concepts like microorganisms and bacteria was even known, he had, through scientific methodology and logic come to the correct conclusion. But the war between him, his believers and those that opposed him was far from over. That particular feud would rage for decades (Vinten-Johansen et al., 2003).

In short, “miasmatics” had the upper hand for several hundred years. They claimed that cholera was due to the interconnection between different stars, that activities in the inner core of our planet had something to do with it, that earthquakes or sky falls were responsible. Those stories were far more intriguing and exciting than the ideas of John Snow and his followers of the contagion theory, that the bacteria lived and thrived in

waterways and wells (Vinten-Johansen et al., 2003). This battle was put to a close during the last decades of the 1800´s when the new revolutionary bacteriology with Louis Pasteur and his institute in France and Robert Koch´s laboratory in Berlin forever changed the field of medicine with the discovery of tuberculosis (Vilhelmsson, 2011).

Through a systematic cataloguing of bacteria after bacteria, virus after virus the mysticism around these epidemics slowly disappeared. It was with Pasteur and Koch that the fight against infectious diseases was put on the top the list of the medical profession and it was under their supervision that hordes of microbial hunters would move on to reveal the mystery of the great epidemics and their contagions. It was Koch himself, at the height of his career, who in 1884 was able to identify the cholera bacteria in the faeces of infected patients. Few years prior to that he had discovered the bacteria that caused tuberculosis for which he got a Nobel prize in 1905 (Vilhelmsson, 2011).

The discovery in 1897 that the fungus *Penicillium notatums* was immune to bacteria and that this ability could be adapted to work in humans kick-started an intense hunt for other organisms that might be able to kill bacteria and be of use to humans. One of the more successful pioneers was the American Selma Abraham Waksman who collected and analysed samples from all over the world. Looking for microorganisms in the dirt might seem like looking for a needle in a haystack but it paid off, he found what he was looking for. In an insignificant fungus he found the amazing quality to kill the cholera bacteria. Later, in 1952, he was awarded the Nobel prize for his discovery of streptomycin that is not only effective against cholera, albeit not a cure, it also worked on tuberculosis bacteria and a number of other infectious diseases (Vilhelmsson, 2011). Even though Koch made cholera “famous” it would take almost half a century before there was an effective cure.

The discovery of antibiotics opened up a new era and the medical cure of cholera was now possible. We know how the disease spreads, we know what cholera looks like and we have a weapon to wield against it. Today we have also effective and cheap vaccines against cholera. The fact that the disease is still such a killer is not because of poor medical knowledge but because of politics and economy.

3.4 Cholera pandemics

Cholera has spread around the world in distinct pandemics. While cholera is more common in some countries than others, many people think of cholera as a disease of the past, something that appears in Charles Dickens' novels. Yet, no country is completely immune to it—it is a pandemic disease that overcomes both geographical locations and time. Despite some confusion about the definition of a pandemic, in short, to become a pandemic a disease needs to have wide geographic extension, while its spread can be traced from place to place with associated high attack rate and explosiveness to which the population has minimal immunity (Morens, Folkers, & Fauci, 2009).

In Figure 1 the timeline of the epidemiology of the different cholera pandemics is outlined.

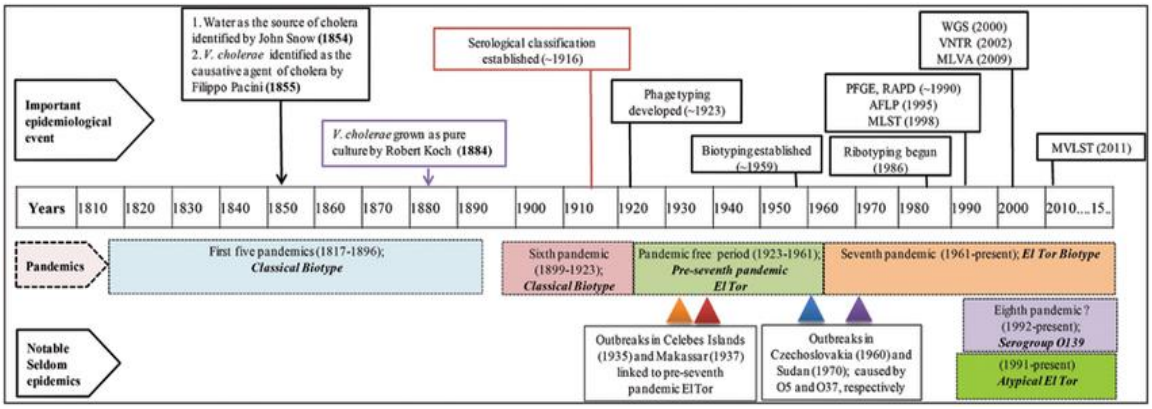

Figure 1: Timeline of the epidemiology of cholera since 1817. The upper panel shows important scientific advances that changed cholera epidemiology (Rahaman, Islam, Colwell, & Alam, 2015).

The 1st pandemic of cholera (1817-1823) began in the Ganges River delta in India (Kotar & Gessler, 2014). The disease started near Calcutta and then spread through the country. The Industrial Revolution in the mid-19th century helped spread the disease through commerce and colonial trade-routes from the point of origin around the Ganges River all throughout India. It spread to China, Japan, parts of South-east Asia, much of the Middle East, Madagascar and to the East African Coast opposite Zanzibar; however, it died down before it reached Europe. It is not known exactly how many people died but there are 10,000 recorded deaths among British troops. So, the estimate is that hundreds of thousands of people across India were affected and later died from cholera. In 1820, 100,000 people died on the Indonesian island Java alone (Kotar & Gessler, 2014). By 1823,

cholera had disappeared from most of the world, except around the Bay of Bengal, India. Which is the starting-point of the other six pandemics. The 2nd cholera pandemic (1829-1849) started in India and in 1830 it reached Russia, then into Finland and Poland (Kotar & Gessler, 2014)It swept across Europe and North Africa and the first pandemic that was intensively reported on, day by day, in the popular press (Morens et al., 2009). Irish immigrants, escaping the potato famine in Ireland, brought the disease from Europe across to North America in the summer of 1832. In Montreal 1,220 people died and another thousand around Quebec (Kotar & Gessler, 2014). Once again, because of commerce and trade-routes it entered the U.S. through Detroit and New York, and in 1833 the disease had reached Latin America. Another outbreak across England and Wales began in 1848, killing 52,000 over two years. An outbreak that lasted for two years began in England in October 1831 and killed up to 22,000. The disease hit Britain in October of 1831 reaching London in 1832. Because of how it spread, through international trade across the oceans cholera has always been associated with the sea. The industrial revolution made it easy for the bacteria to travel around, the opening of the Suez Canal and the invention of the steamboat in 1869 really helped (Kotar & Gessler, 2014).

The 3rd cholera pandemic (1852-1859) and the deadliest one, began once again in India. It devastated large areas of Asia, Europe, North America and Africa. In 1854, the very worst year, 23,000 people died in Britain alone. This was the year when John Snow made his historical discovery on cholera and its transmission (Vinten-Johansen,2003). The 4th cholera pandemic (1863-1879) started, once again, in the Bengal region, and from there Indian Muslims brought it with them when they went on their pilgrimages to Mecca and the Middle East (Kotar & Gessler, 2014). From there it spread across the whole of Europe, large parts of the Americas (North-Eastern, South and Central), Africa, China, Japan and South-East Asia. During the first year at least 30,000 of the 90,000 Mecca pilgrims fell victim to the disease. In Russia, 90.000 people died of Cholera in 1866 (Kotar & Gessler, 2014).

The 5th cholera pandemic (1881-1896) began once again in the Bengal region of India and swept through Asia, the North African Coast, South America and continental Europe (Kotar & Gessler, 2014).

Cholera killed 200,000 in Russia between 1893 and 1894, 90,000 in Japan between 1887 and 1889. London was spared from this pandemic because of Joseph Bazalgette´s

new sewage system (Halliday, 2001). It was only when the other industrialized cities of Europe followed London's lead regarding water-sanitation that they were able to avoid another pandemic, however, the rest of the world was not so lucky. In 1892, Sir Waldemar Mordechai Wolff Haffkine, a Jewish Russian-empire born Ukrainian and a bacteriologist/microbiologist, developed a human vaccine for cholera (Greenbaum, 2011). He refused to convert to The Russian Orthodox faith, so he had to emigrate to France and there he worked at the Pasteur Institute in Paris where he managed to successfully develop the first vaccine against cholera. He tested it first on himself, and later in India and worked well.

The 6th cholera pandemic (1899-1923) killed more than 800,000 people in India before moving on to the Middle East, northern Africa, Russia and parts of Europe (Phelps, 2018). By 1923, the outbreak had calmed down and pretty much disappeared from most of the world, except from India, where many still suffered the consequences of the cholera bacteria.

The 7th cholera pandemic (1961-) started in Indonesia in 1961 and is still ongoing (Phelps, 2018). About 3-5 million people become infected every year with associated morbidity and mortality.

3.5 Cholera Today

Both historically and presently cholera has caused devastation across the globe. Cholera is and has always been a preventable disease. Yet, a medical event is not only biological, it is also very much cultural, and cholera brings together the medical and the anthropological fields in research for a successful outcome (Moerman D, 1997). While access to clean drinking water might not be an issue facing western Europeans, millions around the world still live their lives without this crucial resource. The worldwide occurrence of cholera throughout our history is nothing if not proof of the widespread and universal problem of unclean drinking water, in particular in low- and middle-income countries.

In 2009, eleven different countries reported cases of cholera to WHO, with a total of over 24,000 cases and 114 deaths (WHO, 2009). In 2010, 717,534 cases of cholera were reported by forty-eight different countries with 7,543 reported deaths (WHO, 2018a)These numbers do not even include the over 500,000 cases of "acute watery

diarrhoea" that get reported every year in south-eastern and central Asia (WHO, 2017). In reality, the actual numbers are probably much higher, but because of limitations in laboratory facilities and surveillance systems, and a fear in many countries of travel or trade sanctions if cholera is reported, figures are lower than actual figures.

Once cholera is contracted, 80% of people with the disease can easily be treated by simply giving them oral rehydration salts (WHO, 2017) WHO recommends that cholera treatment centres be set up in infected areas to deliver this treatment effectively. This could reduce the case fatality rate down to less than 1%. Although we obviously need to focus on curing the already afflicted, this treatment does not address the root cause of a lack of clean water and sanitation. Before any outbreaks, simply providing clean drinking water, making sure people wash their hands and prepare their food properly can prevent cholera. This is one of the areas where anthropologists working in close relationship with the local community can be of important use. They have the skillset to convey information while taking local customs into consideration. Safe water and sanitation are also crucial to the prevention and further spread of cholera and other related diarrhoeal diseases (WaterAid, 2017).

Additionally, in 2010, the UN General Assembly declared access to clean water and sanitation a basic human right, and it is one of 17 Sustainable Development Goals (SDG) (UN, 2018b), and has now declared the period 2018-2028 as a Water Action Decade (UN, 2018b). This basic human right of clean water and sanitation is one that we in the Western world just take for granted while lack of clean water and sanitation is the leading cause of the current global pandemic of cholera that affects millions around the world today. Numerous countries in Asia, Africa, and the Americas still suffer from cholera, and one of the most recent explosive outbreaks affected Haiti in 2010.

4 Haiti

Colonial past, dictatorship, poor infrastructure and severe natural disasters have been contributing factors in devastating Haiti, an island in the Caribbean Ocean, and the country is still struggling with poverty, corruption and a very vulnerable democracy.

4.1 History

Haiti became an independent state in 1804 when the locals threw out the French colonisers Haiti (Farmer, Kleinman, Kim, & Basilico, 2013). then became the first nation in the world where slaves managed to win an armed revolution that sent an important warning to the white upper class in Latin America. Around 100.000 slaves died and approximately 24.000 colonisers. France withdrew to Europe and Napoleon gave up his idea to re-establish the French empire in North America. After the revolution, a former slave Jean-Jacques Dessalines pronounced himself as the president of Haiti. In 1825, France demanded and succeeded to have Haiti pay 150 million Francs (21 billion US dollars in today´s current rate) as compensation for the loss of equity, land and capital, and even for the loss of the slaves themselves that the French landowners lost in the revolution (Farmer et al., 2013). Haiti was paying this debt until 1922. Thus, the first 100 years of independence were difficult and turbulent and characterized by power struggle between the different ethnic groups in the country.

In 1956, Dr. Francois Duvalier, nicknamed “Papa Doc,” seized power through a coup, elected president one year later (Farmer et al., 2013). In 1964 Papa Doc named himself president for life and ruled Haiti with iron fist until his death in 1971. The opposition was held in check by Papa Doc´s private army, the “Tonton Macoutes”. This paramilitary group was guilty of serious violations of human rights and many people who were part of the Haitian Opposition chose to leave the country.

After the death of his father in 1971, Jean-Claude “Baby Doc” stepped in and took over (Farmer et al., 2013)He inherited his father`s private army and pronounced himself as president for life, just as his father. After massive riots, Baby Doc lost control in 1986 and went to live in exile in France, ending a 30-year long reign of the Duvalier clan. It was however not the end of the Tonton Macoutes that has kept on terrorising civilians and they still support privileges enjoyed by the upper class (Diederich, et al., 2005).

After the Duvaliers, the country was run by a USA-supported military junta until 1987 when the country held its first elections (Marvin, 2016). The election was cancelled due to massacre on election day ordered by a man called Jean-Paul Claude, an ex-military man and drug lord. It is however common knowledge that the whole thing was planned by the government or at least allowed by it.

One year later, the new election became a complete flop with only a 4% turnout, probably because of what had happened the year before.

Figure 2: Haitians celebrate that Aristide was elected president in 1990 (Globalis, 2015).

In 1990, presidential election was successful and Jean-Bertrand Aristide, a priest born and raised in one of the worst slums in the country got 67% of the votes and became president (Marvin, 2016). He was very popular and promised to fight for the poor. His popularity did however not last long and in 1991 he was overthrown in a coup, headed by the leader of the army, Raoul Cédras. Aristide ended up in exile and Cédras put in paramilitary troops to break the opposition, and the supporters of Aristide were beaten (Bowcott, 2000). As strong diplomatic pressure was not enough, the UN decided to intervene in 1994 and sent troops to reinstate the democratically elected Aristide (UN,

1996). In the process they hardly met any opposition and Aristide returned back home.

In the following years the popular support of Aristide declined. Yet, he was re-elected in 2000 in an election criticized for manipulation of the polls (Quinn, 2013)He was accused of corruption and for assassinations of his political opponents. In 2003, serious conflict between supporters and opponents took a turn for the worse (Quinn, 2013). Aristide was accused of killing Amiot Metayer, a rebel leader who had turned against Aristide. In 2004, when Haiti was celebrating the 200-years Anniversary of becoming a republic, violent street fights erupted, so Aristide cancelled the presidential election that was due that same year. That made the opposition angry and they organised large demonstrations in Port-au-Prince. In addition to that the Duvalier family and the Tonton Macoutes reappeared on the scene and the country was in a violent spiral (Quinn, 2013).

Haiti was gradually spiralling into civil war. The opposition took control over the northern part of the country and threatened to enter Port-Au-Prince unless Aristide resigned. At the same time he was pressured by the USA to resign, which he did in February 2004. Once again, he found himself in exile, this time in the Central African Republic and in South Africa (Marvin, 2016). This is the very moment when the UN entered the country with MINUSTAH (in French: Mission des Nations Unies pour la Stabilisation en Haïti), a peacekeeping controlling force led by the USA assigned to reinstate order in Haiti.

Getting Haiti on track was a slow process, the country was in political and economic chaos. The fact that Haiti was also used as a transit stop for drugs on its way to the USA made things worse. The drug cartels wield a lot of power and Haiti is claimed to be one of the most corrupted countries in the world, at the same time it is also the poorest country in the western hemisphere (Kovaleski, 1998). In 2004 the tiny nation got hit by Jeanne, a tropical storm that made things even worse. In addition to this the population was forced to face the everyday battles between supporters of Aristide and the opposition (Quinn, 2013). From his exile in Africa in 2004-2001, Aristide encouraged his followers to put up a peaceful resistance against the “American occupation.” In the middle of this chaos it is difficult to distinguish between politically and economically motivated violence. An election was held in 2006 that Réne Preval won, the acting president and an ally with Aristide (Marvin, 2016).

The UN launched a de-arming program in Haiti (UN, 2006) and in 2007 the UN in

cooperation with the police made some progress in the slums of Port-au-Prince. They took control over a number of violent gangs but the follow-ups from the government did not give expected results. In April 2008 Haiti was hit hard by rising food prices as a net-importer of food and with a large part of the population living on less than 2 dollars a day. In addition to the food crises, Haiti got hit by multiple tropical storms.

4.2 Earthquake in January 2010

In 2010, an earthquake hit at 4:53 pm around 25 km south-west of the Haitian capital of Port-au-Prince. The initial shock registered a magnitude of 7.0 on a Richter scale and was soon followed by two aftershocks of the magnitudes of 5.9 and 5.5, respectively.

Haiti had not been hit by an earthquake on this scale since the 18th century, the closest being the one in 1984 of 6.9 on a Richter scale (Pallardy, 2010).

Figure 3: Central Port-au-Prince after the earthquake (Globalis, 2015).

The collapsed buildings that were scattered around the disaster area was a direct consequence of Haiti's absolute and utter lack of building codes (Frerichs, 2016). Without proper reinforcement, the buildings just crumbled and demolished by the force of the quake, killing or trapping anyone in it. In Port-au-Prince, the cathedral and the National Palace were both heavily damaged, as were the United Nations headquarters, national penitentiary, and parliament building. The city, already weakened by poor infrastructure and still recovering from the two tropical storms and two hurricanes that attacked the country in August–September 2008, Port-au-Prince was not at all ready to confront such a disaster. Other affected areas of the country—faced with the same kind of weaknesses—were just as unprepared

In the aftermath of the quake, citizens and international aid organizations struggled to provide medical assistance, food, and water to survivors. This was extremely difficult due to the failure of the electric power system (which already was unreliable), the lines of communication were lost, and the roads were blocked with debris. A week after the event, little help and aid had reached beyond the capital Port-au-Prince; after another week, supplies were being distributed only sporadically to other urban areas. Operations and efforts to rescue those trapped under the wreckage had mostly ceased two weeks into the crisis; rescue workers had by then pulled out around 100 people but as hope that anyone could have survived for that length of time without food or water began to fade they stopped trying (Pallardy, 2010). However, there were still occasional recoveries of people who had managed to survive for weeks by rationing the meagre supplies they had.

It has been estimated that some three million people were affected by the quake, nearly one-third of the country's total population (Pallardy, 2010). Of these, over one million were left homeless in the immediate aftermath. In the devastated urban areas, the homeless were forced to squat in instant, readymade cities made out of found materials and donated tents. In the second week after the earthquake, many people from the city started to leave and began to go out into other areas, either of their own free will or as a result of relocation programs that were put in place in order to try and get ahead of poor conditions. After 9 months their situation was to take a turn for the worse (Pallardy, 2010). In October 2010, cholera broke its way into the island and became one of the biggest cholera epidemics in modern history.

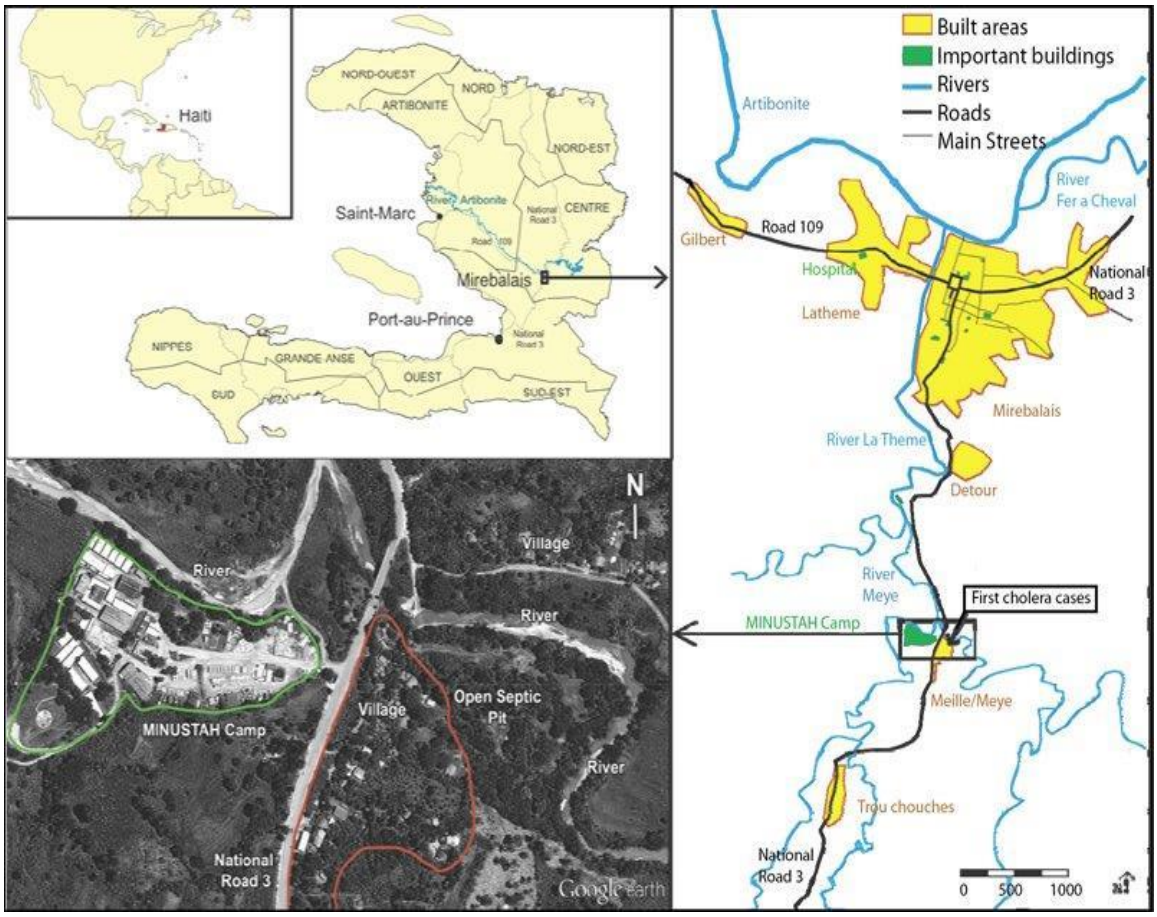

Figure 4: Picture from Piarroux`s report: Understanding the Cholera Epidemic Haiti (Piarroux, 2011).

4.3 Cholera comes to Haiti

There had never been a cholera epidemic in Haiti before, so the population had never had a chance to develop immunity against it. This was however, not the first time foreigners carried a serious disease to the shores of Hispaniola. First were the Spaniards who arrived in 1492 and brought with them measles, smallpox and tuberculosis. At that time there were several hundred thousand native Taino Indians living on the island, but by the end of the 17th century, when Spain and France split the nation between them, not a single native had survived (Farmer et al., 2013).

The first cases of cholera seemed to start with two boys from Bocozel (a small town around 116 km up the coast from Port-Au-Prince) (Frerichs, 2016). They were walking to school and drank water from the river to squelch their thirst. They came to school and started their day just as usual, but as the day went on they started feeling sick, they needed to use the toilet and both of them were suffering from watery diarrhoea, but none of them were in pain so far. But as they went on their diarrhoea got worse, they became

nauseous and started to vomit, and became severely dehydrated and extremely thirsty. Soon other children at the school also displayed similar symptoms. The teacher decided then to take all of them to a clinic not far away, but the first two boys were by then severely sick and moribund. Their eyes had sunken in, their skin was greyish and wrinkly due to the dehydration. They were very thirsty but could not drink and within an hour after arriving at the clinic the two boys were dead. Another child from a village nearby died an hour later. It was the 19 October 2010, and cholera had arrived in Haiti (Frerichs, 2016)

As cases of cholera began to surface around the longest river in Haiti, the Artibonite River, suspicions and rumours arose about MINUSTAH, the Nepalese UN peacekeeping forces active in Haiti from 2004-2017. The rumours were that they were the likely source of the outbreak. In November 2010, this rumour was confirmed by the leak of a report written by Renaud Piarroux, a French epidemiologist recruited by the Haitian government to track down the source of the epidemic (Frerichs, 2016)By adopting an anthropological approach as well as an epidemiological, him and his team managed to get information from the locals and that was crucial in revealing the source of the outbreak (Frerichs, 2016). There were other media coverage aswell, anthropology is a critical voice and while the news at the time reported Haiti as being a vulnerable country, unable to rebuild itself after cholera or any kind of disaster. Anthropologist Mark Schuller analysed these preconceptions and explained how the international community contributes to the stereotypes and inequalities surrounding Haiti and cholera (Schuller, 2015).The anthropological approach made it possible for the Haitians to be heard, and made it possible for international workers to learn the realities of the life of the locals and gain their trust. By listening to and interact with the people that were the most affected by cholera, the Haitians, Schuller helped illuminate what really needed to be done. For example, he noticed that the methods the NGO´s used in the area, the “top-down aid distribution” made abuse and coercion possible in the camps, he noticed the difference in power between the distributors and the receivers and the inequality that followed (M. Schuller, 2010). His findings made it very clear that there was a definite difference in power between the people of Haiti and the UN.

The Artibonite river had been contaminated with faecal matter carrying a South Asian strain of the bacteria Vibrio cholerae El Tor 01, in the report, Piarroux called attention to

the fact that there had been no cases of cholera in Haiti in the previous decades while there was an outbreak of cholera in Kathmandu, during the time the UN troops had left Nepal for Haiti. The timeline is illustrated in Figures 5 and 6.

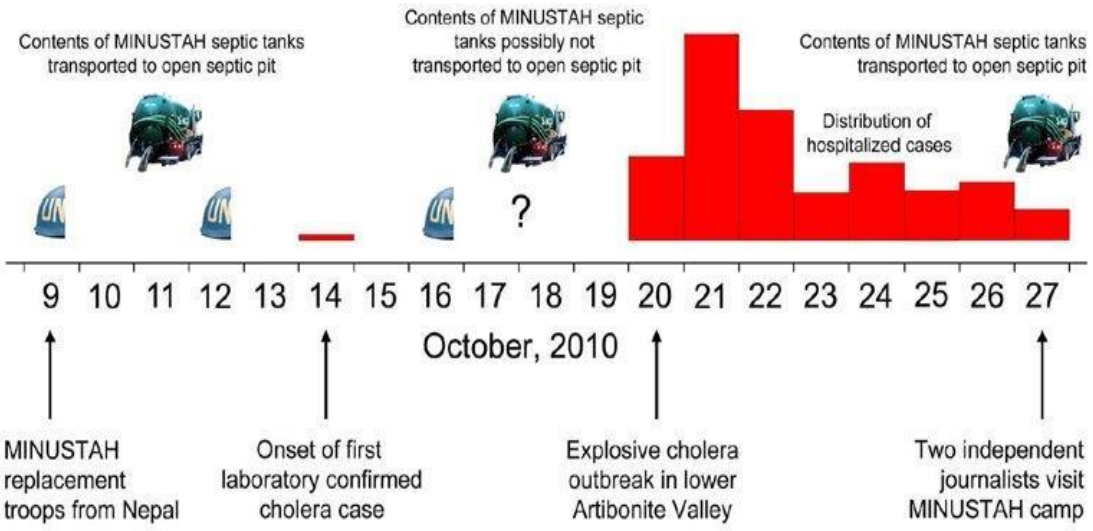

Figure 5: Timeline of the MINUSTAH (Frerichs, 2016).

Piarroux and his team (including anthropologists, health workers and reporters) based their conclusions on the bacteriological tests that were performed on sick patients who attended the health centre in Mielle (Figure 6) and sent to the national laboratory in Port-au-Prince (Frerichs, 2016). Of six patients who became ill between 14 and 19 October 2010, five of them tested positive for *Vibrio cholerae* O1 El Tor Ogawa, and the oldest positive sample was matched to a patient who got sick on October 14. Following investigation by the health department it was suggested that the first patients had taken their drinking water from a part of the Artibonite River, just below the MINUSTAH camp (figure 4). There they found people who said that they had seen and felt the stench of a horrible liquid being poured from pipes from the camp at the time the outbreak, probably sewage (Frerichs, 2016). The pipes were no longer there at the time of the investigation because, according to residents, they were removed by the military very shortly after the declaration of the cholera outbreak.

The presence of a pipe from a septic tank in the MINUSTAH camp and the pouring of a dark liquid in the river had also been seen by the team of the Department of Epidemiology Centre during the first investigation that took place on October 19, as well as by doctors who passed by MINUSTAH (Frerichs, 2016). The doctors told Piarroux that

the MINUSTAH samples that had been taken from the latrines and those pipes on October 21 had been negative for *Vibrio cholera*. It was however impossible for them to know if the septic tank and/or the pipes had been cleaned and disinfected before the samples were taken. It was very important for them to get locals to open up and tell them what they had seen. Unfortunately, Piarroux could not find the analysis that was carried out nor could he himself study the results. In addition to that, doctors said that none of the MINUSTAH soldiers of the camp had submitted a positive diarrhoea sample nor had any environmental samples tested positive for cholera. Piarroux was suspicious of the results because the troops had just arrived from Kathmandu city, a place that was affected by a cholera epidemic (Frerichs, 2016). Yet, he took that evidence with caution because, by October 21, the officers of the MINUSTAH camp were highly aware of the suspicions against them regarding the spread of cholera, especially if an epidemic was emerging within the camp. If that was indeed the case, they could not rule out the possibility that steps were taken to remove faeces and erase traces of any sign of cholera among the soldiers. The UN was being careful—and not at all transparent.

4.4 The UN

In November 2011 several organizations filed claims against the UN, they wanted them to take responsibility for the outbreak, and they also urged them to install new water and waste-management systems, and last but not least compensate those who fell ill or lost relatives to cholera. In December 2012 the UN, although still not admitting or acknowledging that it was their troops that had been the carriers of the disease, announced that they would fund a program that was proposed by the governments of Haiti and the Dominican Republic to rid the area of cholera and putting in place new sanitation and vaccination measures.

However, the financial plan that was proposed for this project depended in no small way on capital that was already promised but not yet delivered. The UN said in February 2013 that they would not accept any claims for compensation related to the outbreak, relying on the 1946 “convention on privileges and immunities” adopted by the General Assembly of the United Nations
on 13 February 1946 (UN, 2013).

In the Al Jazeera documentary “Haiti in the time of Cholera” (2016) the film makers

help expose the source of the disease on the island. It put additional pressure on the UN to investigate the allegations that the source of cholera in Haiti was indeed the MINUSTAH camp, and to eventually admit its role in the outbreak. In October 2013, the Institute for Justice and Democracy in Haiti (a US-based group) filed a lawsuit in New York City against the UN, seeking compensation on behalf of Haitians affected by the epidemic (UN, 2014). In 2014, the U.S Department of Justice concluded that the UN was immune from prosecution. In a letter sent to the UN Secretary-General Ban Ki-Moon in October 2015, a group of UN Human Rights experts strongly criticized the entire UN-body for using existing and legal loopholes in order to avoid any kind of responsibility for the epidemic and by doing so undermining the credibility of the UN itself. The following year, in 2016, the UN finally admitted having played a role in starting the cholera-epidemic, though it did not say that the organization had caused the outbreak. The announcement came after Ban Ki-Moon received a report from a UN adviser who claimed that the epidemic would not have broken out was it not for the actions of the United Nations. In addition, this adviser urged the UN to provide compensation to the victims. However, there was no way that the organization would drop its claim of legal immunity. That would mean losing face.

Figure 6: Timeline of how the Cholera outbreak started (Frerichs, 2016).

4.5 Humanitarian assistance 2010

Humanitarian aid following the earthquake was promised by numerous organizations, for instance, the United Nations and the International Red Cross, and many countries in the region and around the world sent doctors, relief workers, and supplies to help disaster-areas. The former U.S. President Bill Clinton, was assigned as a UN special envoy for the massive task of coordinating all of the help workers. In March 2010, the US and the UN held a donor conference that raised $9.9 billion from 59 donors, with $5.3 billion to be used during the first two years of reconstruction of Haiti. The "Interim Haiti Recovery Commission" (IHCR, 2011) was formed during the conference, that is a partnership between the Haitian government and foreign donors. Clinton and Haitian Prime Minister, Jean-Max Bellerive, were responsible for the dispersal of the money, but in the months that followed, Bellerive was worried and he expressed that concern, foreign NGO´s were not cooperating fully with the Haitian government, making it difficult for Haiti to decide where it would be best to put their resources. Actually, the NGO`s were their own enemy, a lot of bureaucracy was in the way for a successful and simple communication within the organisations. In the beginning of March, the US military that was still providing support in the form of equipment, logistics, coordination, and personnel left, and the UN peacekeepers and the Haitian police were pretty much alone in the area to try and maintain order (USAID, 2018).

The international community had learned a lot during the disaster of the 2004 Tsunami in the Indian Ocean (Leoni, 2014). By using a model that was put in place back then and had been proven successful, programs where started up abroad where mobile phone users could just send an SMS and donate money to Haiti. A good chunk of all the money gathered for the cause in the United States came through mobile phone companies. There was even "A Celebrity Telethon" set up in New York City by the rapper Wyclef Jean who is a Haitian American. Together with other similar celebrity efforts they managed to gather more than $60 million in aid money (Sawe, 2017).

Haiti was not only helped by aid money pouring in from outside, as part of the "Heavily Indebted Poor Countries initiative" (HIPC) of the International Monetary Fund (IMF) and the World Bank in 2009 (Worldbank, 2018) their foreign debt had been massively reduced. Even so, the country still owed more than $1 billion to different banks and investors. With an economy that was barely functioning, the country was probably not ever going to be

able to pay those debts. In February 2010, the G7 countries forgave the remaining portion of Haiti's debt, and in March, another bank, the Inter/American Development Bank forgave $447 million of debt and promised over $30 million in further support. Further, the World Bank forgave the country's $36 million balance in May (BBC, 2010). People and institutions were trying to help Haiti recover from the crisis.

Two years after the earthquake, several million dollars' worth of aid money had been retracted by various donors, completely within the guidelines of the donor conference (IHCR, 2011). What remained was $4.5 billion for the first two-year recovery period, but only slightly more than half was actually received by the American recovery fund. The press then pushed for "A Freedom of Information Act" which showed that only little over 10 percent of the money had been used for the infrastructure and the rebuilding of the country, and over $300 million had been spent on projects that begun before the earthquake. It was easy to put the money there because their frameworks were already in place. A total of around $6 billion had been available by the end of 2012, but very large portions of that sum was never spent.

In June 2013, in a report from the U.S. Government Accountability Office (GAO) it was stated that USAID, the institution responsible for nearly half of $1.14 billion of AID funds, had only spent a third of that money (USAID, 2013). The GAO report also found that USAID had underestimated the costs of a major housing project, so much so that around 80% of the planned houses were never built. They also gave the contracts for the reconstruction work to foreign companies, which meant they were effectively taking jobs from the Haitians (USAID, 2015).

In 2016, an article was published by Prepublicity and the American National Public Radio (NPR) about massive failures by the American Red Cross to uphold its reconstruction goals, especially the construction of new permanent housing. Though the organization claimed to have provided shelter to 132,000 Haitians, the reporters only found six permanent structures (Elliott, 2016). The other homes offered by the Red Cross were either just temporary shacks or damaged homes. The article also criticized the Red Cross's lack of transparency and a failure to report how the funds had been used. ProPublica, (an independent, non-profit online-journal founded in 2007-2008) got this information from internal documents suggesting that staff from the Red Cross were not qualified, and did not have the expertise to decide where the money would be best spent,

an embarrassment for the Red Cross (Elliott, 2016). The article also showed that the Red Cross delegated their tasks to other NGOs, and by doing so they were using huge funds and spending it on administrative costs rather than actual reconstruction.

The Red Cross responded to the critique, and said that it made more sense to subsidize housing because of the complicated laws of landownership in Haiti. They also claimed that its spending was no more than that of other organizations working in the region (Elliott, 2016). In August 2014 the President of the United States, Barack Obama signed the "Assessing Progress in Haiti Act" (Govtrack, 2014). It was a three-year plan to reach the reconstruction goals in Haiti, it included helping with the economic growth, with technical assistance in rebuilding the country, assistance to the government and making sure the country stayed democratic. And the work was underway, but in October 2016, hurricane Matthew made sure that would not be so easy, once again the focus had to turn to immediate emergency-aid and effectively halted the efforts to get the country up and running.

4.6 Political aftermath

The epidemic reached the tent cities of Port-au-Prince in November 2010, and by 2016 it had affected around 770,000 people and proved fatal to more than 9,200. A 2016 report by the organization Médecins Sans Frontières (MSF) claimed that cases of cholera had likely been significantly under-reported (MSF, 2016). But there was also a political game at play, it was election year and it was time to vote for the successor of president Rene Preval as well as for the Members of Parliament (deputies and senators), so finding answers to this epidemic was not only humanitarian but also highly political, and difficult. Nobody wanted to be accused of being responsible for bringing the UN into the country, and it became vital during the elections that the facts were kept from the public. It was a cover-up to save face, not only the UN-face but the politicians who allowed them to come with their disease into the country (Frerichs, 2016). In an already unstable political climate, admitting any guilt was a death sentence that nobody wanted. Least of all the UN, seeing that their role was to protect the nation.

The election to choose Preval's successor as president took place in November 2010 after a 10-months delay with earthquake and emerging cholera epidemic. The voter turnout was very low, and suspicions and allegations of electoral fraud were flying around

the country (BBC, 2016) . A run-off election was held on March 20, 2011, between the top two candidates: a very popular musician called Michel Martelly, and Mirlande Manigat, the wife of a former president of Haiti and a legal scholar (Katz,2016). During this run-off election observers noted fewer instances of fraud and many more people came to vote.

On April 21 they announced that Martelly had won the election with some two-thirds of the vote. The political instability created by the earthquake made them postpone the municipal and senatorial elections that were now scheduled for 2011 and 2012, respectively. Having lost its mandate to govern, Haiti's parliament was however first dissolved in January 2015 (Katz, 2016). Parliamentary elections were held in August 2015, and a second round, alongside the presidential election, was held in October 2015. However, more allegations of fraud led to an uproar and demands for a presidential run-off. Originally scheduled for December 2015, the run-off was cancelled. Following the establishment of the new parliament in January 2016, Martelly agreed to leave office in February, and an interim president was sworn in that month. At the moment Jovenel Moïse (born 26 June 1968) is the 42nd serving and current president of Haiti and has been in power since February 2017 (BBC, 2016).

5 Discussion and conclusion

Major health crisis like the cholera epidemic in Haiti needs anthropological input. Anthropology can help us understand how human behaviour reflects politics and culture. There are reasons to why people defy disease precautions, and it is not enough to implement preventive strategies against cholera that are known to be effective by assuming that everyone thinks, believes and responds in the same way. Further, interactions between foreign health-workers and local communities are severely disrupted if there is mistrust and false assumptions. The anthropologist role is to identify and describe community worries and the understandings the locals may have of a disease, including the reasons behind its cause and treatment. The cholera outbreak in Haiti has shown the value of anthropology, and created an opportunity to bring the field and its insights into the health ensuing emergency operations. It will probably never be possible for all humans to have the same ideas and beliefs, so for aid to be successful, a change in how it is distributed is needed, it needs to be a communal effort, a combined collaboration that involves local people and the diverse knowledge they possess.

It is quite clear that without the help of anthropological methods and the understanding of local customs they bring to the table, and the combined efforts of epidemiologists in the area it would have been very difficult to find the source of cholera in Haiti. Without an anthropological approach they may not have been successful in engaging the locals, gaining their trust, understanding their traditions and rituals and eventually finding the truth. Around 10,000 people have died since the epidemic began. During the epidemic, Haiti recorded more than 800,000 cases of cholera, the country´s poor sanitation helped the disease spread. Even now, more than half of rural resident's lack access to clean, drinkable water and only one-quarter of Haitians have access to toilets. Still, an optimist statement by UNICEF the 19 January 2018 gives hope that "Haiti's killer cholera epidemic could be over this year" (UN, 2018a). The number of cases of cholera keeps going down in Haiti following one of the world's most violent outbreaks in modern times. According to UNICEF there was around 100 suspected cases recorded in January of this year (2018), that is the lowest number since the epidemic began in October 2010, additionally there was no increase of cases during the rainy season in 2017.

In December 2016, then-UN Secretary-General Ban Ki-moon apologized for the first time to Haitians for the role played by UN peacekeepers in starting the epidemic.

Personally, I think it is shocking for an international organisation such as the UN to act in such a cowardly manner, on the other hand it comes as no surprise. They have done that before, the most vivid memory would be Rwanda in 1994, the genocidal mass slaughter of Tutsi by members of the Hutu majority government, where the UN simply chose to look the other way and leave (Dallaire & Beardsley, 2005). We now have an opportunity to make sure cholera does not come back to Haiti, the danger is that if the medical teams do not have enough funding to continue their work until the last person with cholera is cured, there is a risk of another outbreak, a new explosion of cases. We need to see it through until the end, until there is not one single person with cholera in Haiti. The UN hoped for $400 million in funds over a two-year period to fight cholera in Haiti, but only 10 percent has materialized (UN, 2018). Maybe if they had handled this crisis better, with more transparency and courage, the member states might have been more inclined to give up their money.

The medical field is changing. Today's health professionals need to know how disease and illness are viewed in different parts of the world in order to treat it successfully, and with more understanding. They need to grasp how extremely different treatment and medical interventions are between cultures, and how cultural forces impact the health of individuals. Anthropology, the very study of human variation across both time and space, provides a biological and a cross-cultural approach that will enable us to gain a better understanding of medicine, health, and well-being. Global health professionals must agree that anthropological insights, their knowledge, and special skillsets are essential to the medical and health professions in the 21st century. Surely behavioural scientists, economists and anthropologists can play a role just as important as the role of the surgeon.

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