

CHOLERA OVERVIEW

Seventh pandemic cholera was first reported in Zimbabwe in 1973. Since then, significant outbreaks have been reported in 1992-93, 1999, 2002, 2008-2009 (which was the most significant outbreak ever reported in Africa) and 2010-2011. In recent years, no major outbreak had been reported until cholera resurfaced in 2018 (Fig. 1).

Between 1998 and 2018, epidemiological surveillance reported 117,973 cases with 5,198 deaths (case fatality rate \approx 4.4%)².

Major outbreaks were reported in the following provinces: **Mashonaland West, Mashonaland Central, Mashonaland East, Manicaland** and **Masvingo** (Fig. 2 and Table I).

CHOLERA DISTRIBUTION

Geographic distribution of cholera is markedly heterogeneous, with the five most affected provinces reporting 69.5% of the burden.

The northern and eastern provinces reported a combined 75% of all cholera cases between 1998-2018, with the highest proportion reported by **Mashonaland West** (22.5%), **Harare** (17.1%), and **Manicaland** (15.7%) Provinces (Fig. 2 and Table I). The most affected districts tended to be located along the northern and eastern border with Zambia and Mozambique as well as along main routes to Harare.

The southern and western part of the country has been generally less affected and reported only 25% of the total number of cases during the period 1998-2018.

Harare seems to play a role in amplifying cholera outbreaks. During years when Harare urban district was affected, a increased number of cases were reported (>10-fold) and a greater number of districts were affected.

Cholera in Zimbabwe displays a seasonal pattern and an apparent correlation with the rainy season (November to April/May) (Fig. 3).

Outbreaks tended to start between week 45 (November) and week 51 (late-December) (Fig. 3).

Table I. Epidemiological parameters of cholera outbreaks in primarily affected provinces in Zimbabwe, 1998-2018².

Note: [1] Total cases = 117,973 between 1998-2018; [2] Average in weeks for years 2002, 2003 and 2006 - 2018 (up to week 22).

PROVINCE	Cases / Deaths	% of total cases [1]	Case Fatality Rate CFR (%)	Recurrence (No. of outbreaks)	Outbreak duration [2] (average in weeks)
Mashonaland West	26,501 / 1,026	22.5	3.9	7	12.9
Harare	20,119 / 677	17.1	3.4	3	20.3
Manicaland	18,489 / 971	15.7	5.3	3	36.7
Mashonaland Central	15,043 / 484	12.8	3.2	4	9.5
Masvingo	13,490 / 768	11.4	5.7	5	14.2
Mashonaland East	8,318 / 632	7.1	7.6	3	13.0
Midlands	7,935 / 359	6.7	4.5	2	18.5
Matabeleland South	6,039 / 170	5.1	2.8	2	13.0
Matabeleland North	1,594 / 93	1.4	5.8	2	9.5
Bulawayo	445 / 18	0.4	4.0	1	14.0

Figure 1. Annual number of cases and case fatality rate (CFR) in Zimbabwe, 1990 – 2016¹

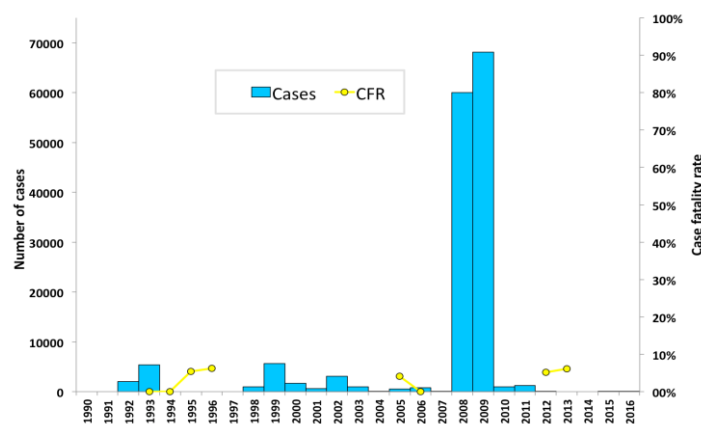


Figure 2. Cumulative incidence of cholera by district in Zimbabwe 2007-2017²

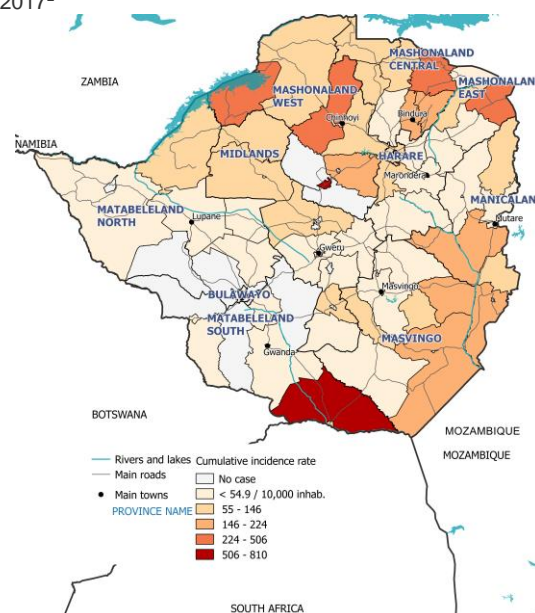
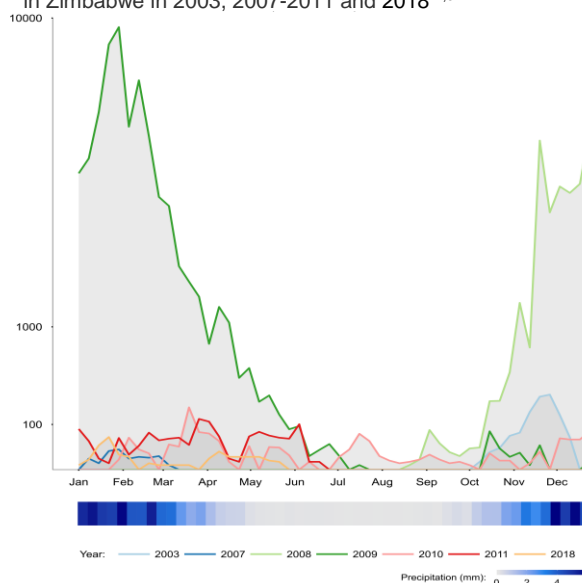


Figure 3. Weekly number of cholera cases and median precipitation in Zimbabwe in 2003, 2007-2011 and 2018^{2,3}



CHOLERA HOTSPOTS

Location of cholera foci (Fig. 4 and Table II):

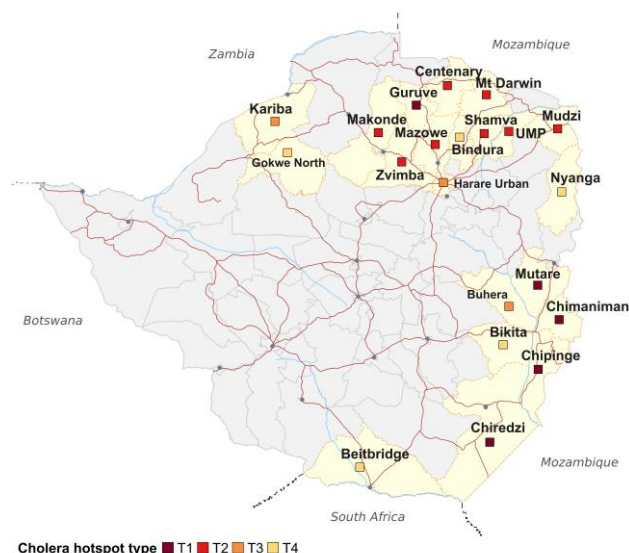
- Along the border with Mozambique – Chiredzi, Chipingue, Chimanimani, Mutare, Nyanga, Mudzi, Mt Darwin and Centenary
- Along the border with Zambia and Lake Kariba– Kariba
- On main roads to / from Harare – Zvimba, Mazowe, Makonde, Guruve, Bindura, Shamva and UMP
- On the border with South Africa - Beitbridge

STRATEGIC RECOMMENDATIONS

In cholera hotspots, preparedness and response plans should be developed and implemented including: (1) strengthening early detection and rapid response including community based surveillance and cross-border alerts; (2) establishing multisectoral and cross-border coordination mechanisms; (3) building capacity on outbreak management; (4) targeted pre-positioning of supplies and (5) developing risk communication, social mobilization and community engagement plans as well as harmonizing approaches and messaging. Enhanced access to healthcare and early rehydration (e.g., community oral rehydration points) in remote areas, should be prioritized to prevent cholera-related deaths (Table II – hotspot types T1 - T4). Sustainable Water, Sanitation and Hygiene and social mobilisation activities should be implemented in 21 high-priority hotspot districts regularly affected with significant outbreak duration (Table II – Types T1 and T2). If implemented in combination with preventive measures, oral cholera vaccine campaigns will reduce the likelihood of cholera epidemics in cholera foci and among high-risk populations.

The type T1 and T2 hotspots accounted for 36.1% of the disease burden². Those 13 districts host approximately 2.5 million people (18% of the total estimated population). An identification of transmission foci at a finer geographical scale is necessary to better target at-risk populations.

Figure 4. Cholera hotspots by district in Zimbabwe, 1998-2018²



High-risk populations and practices^{4,5}

- Children under five and women of childbearing age
- Rural populations (attack rates in rural areas were greater than in urban areas)
- Mobile working populations in urban areas
- Refugees / displaced people in camps
- Use of unprotected water sources, open defecation
- Participation in funerals
- Low cholera awareness and risk perception

Table II. Summary of the cholera hotspot classification in Zimbabwe, 1998-2018²

HOTSPOT TYPE	PROVINCE	DISTRICT	% of total cases	Recurrence (No. of outbreaks)	Outbreak duration (median, in weeks)	Attack rate (median, per 10,000 inhab.)	Case Fatality Rate (CFR) %	Cross-border area
TYPE 1	MANICALAND	CHIPINGUE	4.8	8	17.0	13.71	2.7	Yes
		MUTARE	3.7	6	16.9	5.60	7.3	Yes
		CHIMANIMANI	1.4	6	15.4	3.07	7.1	Yes
	MASHONALAND CENTRAL	GURUVE	1.5	6	15.7	16.05	3.8	No
	MASVINGO	CHIREZI	4.5	10	14.7	2.05	3.7	Yes
TYPE 2	MASHONALAND WEST	MAKONDE	6.3	4	20.0	35.41	2.8	No
		ZVIMBA	1.9	5	16.5	7.56	5.8	No
	MASHONALAND CENTRAL	MT DARWIN	4.7	4	15.1	55.01	3.2	Yes
		CENTENARY	0.9	5	15.9	21.90	4.1	Yes
		SHAMVA	2.0	5	15.7	14.05	2.8	No
	MASHONALAND EAST	MUDZI	0.6	5	14.3	1.85	4.2	No
		UMP	3.1	4	20.1	27.62	7.4	Yes
		MASHONALAND WEST	KARIBA	0.7	4	17.0	7.51	8.9
TYPE 3	MASHONALAND WEST	HARARE	1.3	6	13.1	11.98	3.3	Yes
		HARARE URBAN	13.8	8	15.7	0.30	3.1	No
	MANICALAND	BUHERA	3.6	7	11.0	3.71	3.9	No
TYPE 4	MANICALAND	NYANGA	1.0	4	11.9	10.78	8.2	Yes
	MASHONALAND CENTRAL	BINDURA	2.2	5	13.1	3.58	2.0	No
	MASVINGO	BIKITA	2.6	5	13.3	11.97	6.6	No
	MIDLANDS	GOKWE NORTH	2.6	4	12.7	8.29	4.9	No
	MATABELELAND SOUTH	BEITBRIDGE	2.6	4	12.7	8.29	4.9	No
			4.7	4	12.1	25.38	2.9	Yes

Note: Type 1: Highest-priority area with cholera outbreaks of high frequency (>6 outbreaks) and extended duration (≥13.5 weeks); Type 2: High-priority area with cholera outbreaks of moderate frequency (4 - 6 outbreaks) and extended duration; Type 3: Medium-priority area with cholera outbreaks of high frequency and short duration (<13.5 weeks); Type 4: Low-priority area with cholera outbreaks of moderate frequency and short duration. * The followings districts were manually added: Harare urban, Gokwe North, and Buhera.

References

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4. Bradley et al. Epidemiological features of epidemic cholera (El Tor) in Zimbabwe. Trans R Soc Trop Med Hyg. 1996;90-4.
5. Luque Fernández et al. Descriptive spatial analysis of the cholera epidemic 2008-2009 in Harare, Zimbabwe: a secondary data analysis. Trans R Soc Trop Med Hyg. 2011 Jan;105(1):38-45.

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