Example: Cholera Epidemiological Report–Surveillance Unit Level

Below is an example of a cholera epidemiological report for a fictional surveillance unit (surveillance unit X) which was prepared using imaginary data. The purpose of this example is to illustrate how surveillance data can be analysed and interpreted at the surveillance unit level.

Example of a Cholera Epidemiological Report—Surveillance Unit Level

Name of Surveillance X, Admin-1, Country

Weekly epidemiological report n°20

Epidemiological Week 20, 2023 (May 15 to 21, 2023)

1. HIGHLIGHTS

Table 1. Summary of cumulative data, surveillance unit X, epidemiological weeks 1-20, 2023

Health facility-based surveillance			Community-based surveillance			Cholera epidemiological situation in the surveillance unit
Suspected cases	Deaths (institutional)	Case fatality ratio (%)	Cumulative incidence rate	Community cases	Community deaths	
300	6	2.0%	0.5%	21	0	Probable or confirmed cholera outbreak (community transmission)

Table 2. Summary of data for the reporting week, surveillance unit X, epidemiological week 20, 2023

Health facility-based surveillance				Community-based surveillance		Cholera epidemiological situation in the surveillance unit
Suspected cases	Deaths (institutional)	Case fatality ratio (%)	Weekly incidence rate	Community cases	Community deaths	
26	1	3.8%	0.5 per 1000 inhabitants	0	0	Probable or confirmed cholera outbreak (community transmission)

Describe key points, such as:

- Number of suspected cholera cases and deaths reported at health facilities, and case fatality ratios for the reporting week and for the cumulative period (since the beginning of the year or the start of the outbreak)
- Number of cholera cases and deaths reported in the community for the reporting week and for the cumulative period (since the beginning of the year or the start of the outbreak)
- Any key changes in the cholera situation (e.g., detection of a deterioration of the cholera outbreak)

Example:

- In week 20, 26 suspected cases including 1 death (CFR 3.8%) were reported in health facilities in surveillance unit X. There was a 30% increase in suspected cases compared with the previous week. No community cases or deaths were reported.

- From January 1, 2023 to May 21, 2023, a total of 300 suspected cholera cases including 6 deaths (CFR 2.0%) were reported in health facilities. During the same period, 21 cases but no deaths were reported in the community. Among the 300 suspected cholera cases, 244 were tested by RDT, of which 153 were positive (RDT positivity rate 63%). A total of 48 suspected cases with a positive RDT result were tested by culture, of which 39 were positive (culture test positivity rate 81%).
- In week 20, a deterioration of the cholera outbreak was detected after the weekly number of cholera cases reported exceeded the weekly threshold for the surveillance unit for two consecutive weeks. A field investigation was immediately initiated which determined that the deterioration was due to a sudden influx of population from another surveillance unit affected by civil unrest and a major cholera outbreak.

2. BACKGROUND

Provide a brief description of:

- How and when the outbreak was detected
- Date and method of laboratory confirmation, if applicable
- Date of outbreak declaration by Ministry of Health, if applicable
- Key context about the surveillance unit relevant to cholera (e.g., seasonality of cholera, previous OCV campaigns if any, etc.)

Example:

- A probable cholera outbreak was detected by local health authorities in village X on January 4, 2023, and confirmed by culture on January 8, 2023. The Ministry of Health declared a cholera outbreak on January 8, 2023.
- Seasonal cholera outbreaks regularly occur in surveillance unit X during the wet season (January-April).

3. ANALYSIS AND INTERPRETATION OF EPIDEMIOLOGICAL AND LABORATORY DATA

DESCRIPTION OF CASES BY TIME

Draw and describe the epidemic curve and the case fatality ratio.

Describe any increase in cholera incidence to detect a deterioration of the outbreak, if relevant, using the weekly threshold for the surveillance unit.

Example:

As of May 21, 2023, a total of 300 suspected cases including 6 deaths (CFR 2.0%) were reported in health facilities, and 21 cases were reported in the community.

In week 20, there was a 30% increase in the number of suspected cases (n=26) compared with week 19 (n=20), and one institutional death was reported (CFR 9.1%). No cases or deaths were reported in the community (Figure 1, Table 6).

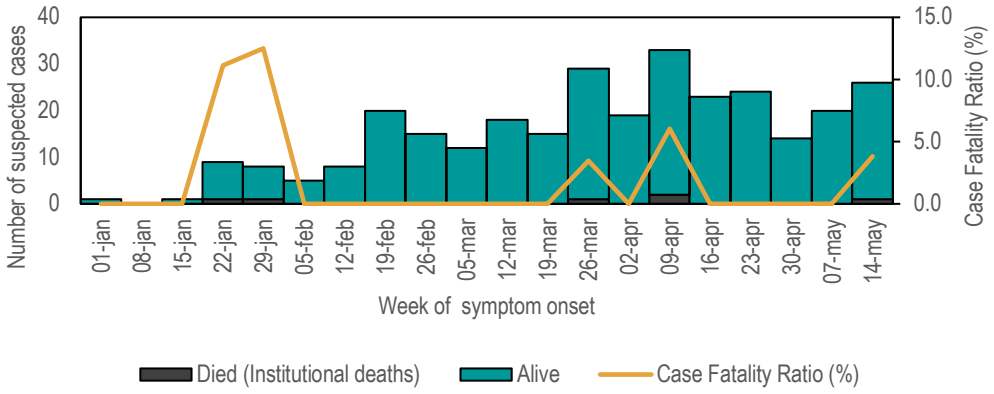

Figure 1. Distribution of suspected cholera cases reported in health facilities by outcome status (n=300), and case fatality ratio, by week of symptom onset, surveillance unit X, weeks 1-20, 2023

A deterioration of the cholera outbreak was detected after the weekly number of reported cholera cases exceeded the weekly threshold for the surveillance unit for two consecutive weeks in the first two weeks of May (Figure 2).

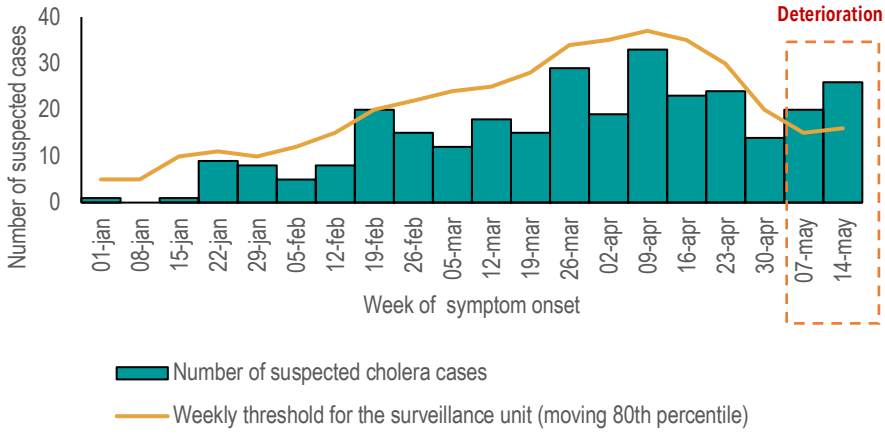

Figure 2. Distribution of suspected cholera cases (n=300) by week of symptom onset and weekly threshold for the surveillance unit, surveillance unit X, weeks 1-20, 2023

CHOLERA TESTING

Report and produce a graph showing the number of suspected cases tested by RDT, the number of suspected cases that tested positive by RDT, and the RDT positivity rate.

Similarly, report and produce a graph showing the number of suspected cases tested by culture or PCR, the number of suspected cases that tested positive by culture or PCR, and the culture or PCR test positivity rate.

Example:

Since week 1, a total of 244 suspected cases have been tested by RDT, of which 153 tested positive (RDT positivity rate 63%). The RDT positivity rate has progressively increased from week 11. In week 20, it remained stable (62%) compared with week 19 (61%) (Figure 3, Table 6).

A total of 48 suspected cases with a positive RDT result were tested by culture, of which 39 were positive (culture test positivity rate 81%) (Figure 4, Table 6).

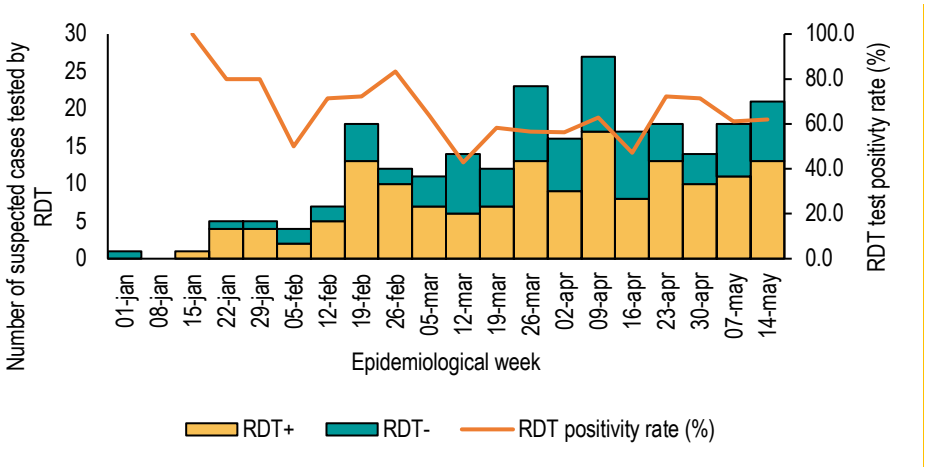

Figure 3. Distribution of suspected cholera cases tested by RDT by test result (n=244), and RDT test positivity rate, by epidemiological week, surveillance unit X, weeks 1-20, 2023

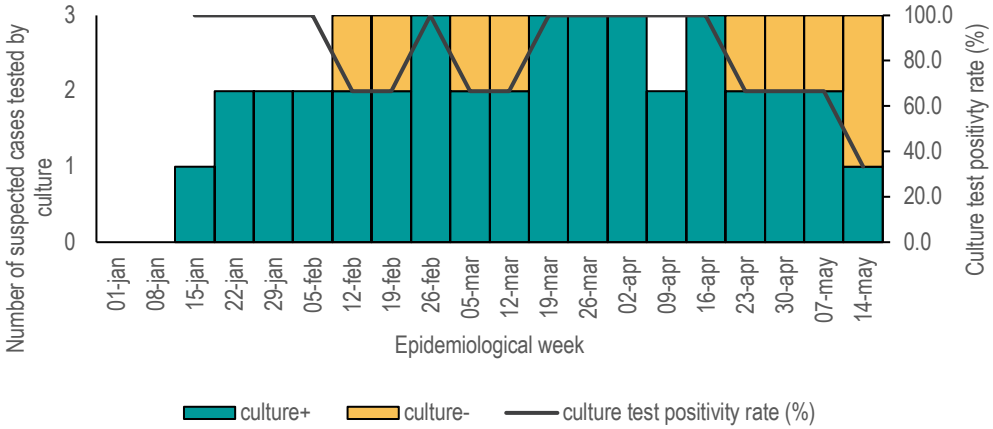

Figure 4. Distribution of suspected cholera cases tested by culture by test result (n=48), and culture test positivity rate, by epidemiological week, surveillance unit X, weeks 1-20, 2023

DESCRIPTION OF CASES AND DEATHS REPORTED IN HEALTH FACILITIES BY AGE AND SEX

Describe the number of suspected cases and deaths reported in health facilities, as well as the case fatality ratio, and cumulative incidence rate by age group and sex.

Example:

Suspected cases and deaths reported in health facilities:

Of all suspected cases reported in health facilities since the beginning of the outbreak, 158 (53%) were female and 141 (47%) were male. Most cases were reported in the age group 15-44 years old (41% of all suspected cases).

Of the 6 institutional deaths reported since the beginning of the outbreak, 3 were reported among those15-44 years old (CFR 2.4%), 2 among those ≥60 years old (CFR 4.2%), and 1 among those 45-59 years old (CFR 2.1%). No deaths were registered in children under 5 years old (Figure 5, Table 3).

Similar patterns were observed in week 20, with 14 suspected cases (53%) reported in females and 12 (48%) in males, and most cases were reported in the age group 15-44 years old (35% of all suspected cases), both for males and females (Table 4).

Table 3. Cumulative number and proportion of suspected cholera cases and deaths reported in health facilities, case fatality ratio, and cumulative incidence rate by age group and sex, surveillance unit X, weeks 1-20, 2023

	Suspected cases (n)				Institutional deaths (n)				Case fatality ratio (%)			Pop. (n)	Cum. incidence rate (‰)
Age group	M	F	Total n	Total %	M	F	Total n	Total %	M	F	Total	Total	
<2 years old	6	3	9	3%	0	0	0	0.0%	0%	0%	0.0%	207 692	0.04
2-4 years old	7	12	19	6%	0	0	0	0.0%	0%	0%	0.0%	138 462	0.1
5-14 years old	27	24	52	17%	0	0	0	0.0%	0%	0%	0.0%	323 077	0.2
15-44 years old	60	64	123	41%	2	1	3	50%	3.3%	1.6%	2.4%	196 154	0.6
45-59 years old	17	32	49	16%	0	1	1	17%	0%	3.1%	2.0%	150 000	0.3
≥60 years old	25	23	48	16%	1	1	2	33%	4.0%	4.3%	4.2%	138 462	0.4
Total	142 (47%)	158 (53%)	300	-	3 (50%)	3 (50%)	6	-	2.1%	1.9%	2.0%	1,153,846	0.3

M: Male; F: Female

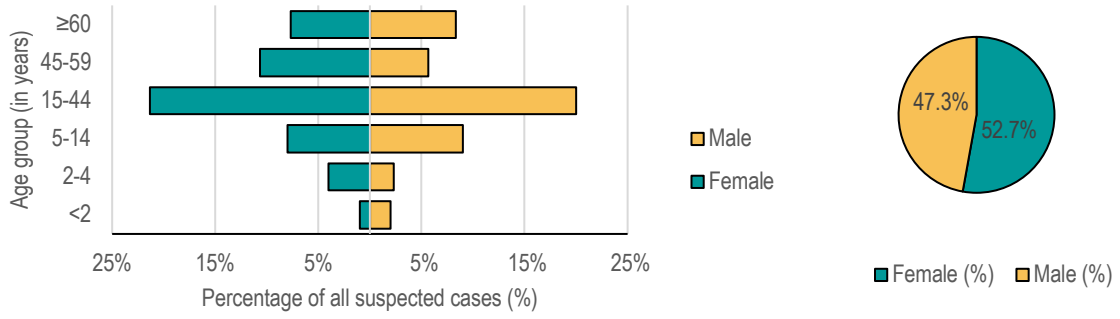

Figure 5. Distribution of suspected cholera cases reported in health facilities by age group and sex (n=300), surveillance unit X, weeks 1-20, 2023

Table 4. Number and proportion of suspected cholera cases and deaths reported in health facilities by age group and sex, surveillance unit X, week 20, 2023

Age group	Suspected cases (n)				Institutional deaths (n)			
	Male	Female	Total		Male	Female	Total	
			n	%			n	%
<2 years old	0	1	1	4%	0	0	0	0.0%
2-4 years old	1	1	2	8%	0	0	0	0.0%
5-14 years old	2	3	5	19%	0	0	0	0.0%
15-44 years old	4	5	9	35%	0	1	1	100.0%
45-59 years old	3	2	5	19%	0	0	0	0.0%
≥60 years old	2	2	4	15%	0	0	0	0.0%
Total	12 (46%)	14 (54%)	26	-	0 (0.0%)	1 (100%)	6	-

DESCRIPTION OF CASES AND DEATHS REPORTED IN THE COMMUNITY BY AGE AND SEX

Describe the number of cases and deaths reported in the community by age group and sex.

Cases and deaths reported in the community:

Of the 21 cases reported in the community since the beginning of the outbreak, 11 (52%) were female and 10 (48%) were male. Most community cases were reported in the age group 15-44 years old (52% of all suspected cases). No community death was reported. (Table 5).

In week 20, no community cases or deaths were reported.

Of note, the number of community cases and deaths may be underestimated due to poor completeness and timeliness of reporting of community-based surveillance data (see section 5 – Monitoring of surveillance performance).

Table 5. Cumulative number and proportion of cholera cases and deaths reported in the community, by age group and sex, surveillance unit X, weeks 1-20, 2023

Age group	Community cases (n)				Community deaths (n)			
	Male	Female	Total		Male	Female	Total	
			n	%			n	%
<2 year-old	0	1	1	5%	0	0	0	0.0%
2-4 year-old	1	1	2	10%	0	0	0	0.0%
5-14 year-old	2	2	4	19%	0	0	0	0.0%
15-44 year-old	5	5	10	52%	0	0	0	0.0%
45-59 year-old	1	1	2	10%	0	0	0	0.0%
≥60 year-old	1	1	2	10%	0	0	0	0.0%
Total	10 (48%)	11 (52%)	21	-	0	0	0	-

SEVERITY: INPATIENT HOSPITALISATION AND DEHYDRATION LEVEL

Describe the proportion of suspected cases hospitalised as inpatients and the proportion of suspected cases by level of dehydration.

Example:

In total, 67% of suspected cases have been hospitalised as inpatients. In week 20, the proportion of suspected cases hospitalised as inpatients (58%) remained relatively stable compared with week 19 (55%) (Table 6).

Since week 1, 22% of suspected cases have been severely dehydrated at admission. In week 20, this proportion (23%) remained stable compared with week 19 (22%) (Table 6).

Table 6. Epidemiological and laboratory data for the reporting week (week 20), the previous week (week 19), and since the beginning of the outbreak (week 1 to week 20), surveillance unit X, 2023

	Previous week 19	Reporting week 20	Cumulative: weeks 1-20
Cases and deaths in health facilities			
Number of suspected cases	19	26	300
Number of institutional deaths	0	1	6
Case fatality ratio (%)	0.0%	3.8%	2.0%
Community cases and deaths			
Number of community cases	0	0	21
Number of community deaths	0	0	0
Incidence rate			
Weekly incidence rate (/10,000)	1.9/10,000	2.6/10,000	-
Cumulative incidence rate (%)		-	0.3%
Dehydration status at admission (%)			
Severe dehydration (%)	22%	23.1%	22%
Hospitalisation as inpatient			
Proportion of suspected cases hospitalised as inpatients (%)	55.0%	57.7%	67%
Cholera testing			
Number of suspected cases tested by RDT	18	21	244
Number of suspected cases testing positive by RDT	11	13	153
RDT positivity rate (%)	61%	62%	63%
Number of suspected cases tested by culture	3	3	48
Number of suspected cases testing positive by culture	2	1	39
Culture test positivity rate (%)	67%	33%	81%

4. MONITORING OF SURVEILLANCE PERFORMANCE

Report relevant indicators for the monitoring of cholera surveillance performance at the surveillance unit level.

Example:

In the past 4 weeks (weeks 17 to 20), the completeness and timeliness of reporting of health facility-based surveillance met the performance target of 80% (90% and 81%, respectively). In week 20, the completeness reached the target of 80%. However, timeliness was not satisfactory with a weekly value of 75%. Feedback has been provided to health facilities regarding the appropriate deadline for reporting.

In the past 4 weeks (weeks 17 to 20), and in week 20, the adherence to the testing strategy by RDT, the adherence to the testing strategy by culture or PCR, and the timeliness of sample receipt met the performance target.

The completeness and timeliness of community-based surveillance reporting was below the target in the past 4 weeks (completeness 70%, timeliness 65%) and in week 20 (completeness 70%, timeliness 50%). Community-based surveillance supervisors are urged to implement supportive measures to improve the completeness and timeliness of reporting of CBS data. Regular visits are to be organized in communities to better understand the challenges of producing comprehensive and timely reporting, and to identify solutions in a participatory manner.

The detection of the deterioration of the outbreak in week 20 was subject to field investigation. A field investigation was initiated by local health authorities within 24 hours of detection, and the timeliness of field investigation was satisfactory (Table 7).

Table 7. Indicators and targets for routine performance monitoring of cholera surveillance, surveillance unit X, 2023

Indicator	Week 20	Average in the last 4 weeks (weeks 17-20)	Minimum target
HEALTH FACILITY-BASED SURVEILLANCE			
Completeness of reporting	80%	90%	80%
Timeliness of reporting	75%	81%	80%
COMMUNITY-BASED SURVEILLANCE			
Completeness of reporting	70%	70%	80%
Timeliness of reporting	55%	65%	80%
INVESTIGATION			
Completeness of case investigation	Not applicable for the reporting period (case investigations not required)		80%
Timeliness of field investigation of the deterioration of the cholera outbreak	100%	Not applicable (no event subject to field investigation in the last 4 weeks)	80%
TESTING			
Adherence to the testing strategy (RDT)	90%	91%	80%
Adherence to the testing strategy (culture or PCR)	85%	83%	80%
Timeliness of sample receipt at the laboratory(ies)	95%	90%	80%

5. RESULTS OF INVESTIGATION (if applicable)

Describe the results of case and field investigations, if applicable (e.g., place, date, method of investigation, findings (such as geographic origin of infection of suspected cases), documentation of epidemiological links, hypotheses on potential source(s) of contamination).

6. CHALLENGES/GAPS

Explain the main challenges and/or gaps in epidemiology and laboratory surveillance.

7. RECOMMENDATIONS & PRIORITY FOLLOW-UP ACTIONS

State any recommendations and priority actions to be taken.
Echo key messages for urgent attention.

GLOBAL TASK FORCE ON CHOLERA CONTROL

ANNEX

1. Case definitions

Provide the case definitions used for cholera surveillance in the surveillance unit.

2. Testing strategy

Briefly describe the testing strategy used in the surveillance unit.