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THE CHOLERA OUTBREAK IN GHANA

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Abstract
The study aims to assess the annual outbreaks of cholera in various parts of Ghana. A detailed review of published articles on cholera outbreaks globally and in Ghana was conducted. A systematic search was conducted in PubMed, ScienceDirect, Google Scholar databases to retrieve studies published on Cholera. The study showed that cholera has been a major public health challenge that occurs annually in Ghana since its first case in 1970. The region with the highest cholera cases annually is greater Accra with Accra being the district with the highest cases. From 1998 to 2017, greater Accra alone recorded 58.5% of all the cholera cases in Ghana. However, Upper West, Northern, Upper East and Volta region are the least affected regions in Ghana. These cholera outbreaks are as a result of poor sanitation and unsafe drinking water. Cholera outbreaks occur every year in Ghana and needs greater attention. These outbreaks have led to several deaths. This can be prevented if adequate safe drinking water is provided and sanitation is improved in Ghana.
Keywords: Annually, cholera, Ghana, outbreak.

GANA KOLERA SALGINI
Amaç: Çalışma Gana'nın çeşitli bölgelerinde yıllık kolera salgınlarını değerlendirmeyi amaçlamaktadır. Dünyada ve Gana'da kolera salgınları üzerine yayınlanan makalelerin ayrıntılı bir incelemesi yapıldı. Kolera'da yayınlanan çalışmalar PubMed, ScienceDirect, Google Akademik veritabanlarında sistematik olarak değerlendirildi. Çalışma, 1970'teki ilk vakasından bu yana kolera'nın, Gana için önemli bir halk sağlığı sorunu olduğunu ortaya koymuştur. Kolera'nın en yüksek olduğu bölge greater Accra with Accra ilçesidir. 1998'den 2017'ye kadar bu ilçede Gana'daki tüm kolera vakalarının % 58,5'I görülmüştür. Bununla birlikte, Yukarı Batı, Kuzey, Yukarı Doğu ve Volta bölgesi Gana'da en az etkilenen bölgelerdir. Meydana gelen kolera salgınları, zayıf sanitasyon ve güvenli olmayan içme suyunun bir sonucudur. Her yıl Gana'da kolera salgınları meydana gelmekte ve dikkat çekmektedir. Bu salgınlar birkaç ölüme neden oldu. Yeterli güvenli içme suyu sağlanırsa ve Gana'da sanitasyon iyileştirilirse bu ölümler önlenebilir.
Anahtar Sözcükler: Senelik, kolera, Gana, salgın.

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Introduction

Cholera is an acute infection caused by taking in food or water faecally contaminated with a bacterium called *Vibrio cholera* (1). It is usually linked to poor sanitation and inadequate access to safe drinking water. It has a very short incubation period of two hours to five days (1) It is an acute diarrhoeal disease that can kill within hours if left untreated (2). Cholera can be treated easily. Prompt administration of oral rehydration salt (ORS) has been proven to be effective in the treatment. Patients who are severely dehydrated are at high risk of going into shock and will require prompt intravenous fluids administration. Appropriate antibiotics may be needed to help in the control of the diarrhoea and also to clear the bacterium (1).

Globally, it is estimated that each year there are 1.3 million to 4 million of cholera cases. Also, deaths from cholera range from 21 000 to 143 000 (2). Cholera is considered to be of great public health concern in Africa. According to the WHO, there were 101 987 cholera cases of which 1881 resulted in deaths giving rise to a Case Fatality Rate (CFR) of 1.8% within the African Sub region (3).

In 2016, out of 132 121 cholera cases and 2420 deaths that were reported to WHO globally, 54% of these cases were reported from Africa (4). Cholera was first reported in Ghana in 1970 (5). According to Ghana Health Service, a total of 9542 cases with 100 deaths were recorded in 2010, 10 628 cases with 105 deaths in 2011, 28 975 cholera cases with 243 deaths were recorded in 2014, 618 cases were recorded with five deaths in 2015 and 150 cholera cases were recorded in 2016 (6). Between 1998 and 2017, epidemiological surveillance reported 82,754 cholera cases in Ghana with 519 fatalities (7).

With the above statistics on cholera cases in Ghana, it shows that cholera is a public health concern in Ghana and needs much attention. Little researches have been conducted on the condition. It is therefore important to conduct a study on cholera by reviewing available literature and also offer recommendations to help in reducing the burden of the disease.

Material and Method

A detailed review of published articles on cholera outbreaks in Ghana was conducted. A systematic search was conducted in PubMed, ScienceDirect, Google Scholar databases to retrieve studies published on Cholera cases. The keywords used were Cholera, outbreak, annually, Ghana. Only articles, reports, statistics from MOH, and other international organizations published in English Language were included. Unofficial statistics and unpublished reports were excluded. The articles and reports reviewed are from the year 1998 to 2017. Only full-length articles and reports were reviewed in this study. It is established that cholera is one of the main public health challenges in Africa. We reviewed studies base on the research question ‘Is cholera still a main public health issue in Ghana?’ and we tried to find out the answer through this review and offered recommendations.

Results and Discussion

Between 1998 and 2017, epidemiological surveillance reported 82,754 cases in Ghana with 519 fatalities (7). Ghana suffered several cholera outbreaks with one of the most significant one in 1999 in which 9432 cases and 260 deaths were recorded (8). The disease has remained endemic over the last decade in Ghana. Annually, it is estimated that, 41,732 cholera cases occur in the country with and average case fatality rate of 3.8% (2).

Data indicates that between 1998 and 2013, Greater Accra, Central, Western and Volta region had the greatest cholera outbreak in Ghana. The four regions constituted 70% of the cholera cases in the country (9). In Ashanti and Eastern region, about 18% of cholera cases were recorded. The Northern regions (Northern, Upper East and Upper West Region) recorded the least with less than 10% of the cholera cases in the country (Ministry of Health Ghana, 2014). Cholera outbreaks usually spread between Ghana and neighbouring countries like Ivory Coast and Togo, especially along the Guinea Coast (10).

From 1998 to 2017, Greater Accra recorded the highest cholera outbreaks in the country reporting 58.5% of all cholera cases in Ghana. Nine outbreaks occurred during this period lasting for about 51 weeks in the Greater Accra region (7). Central and Eastern Region recorded 19.2% of cholera cases in Ghana. Upper East region reported 4.8%, Volta region reported 4.1% and Western region recorded 2.6%. It also indicated that cholera outbreaks usually occur in the rainy seasons from July and reaches its peak in September. It continues till December with fewer cases (7).

Table 1: Selected cholera hotspots in Ghana from 1998 to 2017.

Hotspot Type	Region	Districts	% of Total Cases	Recurrence (No. of outbreaks)	Outbreak Duration
Type 1	Central	Awutu-Efetu-Senya, Komenda-Edima-Eguafo-Abirem	2.8	≥ 7 outbreaks	≥ 6 weeks
	Eastern	Akwapim south, East Akim, New Juaben, West Akim.	4.2		
	Greater Accra	Accra	58.5		
	Volta	Ketu	1		
Type 2	Ashanti	Atwima, Bosomtwe-Atwima-Kwanwoma, Kumasi, Kwabre	5.4	4-6 outbreaks	≤ 6 weeks
	Brong-Ahafo	Atebubu	1.8		
	Central	Abura-Asebu-Kwamankese, Agona, Cape Coast, Gomoa, Mfantseman	8		
	Eastern	Akwapim North, Birim south	1.2		
	Northern	Tamale	0.6		
	Upper East	Kassena-Nankana	0.8		
	Volta	Keta	0.7		
	Western	Ahanta west, Shama-Ahanta west, Wassa west	1.5		

Source: Ministry of Health, 2018

Table 1 above shows the distribution of cholera cases in Ghana from 1998 to 2017. It revealed that Greater Accra had the highest outbreak with total case of 58.5% with the most affected district being Accra. Northern region had the least cholera outbreak with total case of 0.6% with the most affected district being Tamale. This means that Accra records more than half of the cholera cases in

Ghana and the remaining is shared among the other regions. This could be the fact that Accra has a lot of sanitation problems. This gets worst during rainy seasons as gutters are chocked leading to several environmental problems like flood. Almost every year, Accra gets flooded during rainy season. One of the consequences of flood is outbreak of diseases including Cholera.

Sanitation in Accra for example is very unsatisfactory as it is characterized by chocked gutters, indiscriminate waste disposal and uncollected wastes in central waste containers. This is coupled with inadequate sanitary facilities and overcrowding in some parts of the city (11). Over 50% of people live in urban areas in Ghana. With this, only 18% have access to improved sanitation and only 30% have access to piped water (12). According to the Government of Ghana, the country is confronted with a number of serious environmental problems of which poor waste management, pollution of water bodies and improper disposal of wastes are among the top ten challenges (13). Also, about 35% of Ghanaians use public/shared toilet facility, about 19% practice open defecation, 19% use pit latrine, only about 15% use water closet facilities and 10.5% use Kumasi Ventilated-Improved Pit (KVIP) (14). According to WHO and UNICEF, public toilet facility is considered to be unimproved method of disposing human excreta (15). WHO/UNICEF data published in 2015 revealed that Ghana was the seventh filthiest country worldwide (16). According to UNDP, Ghana loses 79 million US dollars annually due to open defecation. About 19 000 Ghanaians which includes 5,100 children under 5years die each year from diarrheal related conditions including cholera. About 90% of these cases are directly related to unsafe water, poor sanitation and hygiene (17).

From the above information, it is realized that the sanitation condition in the country is poor coupled with poor drinking water. This means that the probability of acquiring cholera is very high under these circumstances. Cholera cases are higher in the rainy seasons most probably due to the fact that the effects of unsanitary conditions get worst in this season as gutters could be chocked with rubbish. This impedes the drainage system leading to outbreak of several conditions including cholera.

Because of the poor sanitary conditions in the country that usually contributes to the annual cholera outbreaks, Government of Ghana instituted various measures in order to tackle this. One of such policies is the National Environmental Strategy and Action Plan by Ministry of Local Government and Rural Development in 1999 and revised in 2010. The Policy brings measures on how sanitation problems can be looked at in Ghana. Also, it aimed to meet the standards by United Nations in the Millennium Development Goal 7 on water supply and sanitation (18). This goal was however not met.

Another policy is the National Sanitation Day instituted in November 2014 to be observed by everyone living in Ghana. This was observed on the first Saturday in every month. On this day, everybody was supposed to partake in clean up exercises in their houses and around the neighborhood (19). This was patronized by many people at the early days of its implementation but became worst after the change of government in 2016. The policy failed and the new government created a new ministry known as Ministry of Sanitation. The goal of the ministry is to help in managing the poor sanitary conditions in Ghana (20).

Also in April 2017, the president of the Republic of Ghana Nana Addo Dankwa Akufo-Addo promised to make Accra (The capital city of Ghana) the cleanest city in Africa by 2020 (21). In October 2018, the sanitation minister emphasised that the president's vision of making Accra the cleanest city in Africa is still attainable (22). From observations, it may not be possible to make Accra the cleanest city in Africa by 2020. This is because since the president announced

to make it the cleanest city in Africa, little effort has been put in place to achieve this goal.

In January 2018, the Accra metropolitan Assembly introduced a project called, 'One house, One toilet'. The project mandates all houses to have at least one toilet at a subsidised price (The landlord pays half of the toilet facility price). This policy aims to solve the problem of open defecation leading to several disease outbreaks like cholera in Accra (23). The sanitation minister also cautioned ladies not to marry men who do not have toilets in their homes (24).

All these policies discussed above aimed to solve the unsanitary nature of the country especially Accra. This however has not been achieved mainly due to poor implementation of such policies.

Conclusion and Recommendations

Cholera is a public health challenge in Ghana and requires greater attention. Several people get affected every year since its first outbreak in 1970. Several people also die almost every year due to cholera. This could be minimized if not stopped with these recommendations.

To deal with the frequent outbreak of cholera in Ghana, there should be sustainable water supply and improve sanitation and hygienic activities in the country especially the hotspot areas in the country. One way of solving the water problem is for Ghana Water Company Limited to improve the supply of water to various areas in Ghana by improving on the quantity and quality of the water to these areas. The poor sanitary conditions too can be improved by enforcing already existing sanitation laws in the country and providing the needed facilities that will encourage the people to properly dispose of wastes rather than indiscriminately disposing them.

The one house, one toilet project should be implemented and enforced in all parts of the country. Those who fail to provide toilets in their houses should be prosecuted by the law court. This will force house owners to provide toilets in their homes.

Government should also strengthen early detection and rapid response system in tackling cholera. This could be done through the use of GIS technology during an outbreak to identify strategic cholera hotspots in the country. Hospitals should be prepared to handle these cholera cases especially during outbreaks since some hospitals lack necessary items and personnel in handling cases in case of such outbreaks.

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