Cholera in Sarawak: A historical perspective (1873–1989)

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Summary

Cholera has been in existence in Sarawak for many years and since 1873 many major epidemics have occurred. The epidemics usually occur during the dry months of May, June and July and the population affected are those in coastal areas. As in other outbreaks the areas affected were those which had poor environmental sanitation, poor water supply, poor refuse disposal and indiscriminate disposal of faeces. Malays are more affected as in Peninsular Malaysia outbreaks. The *classical biotype* was common prior to 1961. In later years the *El Tor* (biotype) has been responsible for most outbreaks.

Key words: Cholera epidemic, outbreaks in Sarawak.

Introduction

Cholera is an acute illness which results from colonisation of the small bowel by vibrio cholerae. The disease is characterised by its epidemic occurrence and the production in the more severe cases of massive diarrhoea with rapid depletion of extracellular fluid and electrolytes.[1] Cholera is a disease of ignorance, poverty, inadequate water supply, improper sewage disposal poor personal hygiene and unsatisfactory environmental sanitation. It is well known that the important vehicle for the rapid spread of cholera is contaminated water. Insanitary personal and food habits are largely responsible for the persistence and intensification of epidemics. Human faeces is the main source of infection and it is well known that cholera outbreaks are associated with situations in which the water supply is exposed to high risk of contamination with human faeces due to insanitary defecation habits of the people.[2]

Cholera has been in existence in India since time immemorial and a description of the disease syndrome has been described in ancient Indian literature.[3] The Ganges delta has been often termed as the 'home of cholera'. The world has experienced seven pandemics of cholera and Malaysia has had its share of the epidemics.[4–7]

The history of cholera in Malaysia, like other countries in the region, dates back to antiquity but the earliest known records of the disease appeared in 1823–30 records of the Durian Daun Hospital in Malacca reported by Sandosham[8] and in the writings of Mrs. Innes (1885) who lived in a remote kampong in Langat, Selangor.

Like Peninsular Malaysia, cholera has been in existence in Sarawak for many years. The concept of illness and injury among the Sea Dayaks is closely linked with religion and magic and cholera

to the Sea Dayak is the coming of a great spirit from the sea to kill and eat.[9] The Sarawak Gazette in 1873 mentions of an epidemic of cholera in which many people died of cholera. Also on 14th October 1973, on board the vessel S.S. 'Hydaspes' between Aden and Suez the only son and daughter of H.H. the Raja of Sarawak died. Although the cause of the deaths were not confirmed, cholera was not ruled out. The sea vessels plying in this region in the 19th and early 20th century helped to propagate the epidemic. Up to 1946 all cholera outbreaks were entirely due to the *Classical Biotype.* According to Felsenfeld[10] the spread of biotype *El Tor* into Sarawak seems to have come directly from the endemic centre in Macassar and from the Philippines; the disease moving southward into the islands and was introduced in North Borneo by a visitor from Jolo island.

Raja Brooke Era (1841–1941)

The Raja Brooke era lasted in Sarawak for 100 years. Cholera was endemic in Sarawak during this period although very little is documented. In 1873 an epidemic of cholera occurred and it is impossible to say how many died. Capt. Giles Helyer, Commander of the gunboat "Heartsease" died of cholera and during this period two children of H.H. Raja Brooke died on board ship mysteriously, possibly due to cholera. There is also no record of any cholera outbreak from 1883–1886.[11–13]

However, in 1888 an epidemic of cholera occurred in Simanggang District. It was reported a great number of Malays were ill from cholera or choleraic symptoms. The total number of deaths from cholera in Simanggang amongst the Malays, Dayaks and Chinese was well over 80 and majority of those who died were Malays, who numbered 70. In the lower part of the Undup river there were 13 deaths among the Dayaks from cholera. There were only two deaths among the Chinese from the *bazaar* area (town) and the disease occurred during the end of July.[14]

From 1888 to 1901 there was no recorded epidemics of cholera but in 1902 another major epidemic occurred. This may have been recorded as the worst epidemic in Sarawak with well over 1500 deaths and the actual number of cases being unknown. It is reported that there was a severe drought in Sarawak in the month of May, June and July particularly so in the southern half of the territory. Wells were nearly dry.

At this time an expedition had been organised to punish a group of Dayaks living in the interior of Simanggang District who were attacking and killing friendly neighbours. A force of some 12,000 loyal Dayaks including some Malays were assembled, and the expedition moved up the Lupar river (Batang Lupar) to Simanggang in about 800 boats. On leaving Simanggang, all appeared well, but when the expedition proceeded some distance up the river, cholera broke out and spread rapidly. There were 1,000 deaths in the force which eventually had to retire without accomplishing its mission. The surviving sick and healthy members dispersed to their respective longhouses and villages. The outbreak started on about 10th June and lasted until 29th June. The report stated that the Batang Lupar was polluted with corpses and shields of members of the expedition. Cases of cholera thus appeared in several other areas and these were attributed to the dispersal of Dayaks after the break-up of the expeditionary force. Divisions I, II, III and IV had cases of cholera.[6] The disease also occurred in Kuching town in a sporadic form during the months of June and July. Overall this epidemic caused about 1,500 deaths but the number of cases was unknown.

The next major outbreak was in 1910 and 1911. In 1910 there were 85 cases and 67 deaths and in 1911 there were 109 cases and 77 deaths (Table 1). There were two outbreaks in 1910,

Table 1
Cholera Outbreak in Kuching, Sarawak – 1911

Name of Villages/Place	No. of Cases	No. of Deaths
Kg. Pulo	6	3
Kg. Buah	4	4
Kg. Soerabaya	3	2
Kg. Gersik	7	5
Kg. Boyan Lama	14	7
Kg. Sg. Bedil	9	5
Kg. Lintang	10	7
Kg. Tanjong	4	4
Sarawak Rangers	18	11
Padungan	4	4
Police Barracks	2	2
Samarahan	1	1
Kuching Jail	2	2
Penrissen Road	3	1
S.S. Raja of Sarawak	1	1
Kg. Datu Bandar	5	4
Kg. Datu Hakim	1	1
Kg. Bintangor	6	4
Kg. No. 1, 2, 3, 5	8	8
Chinese boat for Lingga	1	1
Total for 1911	109	77
Total for 1910	85	67

Death Rate 1910 – 78.8%
Death Rate 1911 – 70.6%

the first occurring in February. Previous to this there had been several weeks of dry weather, a condition which almost invariably precedes an epidemic. In Kuching, the inhabitants of the areas across the river of Kuching Bazaar did not have safe water supply and they suffered most. This outbreak continued intermittently until the end of April when rains again fell and the disease for the time being abated. Again from mid May to August there was drought and cholera broke out again in mid July. Again the natives across the river suffered most. One of the most striking feature was there was not a single case from the *bazaar* (Kuching) due to safe water supply, although there was over crowding. In the Kuching outbreak three Chinese, 20 Dayaks, 81 Malays, two Filipinos and three Tamils were affected. The only outbreak outside Kuching was in Sambir on the Samarahan river. During a visit to Sambir the Divisional Medical Officer made bonfires of the soiled clothes and bedding of those who died and the disease abated.[15]

During the same period the Dutch Government in Java started using cholera vaccination and claimed the results were good. In the province of Samarang 8,340 natives were vaccinated and only three contracted the disease and one died. However, of the 85,141 natives in the same district who were not vaccinated 552 contracted the disease and 467 died.[15]

Although there were cases of cholera in Peninsular Malaysia from 1911 to 1941,[3] there were no major epidemics reported in Sarawak. A Medical Department report in 1922 suggested also there was no outbreak[16] from 1911 to 1922 and the Medical Department Report in 1957 reported 'it was considerably more than 20 years since cholera or plague had occurred', thus suggesting that there was no major outbreak of cholera at least from 1911 to 1941.[17]

Sarawak as a Crown Colony (1941 to 1963)

Sarawak became a Crown Colony in 1941 after the Rajah ceded Sarawak to the British. From 1941 to 1960 no case of cholera was reported in the Medical Department Annual Reports of 1947 to 1960.

In 1961 Sarawak again witnessed a major outbreak of cholera and this epidemic was very well documented.[6] This outbreak started on Wednesday 12th July, 1961, when a Health Inspector from the Kuching Rural District Council reported several deaths in Kampong Sourabaya. This kampong is one of a number of kampongs lying across the river, opposite Kuching town. Cholera was confirmed and this epidemic lasted 100 days (Table 2) in which four Divisions were involved leaving the fifth Division free of cholera. In all there were 301 cases and 70 deaths. Of the 301 cases 113 were found to be bacteriologically positive for cholera. During this period there was a concurrent outbreak of bacillary and amoebic dysentry. The following were also isolated *V. Cholera* biotype *El Tor* 113, E Histolytica 46, *Sh. Flexener* 82, *Sh. Sonnnei* 17.

Table 2
Cholera Outbreak in Sarawak – 1961

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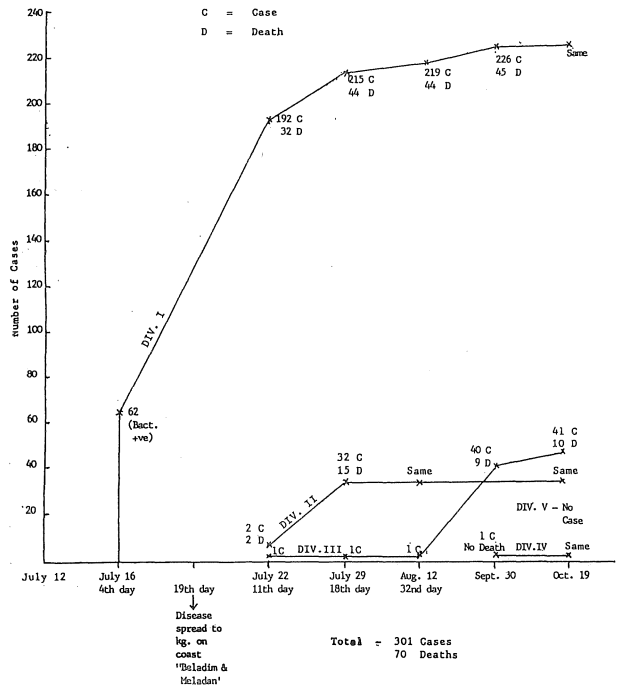
Table 2 : Cholera outbreak in Sarawak – 1961



Anti-cholera vaccinations were given to 444,698 persons which constituted 60% of the entire population of the country or 80–85% of the population living in the areas considered to be at risk. The population affected was confined to the coastal areas of Sarawak and lived generally in villages sited on the banks of the rivers running inland from the sea. It was quite noticeable that villages above the tidal reaches of rivers remained free from infection.

A smaller outbreak also occurred in November/December 1962 with 16 cases and three deaths.

Sarawak in Malaysia (1963 onwards)

Sarawak became one of the States of Malaysia in 1963 and from 1963 to 1988 several outbreaks had occurred (Fig. 1). The most prominent outbreaks were in 1964, 1972, 1976 and 1977 with 198 cases, 85 cases, 177 cases and 223 cases respectively (Table 3). However the most notable outbreak was in 1977 with 223 cases and it deserves mention as most of the Divisions were involved.

The first case of cholera in the 1977 outbreak was reported on 21.4.1977 in Bintulu District in the Fourth Division. This was followed by two cases the next day. By end of May the epidemic spread to Mukah District in the Third Division. The outbreak occurred after the rainy season and continued till the end of the dry season. The peak was in August and by October no further cases were reported. A total of 144 kampongs and longhouses in nearly all the Divisions were involved. However the maximum number of cases were reported from Sibu (34), Bintulu (26) and Binatang (15). The ethnic groups most affected (Table 4) were Ibans (61.6%), Melanaus (27.8%)

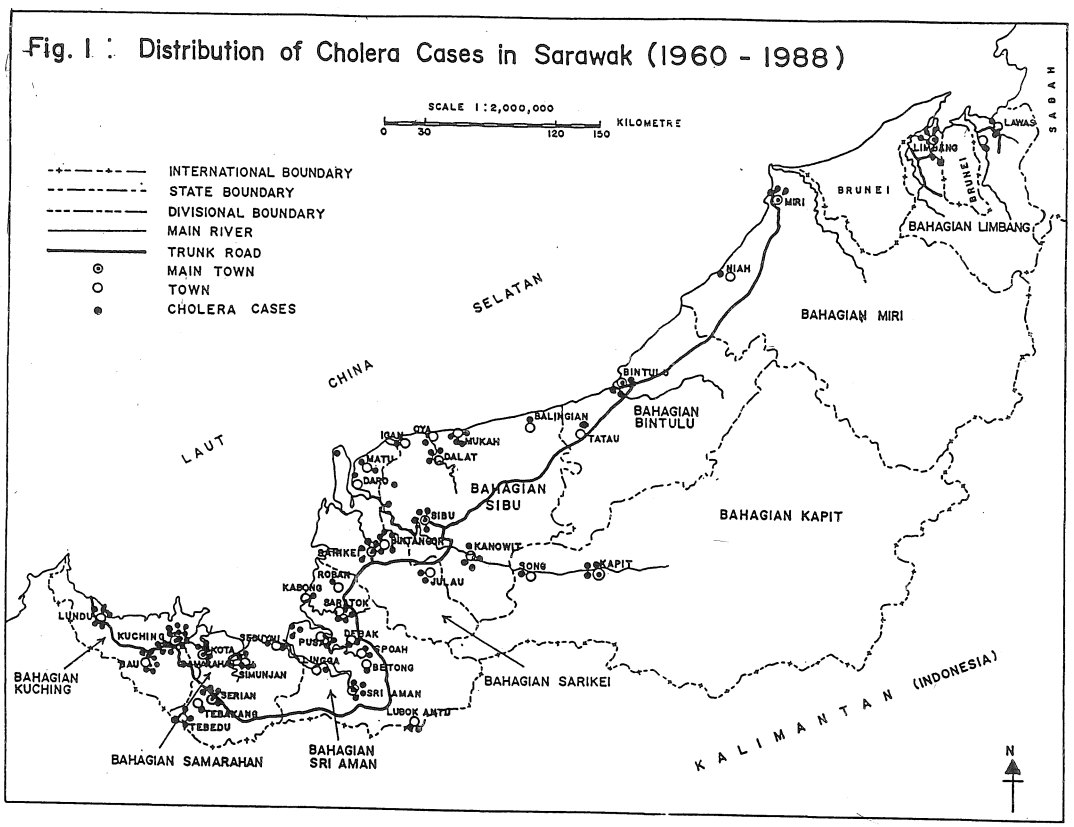


Table 3
Epidemics of Cholera in Sarawak (1873–1988)

Period	Cases	Deaths	Incidence per 100,000	Death Rate per 1,000	Biotype/ Strain
1873					
1888 (Sept.)		70 Died in Simanggang mostly Malays			
1902 (June)		> 1500 deaths in Batang Lupar & Kuching			
1910 (Feb–Apr/ Jul–Aug)	85	67			
1911	109	77			
1961 (Jul–Oct)	301	70 4 divisions involved Div. 5 free of cholera (only 5 divisions)		23/1000	
1962 (Nov/Dec)	16	3		18/1000	
1963 (Jan & Jul)	98 (64)	7	7.95	7/1000	
1964 (May)	198 (120)	33	14.53	16/1000	
1965	15		1.76		
1966	5		0.57		
1970	20		2.06		
1971	25		2.50		
1972	85		8.30		
1973	30		2.85		
1974	30		2.78		
1975	70		6.32		
1976	177		15.60		*El Tor* (Inaba)
1977	223		20.64		*El Tor* (Ogawa)
1978	1		0.08		
1979	3		0.25		
1980	2		0.15		
1981	27		2.01		
1982	108		7.85		
1983	22		1.56		
1984/85	Nil	Nil	Nil	Nil	
1986	10		0.66		*El Tor* (Ogawa)
1987	15		0.97		*El Tor* (Ogawa)
1988 (Jun/Nov)	96		5.73		*El Tor* (Ogawa)

and Malays (7.6%). There were only four cases among the Chinese (1.7%). The M:F ratio was 1.3:1 and there was no predilection for any age group. All ages were affected including those

Table 4
Endemic Distribution of Cholera Cases in Sarawak – 1971

Ethnic Group	No. of Cases	%
Iban	138	61.6
Melanau	61	27.67
Malay	17	7.58
Chinese	4	1.78
Bidayuh	1	0.45
Others	2	0.89
Total	223	100

beow one year of age (13 cases). During this period 139 carriers were detected through case contact tracing. In this outbreak there was only 0.6 carrier for every case which is very low. The serotype in the epidemic was Ogawa. Apart from 1976 when the major serotype was Inaba all other outbreaks were caused by the serotype Ogawa.

Discussion

Cholera has been in Sarawak for a long time and inspite of the progress made in socioeconomic development and health sector development, the disease is still endemic (Figure 1). Cholera is a preventable disease and all efforts should be made to prevent further outbreaks. The provision of safe water supply, provision of toilets, health education, improved sewage disposal and improved personal hygiene are some of the major activities to be emphasised.

Based on the fact that outbreaks occur in the same areas over the years it is reasonable to surmise that the organism is present in the environment in these areas during the inter-epidemic intervals. Why and how the organism initiates an epidemic is still unclear.

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