

Mapping a decade of cholera burden in Africa, 2011 to 2020

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GTFCC Epidemiology WG Meeting – May 2024



Producing **unified maps** of mean annual incidence of **suspected cholera** across Africa from 2011-2020

Motivations:

- Estimate the 'average' epidemiologic situation in subnational regions
- Produce visual aids and statistics to advocate for cholera prevention and control resources
- Provide historical context for identification of priority areas for multisectoral cholera interventions (PAMIs)
- Stimulate future research in cholera epidemiology and risk factors

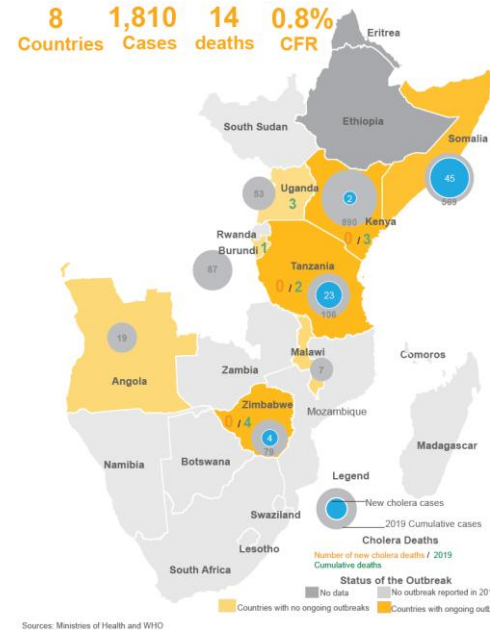


Challenges in cholera surveillance

- Sporadic transmission in many places
- Surveillance standards and case definitions differ by outbreak and non-outbreak transmission setting
- Outbreak / emergency and routine surveillance is often collected separately (e.g., IDSR – aggregated and with limited fields, linelist)
- Cholera confirmation is uncommon

Cholera surveillance data are often sparse, inconsistent, and not centralized or readily available for research.

Suspected cholera reports come in many forms and source documents



Published Date: 2019-05-09 12:55:05
Subject: PRO/EDR: Cholera, diarrhea & dysentery update (12): Africa, Asia
Archive Number: 20190509.6460944
CHOLERA, DIARRHEA AND DYSENTERY UPDATE (12): AFRICA, ASIA
A ProMED-mail post
<https://www.promedmail.org>
ProMED-mail is a program of the
International Society for Infectious Diseases
<http://www.isid.org>

In this update:
Africa

[1] Cholera - Somalia: WHO
[2] Cholera - Zimbabwe
[3] Cholera - Mozambique (northern)
[4] Cholera - Kenya (Mandera County)
[5] Cholera - Kenya (Embu County)
Asia

[6] Cholera - Nepal (Kathmandu)

Africa

[1] Cholera - Somalia: WHO
Date: Tue 7 May 2019
Source: WHO Emergencies preparedness, response, Disease Outbreak News (DONs) [edited]
<http://www.ems.yho.it/pandemic-epidemic-diseases/cholera/outbreak-update-cholera-in-somalia-28-april-2019.html>

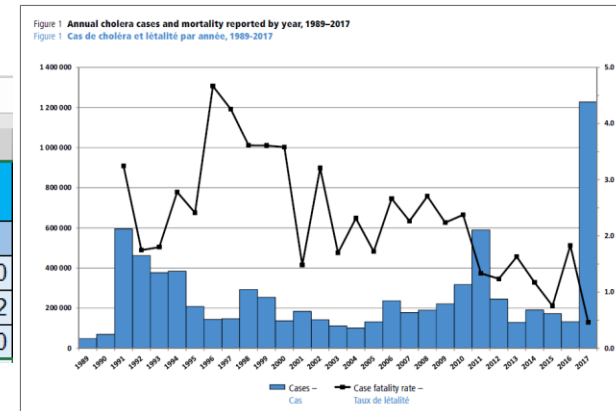
Outbreak update - Cholera in Somalia, 28 Apr 2019

The Ministry of Health (MoH) of Somalia has announced 36 new suspected cases of cholera, with no deaths, for epidemiological weeks 1 and 7 due to closure of the main cholera treatment center, from which data is collected the beginning of this outbreak in December 2017.

During the reporting period, cases occurred in 11 out of 17 districts in Banadir region, the worst affected district are Hodan (728) the cases (24) are children below 5 years of age.

WHO, MoH, and partners have contained the cholera outbreak in the districts of Jubaland, Hirshabelle, and South West states (DVC) campaigns and other health interventions. However, active transmission is ongoing in 11 districts in Banadir - Darkenly, D Bander, Kahla, Kaaran, Waberi, and Warta nabada).

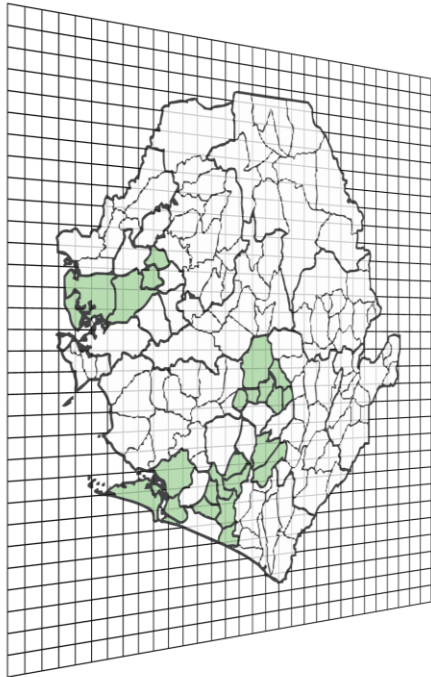
	A	B	C	D	E
1	Country	Week 1		Week 2	
2		Cases	Deaths	Cases	Deaths
3	Mozambique	0	0	0	0
4	Kenya			115	2
5	Somalia	87	0	87	0





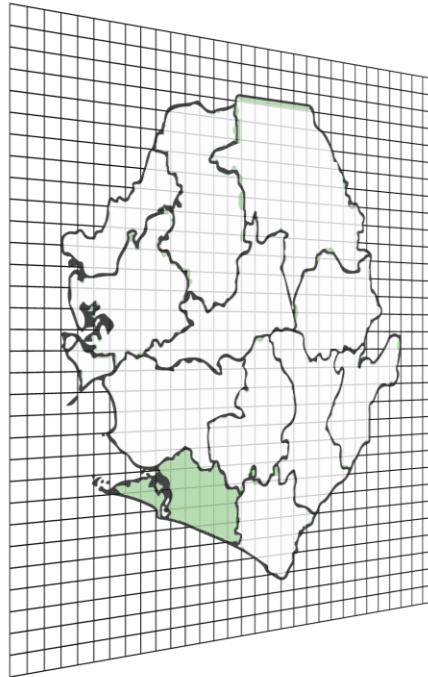
Statistical models were used to “average” spatially and temporally overlapping cholera case reports and “smooth” information across neighboring areas.

Sub-district



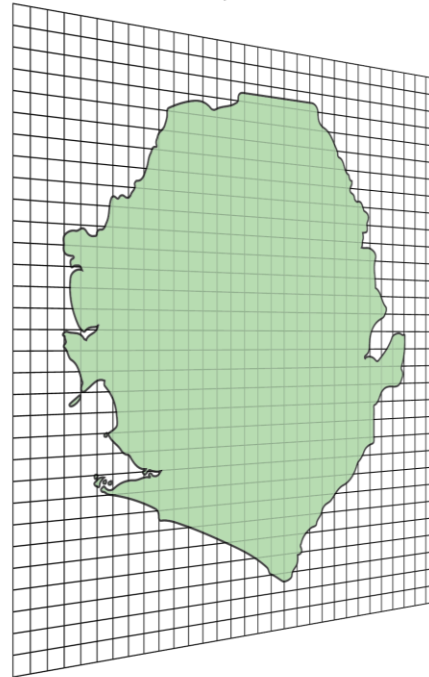
24 observations

District



2 observations

Country



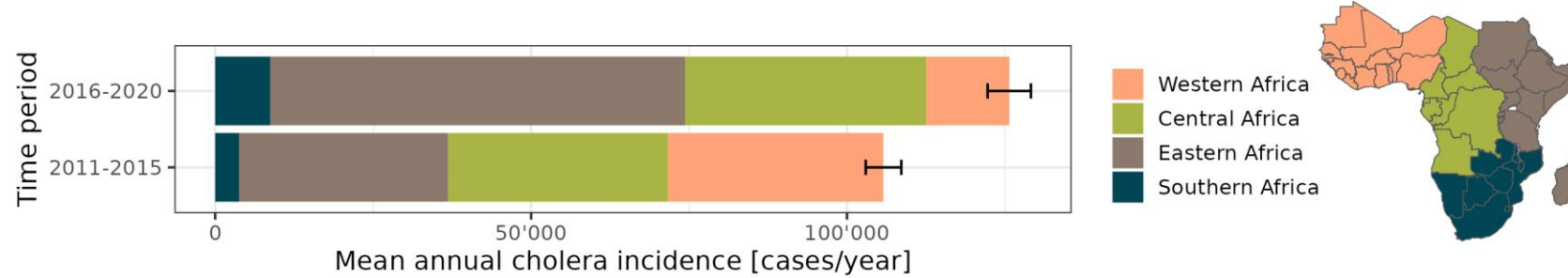
1 observation

Each country was modeled independently at the 20 km x 20 km grid for two periods, 2011-2015 and 2016-2020

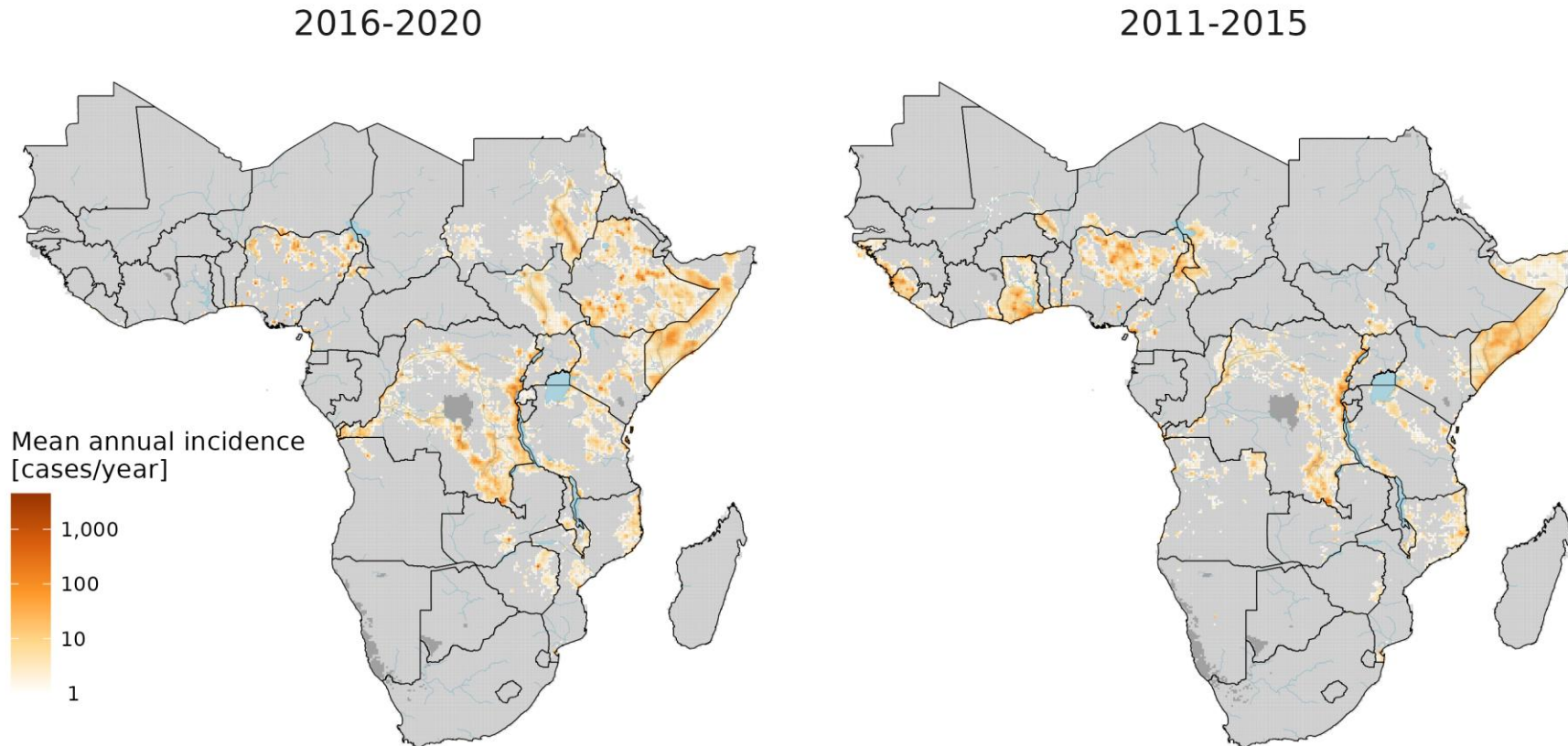
Mean annual incidence of suspected cholera, 2011-2020



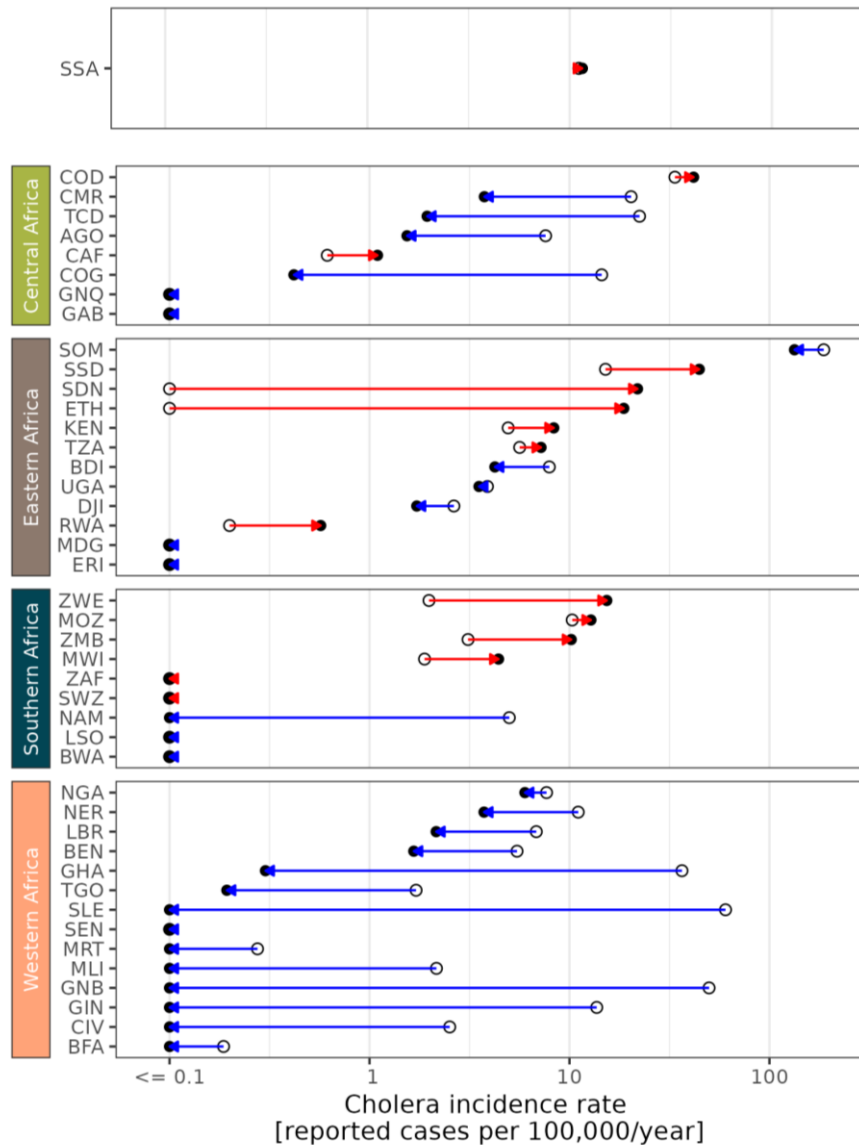
a



b



Changes between 2011-2015 and 2016-2020

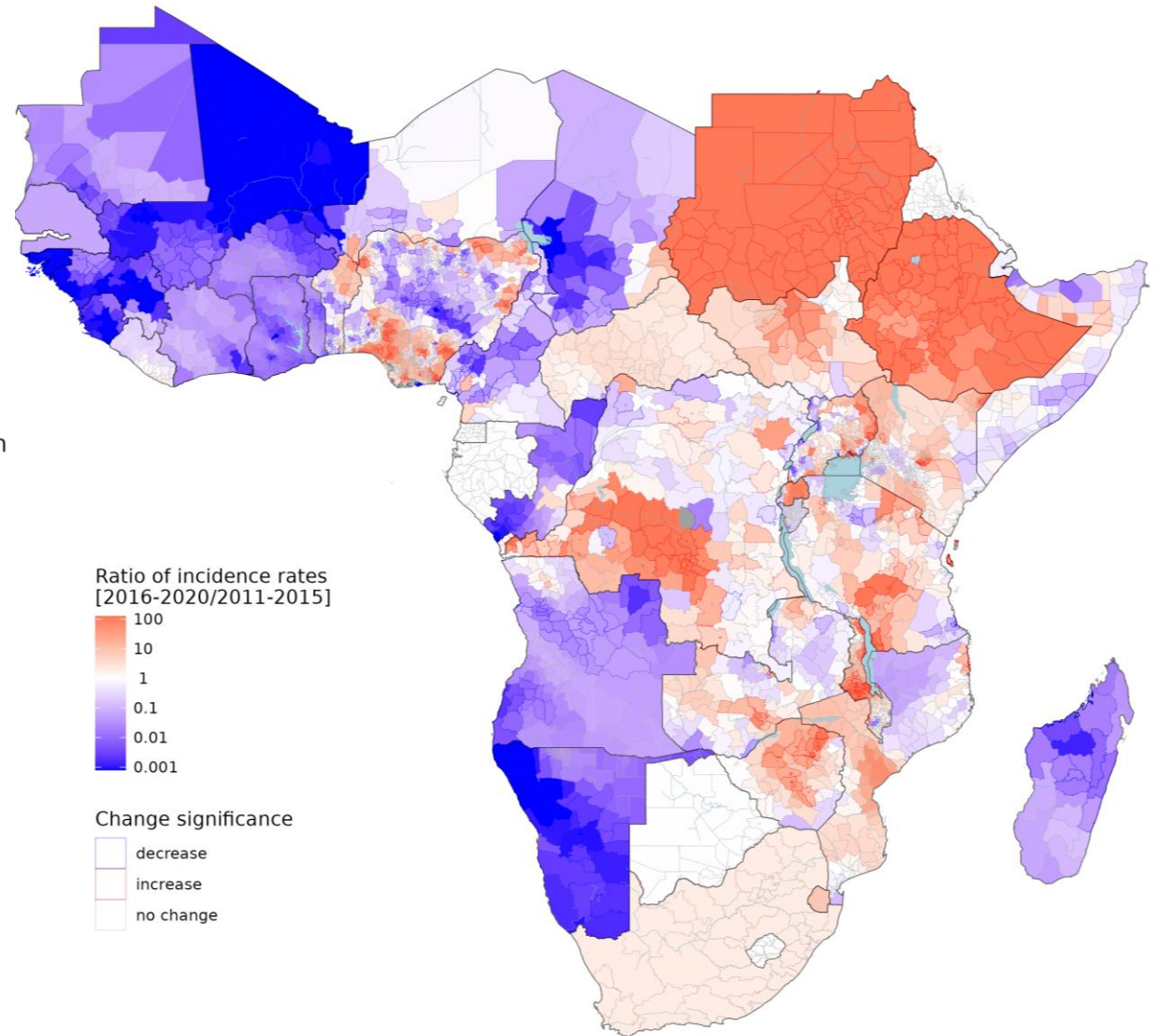


Change direction

- increase
- decrease

Time period

- 2011-2015
- 2016-2020



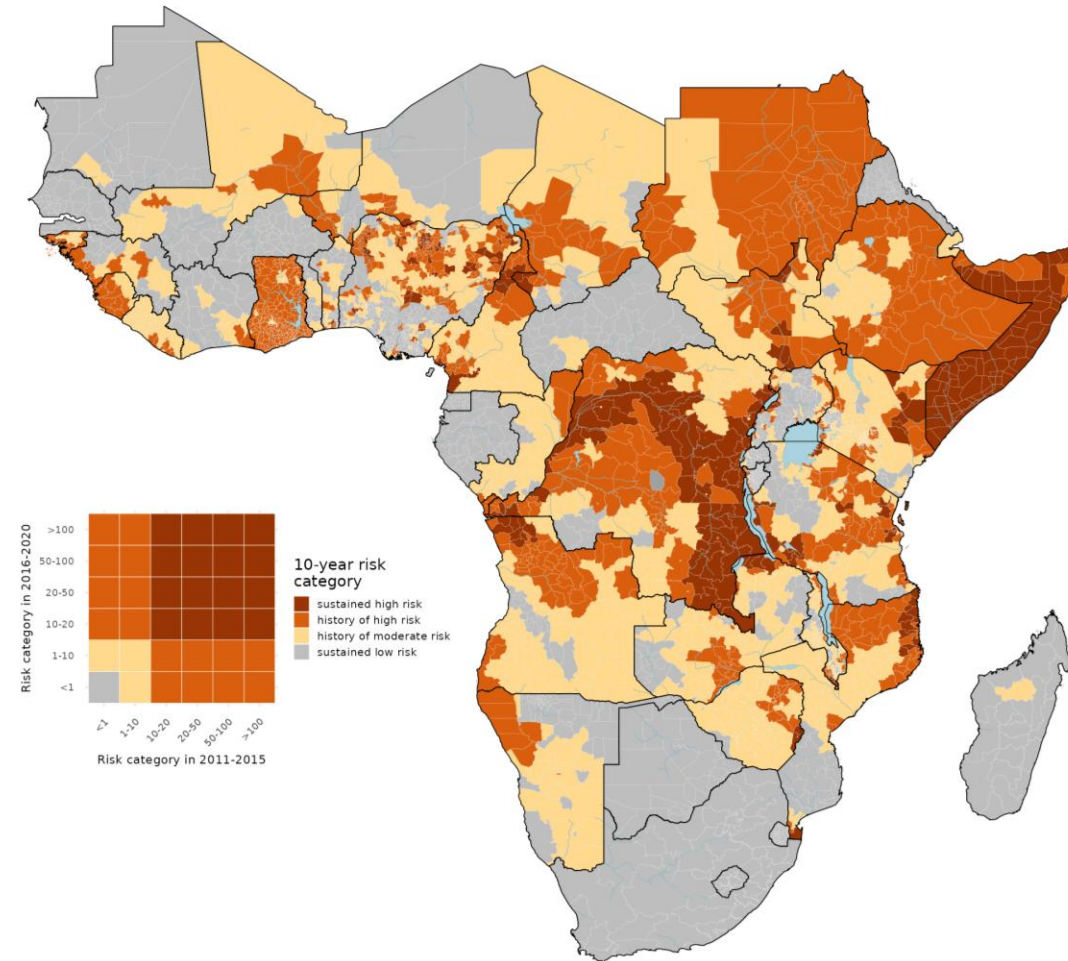


Number of people living in ADM2 units at risk

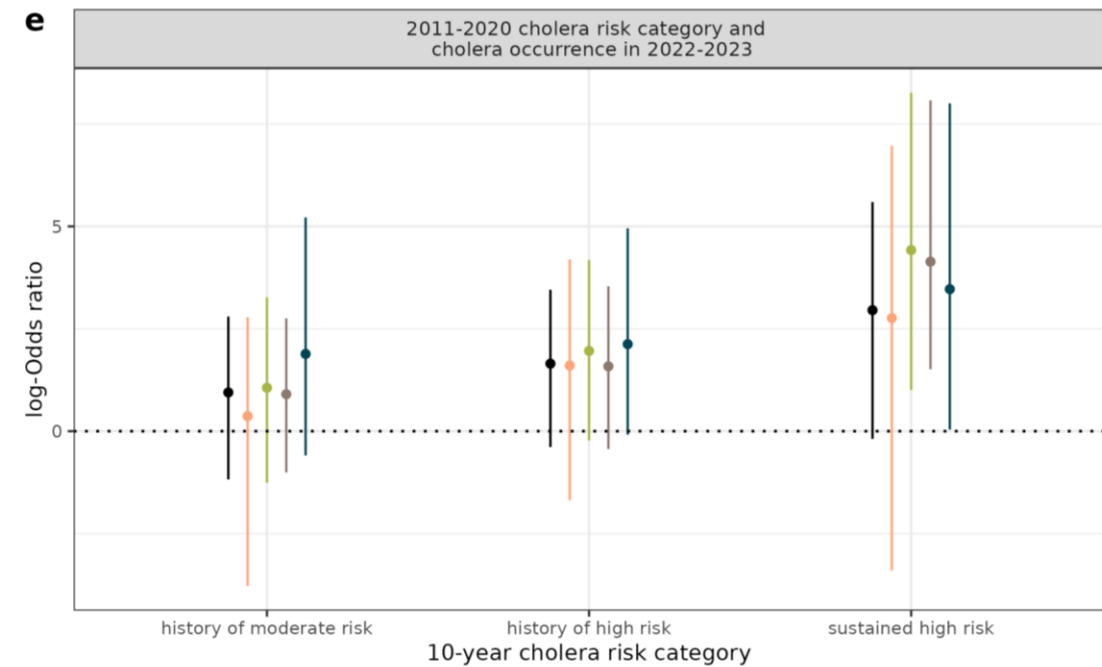
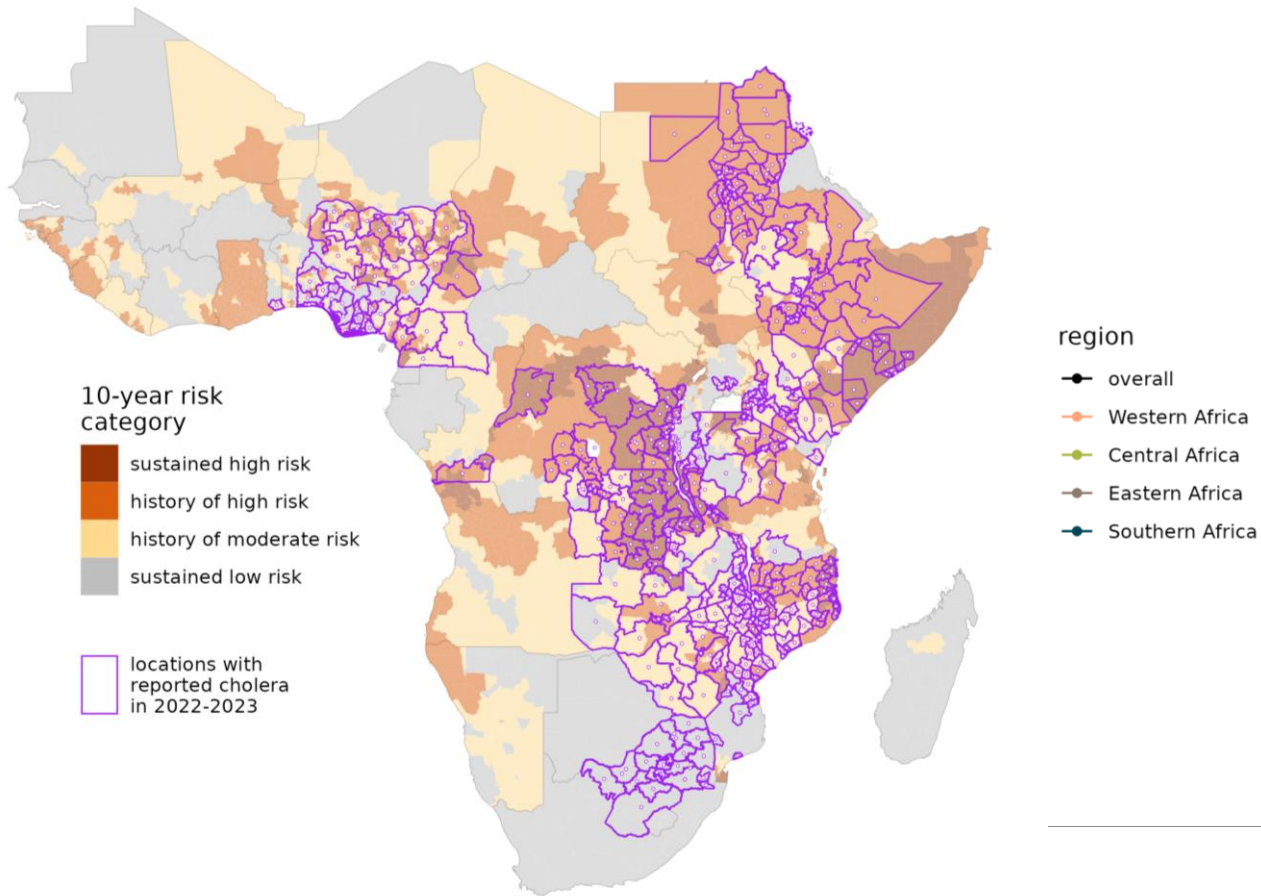
	Risk category (per 100,000 population)	Mean [millions] 2016-2020 (95% CrI)	Mean [millions] 2011-2015 (95% CrI)
Very high incidence	>100	82 (72-91)	54 (48-60)
High incidence	50-100	41 (30-53)	38 (31-46)
	20-50	96 (82-111)	69 (59-79)
	10-20	77 (61-95)	53 (42-64)
Moderate incidence	1-10	245 (226-264)	208 (192-223)
Low incidence	<1	530 (515-545)	515 (501-528)



Ten-year classifications of cholera burden, 2011-2020



Association between 2022-2023 cholera occurrence and 10-year classifications for 2011-2020





Limitations

Maps are **subject to reporting biases** in cholera surveillance data and **limited by model assumptions** on how cases may be smoothed to neighboring areas. These figures and estimates reflect only **reported suspected cholera** in the region.

These estimates are **NOT** meant to replace official country data and analyses. They **CAN** serve as a supplemental data source for countries and allow for regional and continental-level analyses across a unified modeled dataset.

Announcing the Cholera Taxonomy data portal

Centralized repository for cholera surveillance data, situation reports, and documents (incl. over 1500 datasets & documents)

- Provide historical context
- Stimulate research
- Share information

Home Country Reports ▾ Observation Collections About ▾

Cholera Taxonomy

A public repository for global cholera reports and surveillance data

Country Reports

View datasets for verified countries

Country reports will continue to be added as data are verified

Afghanistan

Updated 2023-11-29

Algeria

Updated 2023-09-03

Angola

Updated 2023-08-26

Bangladesh

Updated 2023-10-18

Benin

Updated 2023-12-03

Botswana

Updated 2024-01-29

Burkina Faso

Updated 2024-05-16

Burundi

Updated 2023-10-22

Cameroon

Updated 2023-10-29

Cape Verde

Updated 2022-11-28

Central African Republic

Updated 2024-05-16

Chad

Updated 2024-05-09

Comoros

Updated 2022-11-28

Cote d'Ivoire

Updated 2023-11-12

Recent Activity

View recently modified datasets

UID	Location	# of observations	Earliest observation	Latest observation	Observation Frequency	Updated On
12530	AFR::GIN::N'Zerekore::Macenta	2	1995-01-01	1995-12-31	Annual	2024-05-17

Cholera Taxonomy data portal

<https://cholera-taxonomy.middle-distance.com>



Observation Collections

[Download](#) a ZIP archive of 47 publicly available observation collections (last updated at 2024-05-10 11:16 PM)

UID	Tags	# of observations	Earliest observation	Latest observation	Observation Frequency	Updated On
21434	Unified UNICEFcp	85718	2010-01-04	2019-11-03	Weekly	2024-05-15
21200	Unified	48315	2018-01-01	2019-12-29	Weekly	2024-02-09
20891	WHOafro	4	2018-05-14	2018-05-24	Weekly	2024-02-09
5103		10761	2015-01-01	2023-01-01	Weekly	2024-02-09
211		16	2011-10-03	2012-01-22	Weekly	2024-02-09
20967	WHOafro	6	2018-05-18	2018-08-29	Other (97)	2024-02-09
20955	WHOafro	5	2018-05-18	2018-08-13	Other (87)	2024-02-09
21029	WHOafro	12	2018-05-18	2018-11-09	Other (86)	2024-02-09

Showing 1 to 48 of 48 entries



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- JHU data team alumni
- WHO HQ Cholera Team
- CSP Team
- Global Task Force on Cholera Control
- Bill & Melinda Gates Foundation



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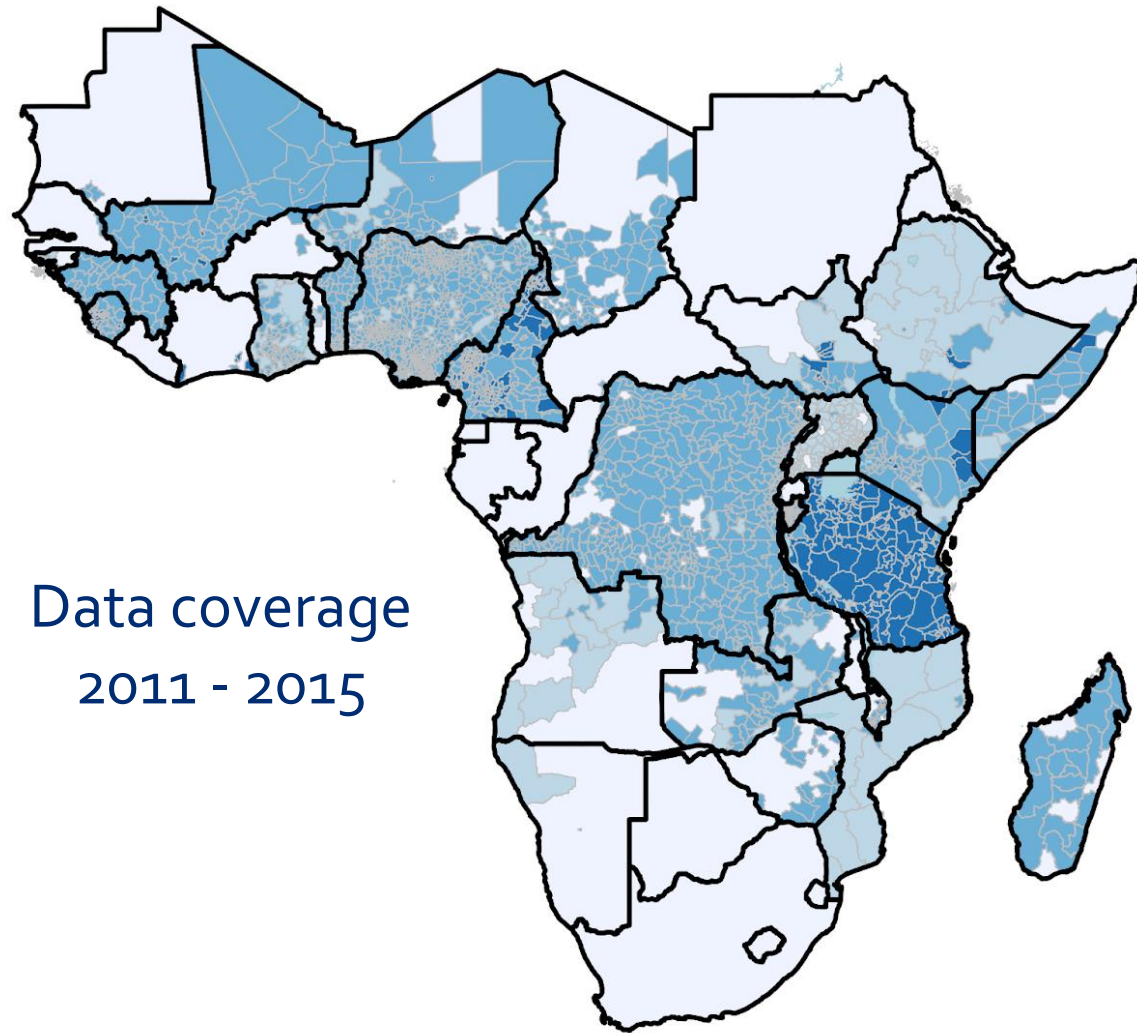
Cholera Taxonomy database

cholera-taxonomy.middle-distance.com

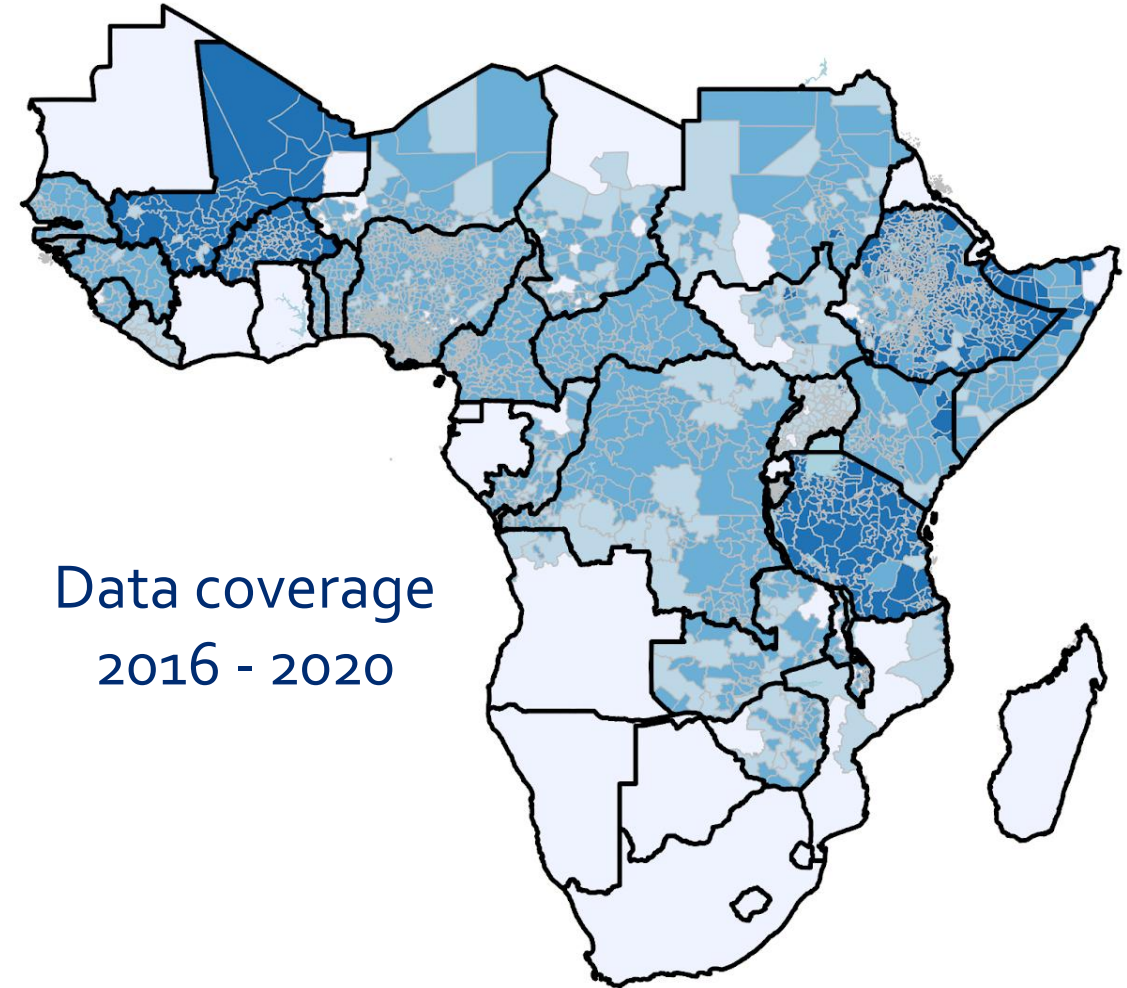
cholera_data@jhu.edu



Backup slides



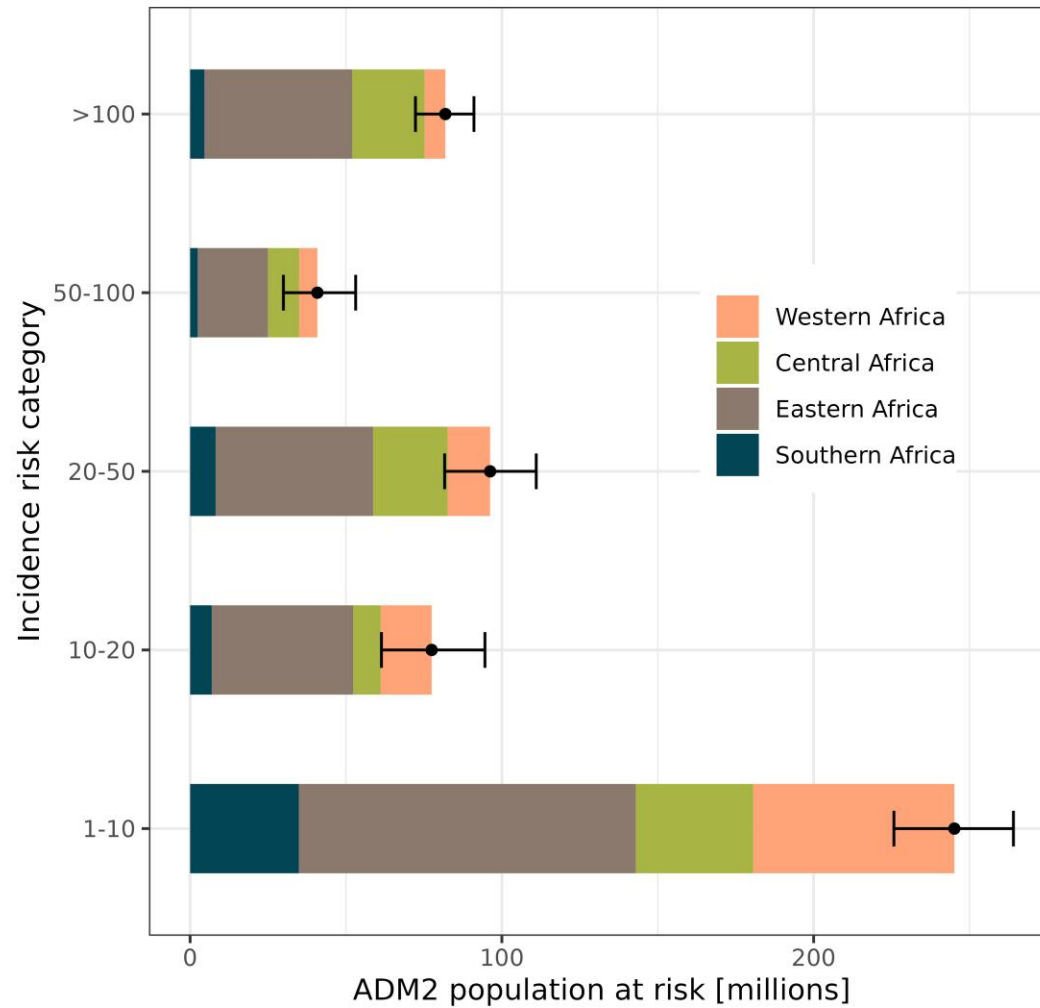
Admin level 0 1 2 3+



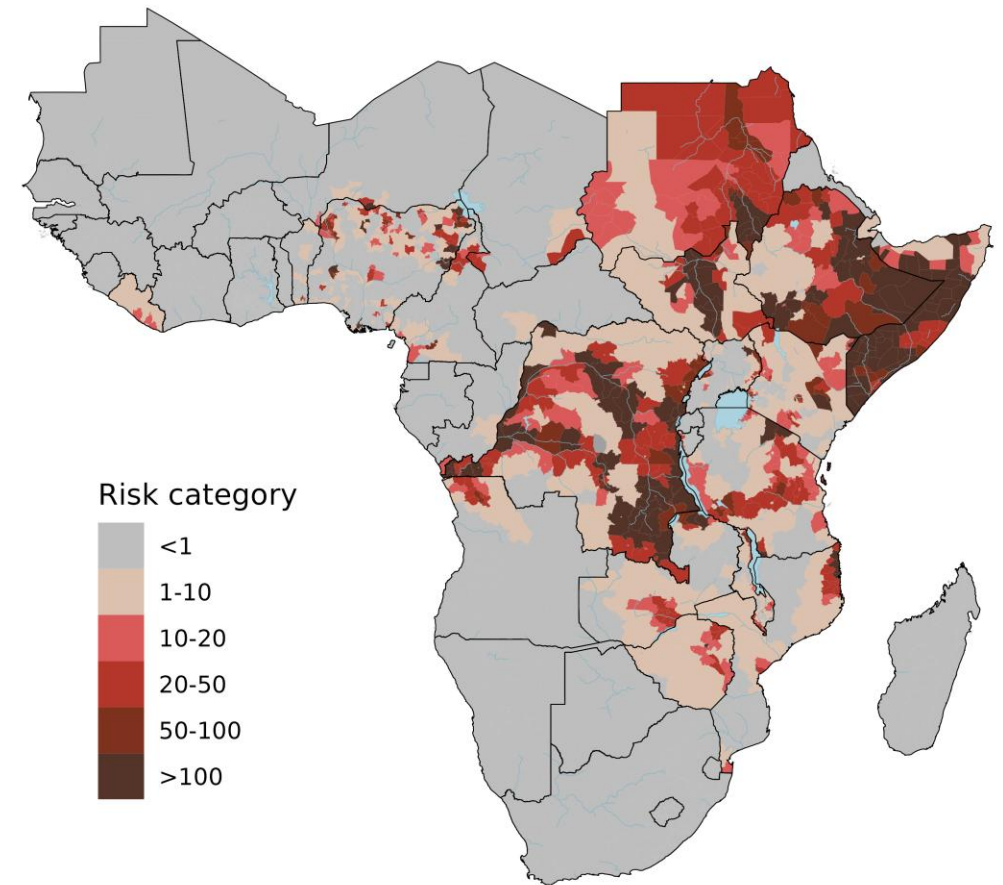
Admin level 0 1 2 3+

Figure 3. Population at risk, 2016-2020

a



b



Cholera Taxonomy data portal

<https://cholera-taxonomy.middle-distance.com>



Observations

[Download](#)

Location	TL	TR	deaths	sCh
AFR::CMR::Far North::Goulfey Health District	2017-01-09	2017-01-15	0	0
AFR::CMR::North-West::Batibo Health District	2014-06-09	2014-06-15	0	0
AFR::CMR::East::Kette Health District	2010-03-08	2010-03-14	0	0
AFR::CMR::Far North::Mada Health District	2015-12-14	2015-12-20	0	0
AFR::CMR::South::Ambam Health District	2016-01-11	2016-01-17	0	0
AFR::CMR::Centre::Djoungolo Health District	2017-06-12	2017-06-18	0	0
AFR::CMR::North::Ngong Health District	2016-11-28	2016-12-04	0	0
AFR::CMR::North::Poli Health District	2016-11-28	2016-12-04	0	0
AFR::CMR::North::Touboro Health District	2016-11-28	2016-12-04	0	0
AFR::CMR::Littoral::Bangue Health District	2016-11-28	2016-12-04	0	0
AFR::CMR::Littoral::Pouma Health District	2015-09-28	2015-10-04	0	0
AFR::CMR::East::Batouri Health District	2015-09-28	2015-10-04	0	0

← Previous **1** 2 3 4 5 6 7 8 9 ... 3428 3429 Next →

Displaying Observation **1 - 25** of **85718** in total

Cholera Taxonomy data portal

<https://cholera-taxonomy.middle-distance.com>



Administrative Details

Source
UNICEF WCAR Weekly Cholera Reports

Source URL

Created
2024-05-15 6:25 PM

Updated
2024-05-15 6:25 PM

Source Documents

CMR_2010_17_district_wee... 2021-11-11 3:23 PM

lcb_cholera_cases_2018.xls 2021-11-11 3:23 PM

Copy of Reporting2019 (upd... 2021-11-11 3:23 PM

Tags

Unified UNICEFcP

Epidemiologic Details

Suspected Case Def
UNKNOWN

Confirmed Case Def
UNKNOWN

Primary Time Criteria
CLINIC

Observation Properties

Case and death counts could include double-counting of overlapping observations

of Observations
85718

Earliest Observation
2010-01-04

Latest Observation
2019-11-03

Observation Frequency
Weekly

Deaths
1665

Suspected Cases
38988

Observation Fields
Standard

Location TL TR Primary Phantom deaths