

A Guide for Reporting Integrated Disease Surveillance and Response Data in National Public Health Bulletins



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

Contents

Executive Summary	3
Introduction	3
Purpose of this Guide	3
Structure and Content of this Guide	4
Cover Page and Front Section	5
Cover Page	5
Front Section	6
IDSR Article Overview	7
Highlight Box	7
Introductory Paragraph	8
Timeliness and Completeness	9
Featured Diseases	11
Description of Disease or Condition	11
Summary of Epidemiological Data	12
Recommendations and Information Resources	16
Table of Reported Cases/Events	17
Back Page	19
Annex 1—DSR Article Templates	20
Template 1—Highlight box	20
Template 2—Introductory paragraph	20
Template 3—IDSR Report Timeliness and Completeness Table	21
Template 4—Text to Summarize Completeness and Timeliness of Data	21
Template 5—Table to Summarize a Specific Disease or Condition by Region and District	22
Template 6—Template for Creating a Reference Table of Diseases and Conditions Under Surveillance	23
Annex 2—Free resources for creating maps	24
References	25

Executive Summary

Communicating information to reduce public health threats is a function of public health surveillance systems. A national public health bulletin (PHB), also known as an epidemiological bulletin, serves as the government's primary communication channel for disseminating timely and relevant information, including Integrated Disease Surveillance and Response (IDSR) data. The U.S. Centers for Disease Control and Prevention (CDC) created this guide to facilitate publishing IDSR data as articles in PHBs. The guide's structure and content are based on the common elements of existing IDSR articles published online or in PHBs, the *Technical Guidelines for Integrated Disease Surveillance and Response in the African Region* (WHO Regional Office for Africa, 2019a), and feedback received from PHB editors. The guidelines provided are best practices in scientific communication and data visualization. Templates for presenting data in text and tables are provided in Annex 1.

Introduction

Purpose of this Guide

The World Health Organization (WHO), CDC, and other technical partners adopted the IDSR framework to implement comprehensive public health surveillance and response systems in Africa. The IDSR framework is intended to facilitate the use of surveillance and laboratory data to improve detection and response to the leading causes of illness, death, and disability (WHO Regional Office for Africa, 2019a; U.S. Centers for Disease Control and Prevention, 2021a). The IDSR framework has several core functions:


1. Identifying and reporting cases and events
2. Analyzing and interpreting data
3. Investigating and confirming suspected cases and outbreaks
4. Preparing for potential epidemics
5. Responding to detected outbreaks and emerging public health threats
6. Providing feedback to communities, health facilities, and district and regional/provincial health officials.

Disseminating IDSR data is an indicator of the providing feedback function (WHO Regional Office for Africa, 2019b). Disseminating IDSR data via PHBs is the focus of this guide.

A PHB serves as the government's primary communication channel for disseminating timely and relevant information to reduce public health threats. The target audiences include staff at national-, regional-, and district-level health facilities, policy makers, and the media, which disseminates the information to the public. PHBs publish disease surveillance summaries, public health response guidelines and notices, case reports, outbreak reports, and peer-reviewed research (U.S. Centers for Disease Control and Prevention, 2018). PHB issues are freely accessible to the public via ministry of health (MOH) or national public health institute (NPHI) websites.

The purpose of disseminating surveillance data, such as IDSR data, in PHBs is to inform health professionals, policy makers, and the public about potential health threats and provide information about prevention and treatment so that action can be taken to protect the public's health. Publishing IDSR data in PHBs:

- Creates a published record of country-specific data not published in scientific journals and ensures the information is available for future research.
- Provides feedback to district-level staff responsible for collecting and entering data, which can improve data quality.
- Shares knowledge about trends in diseases and conditions at national and local levels.



The CDC collaborates with MOHs and NPHIs to establish and strengthen PHBs and has received requests from editors to help develop templates to facilitate publication of surveillance data. To identify specific needs, a review of existing articles summarizing IDSR data published in PHBs and online was conducted. The review revealed data presentations in tables and figures that were often inconsistent with best practices for data visualization (Lang & Secic, 2006). The review also revealed that the reports often provided limited analyses and unactionable recommendations for public health action. To address these limitations, CDC created this guide to facilitate publishing IDSR data in PHBs.

Structure and Content of this Guide

The structure and content of this guide are based on the common elements of existing IDSR articles published online or in PHBs, the *Technical Guidelines for Integrated Disease Surveillance and Response in the African Region* (WHO Regional Office for Africa, 2019a), and feedback received from PHB editors.

An IDSR article can be one of many articles or the only one published in a PHB issue. It includes the following elements:

1. Overview, including objectives, description of data, and analyses of key findings
2. Report on IDSR data completeness and timeliness
3. Disease-specific reports with recommendations for prevention and treatment
4. Reference tables with data for all reportable diseases.

Each PHB issue includes a cover page, a front section (e.g., table of contents), other articles (e.g., outbreak reports and peer-reviewed research), and a back page. This guide addresses all four elements of an IDSR article as well as the cover page, front section, and back page of a PHB issue. This guide also provides feedback on examples from sections of published IDSR articles and includes templates of tables and suggested language that should be modified to meet users' needs.

This guide assumes that IDSR articles will be published weekly. Some PHBs are published quarterly. Therefore, the templates and wording will have to be adjusted for these quarterly publications.

As a reminder, a PHB issue can also include public health response guidelines and notices, case reports, outbreak reports, and research findings. However, this guide does not provide recommendations for those types of articles. More information about types of PHB articles can be found in [A National Public Health Bulletin: Considerations for its Development](#).

Cover Page and Front Section

Cover Page

Each PHB issue includes a cover page, which provides branding functions for the publisher. For example, the cover page promotes the activities of the MOH or NPHI and distinguishes it from other government agencies. The cover page can follow any format but should include:

- Country Name
- Name of Department/Division/Center responsible for publishing the PHB
- PHB Name (an epidemiological report is a type of PHB)
- International Standard Serial Number (ISSN) (More information on how to apply for an ISSN can be found at www.issn.org)
- Reporting period (e.g., epidemiological week or calendar quarter)
- Logos
- Date of publication
- Email address of managing editor or administrator who handles inquiries.

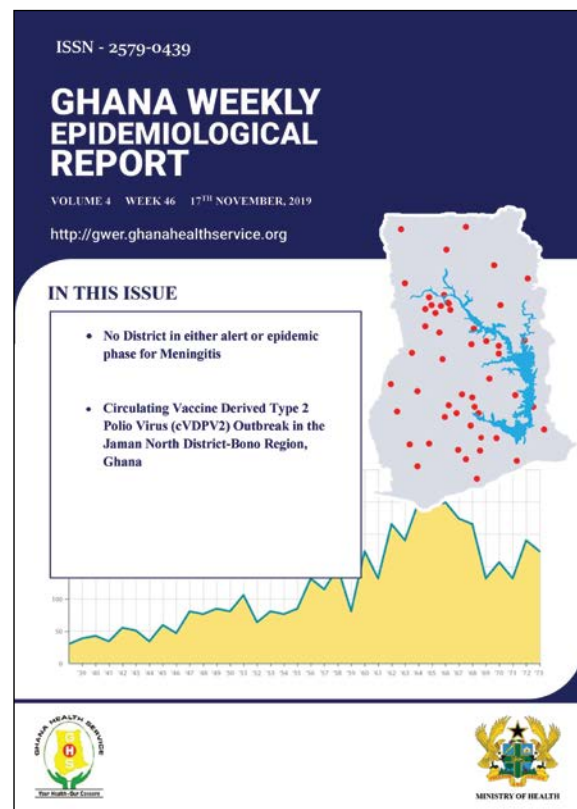
Image 1 is the cover page of Ghana's *Weekly Epidemiological Report*, which is published by Ghana Health Services (Ghana Health Services, 2019). This cover page includes all the elements listed above.

The colors, logos, and titles used in the cover page design should be consistent with those of the MOH and/or the NPHI. Also, when using more than one color, follow these guidelines to create images and figures that appeal to the reader and avoid eye strain:

1. Avoid mixing warm colors (e.g., red, yellow, orange) with cool colors (e.g., green, blue, purple). Use warm colors with warm colors and use cool colors with cool colors.
2. Avoid using red/blue and red/green color combinations as some individuals cannot distinguish between red and green due to color blindness.
3. Avoid using red and yellow text, which are difficult to read.
4. Ensure figures are easy to understand when reproduced in black and white.

The cover page in Image 1 does mix warm with cool colors. However, the dominant colors are blue, white, and grey, which are cool colors. Additionally, all text and images are clearly distinguishable when reproduced in black and white.

Image 1: Cover page of Ghana's PHB issue



Front Section

The front section of the PHB issue should include the table of contents. The table of contents provides the reader with an overview of the content and structure of the issue. Including acknowledgements is a best practice because they serve as a “thank you” to colleagues who helped to collect and analyze the data. Image 2 (below) shows the front section of the *Rwanda Public Health Bulletin* (Rwanda Biomedical Center, 2023). In addition to the table of contents, it includes the PHB’s mission, the editors and editorial board members, and relevant contact information.

Image 2: Front section of Rwanda’s PHB

Rwanda Public Health Bulletin

General Information

Rwanda Public Health Bulletin (RPHB) is an open-access and peer-reviewed bulletin published by Rwanda Health Communication Centre (RHCC).

Its mission is to serve as a knowledge sharing platform for national and international public health scientific information. Content published under RPHB will be used to control and address potential public health outbreak threats and strengthen health systems through real time availability of information.

This will allow more and effective communication between policy makers, researchers and health practitioners.

A new issue is published quarterly with supplements and special reports. Publication materials are submitted online at <https://www.rbc.gov.rw/publichealthbulletin/manuscripts/submission> and should follow the RPHB’s instructions.

Go to <https://www.rbc.gov.rw/publichealthbulletin/about/instructions> for instructions.

Scientific scholars who would like to join RPHB and become peer reviewers should contact details at <https://www.rbc.gov.rw/publichealthbulletin/about/reviewers>

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CONTENT

FOREWORD

» Editor-In-Chief06

EDITORIAL

» Cervical Cancer Screening in Developing countries07

ORIGINAL RESEARCH

» Obesity Epidemiological Profile among High School Students12

» Return to Fertility after Discontinuation of Modern Contraceptive Methods in Rwanda22

» Factors Associated with Non-adherence to Medication among Patients with Schizophrenia30

IDSR Article Overview

The first page of the IDSR article is the overview and should include two items: a highlight box with key takeaways and an introductory paragraph with a list of featured diseases and conditions.

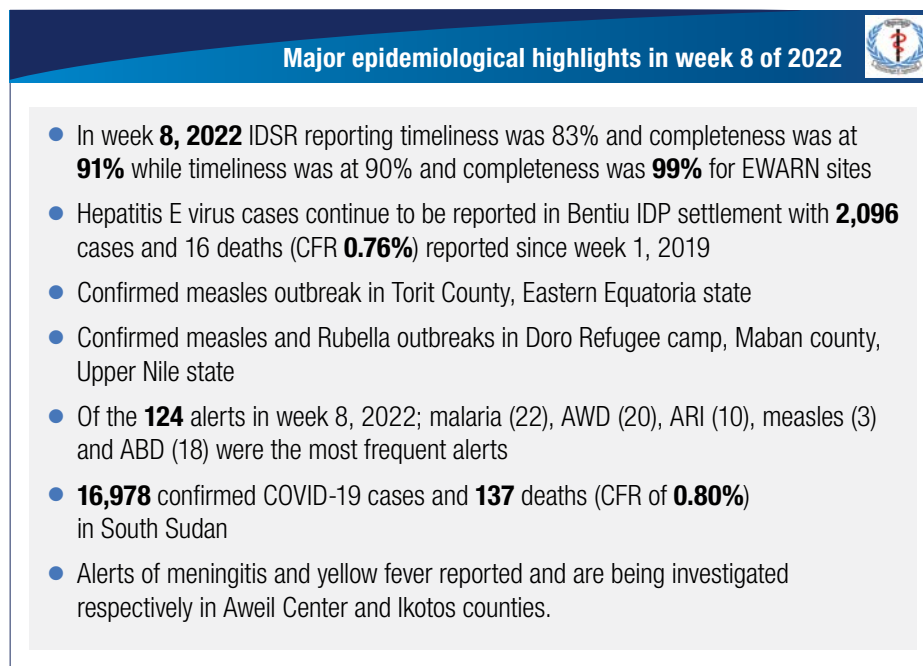
Highlight Box

The highlight box presents a bulleted list of the most critical outcomes of the reporting period and recommendations and resources for action. It should be concise and include no more than six bullets. It should also be presented on the top half of the very first page of the article. Items to include in the highlight box are:

- Any public health event with a risk assessed as high or very high as identified by the country program's thresholds
- New or suspected outbreaks
- Updates on diseases prioritized for control or elimination by the MOH
- Action items to address public health threats
- Public health achievements (e.g., detection and containment of an outbreak).

A [template](#) for the highlight box is provided in Annex 1. Image 3 (below) is the highlight box published in a South Sudan IDSR report (South Sudan Ministry of Health, 2022).

Image 3: Highlight box of the South Sudan's IDSR Report



Major epidemiological highlights in week 8 of 2022

- In week **8, 2022** IDSR reporting timeliness was 83% and completeness was at **91%** while timeliness was at 90% and completeness was **99%** for EWARNS sites
- Hepatitis E virus cases continue to be reported in Bentiu IDP settlement with **2,096** cases and 16 deaths (CFR **0.76%**) reported since week 1, 2019
- Confirmed measles outbreak in Torit County, Eastern Equatoria state
- Confirmed measles and Rubella outbreaks in Doro Refugee camp, Maban county, Upper Nile state
- Of the **124** alerts in week 8, 2022; malaria (22), AWD (20), ARI (10), measles (3) and ABD (18) were the most frequent alerts
- **16,978** confirmed COVID-19 cases and **137** deaths (CFR of **0.80%**) in South Sudan
- Alerts of meningitis and yellow fever reported and are being investigated respectively in Aweil Center and Ikotos counties.

The highlight box presented in Image 3 includes several examples of good practices. The highlight box:

- Includes both numerators and denominators for the case fatality rates (CFR), which is good practice when presenting a rate or percentage because they give context to facilitate reader interpretation.
- Provides data on timeliness and completeness, which gives the reader context on the quality of the data (timeliness and completeness are defined in the next section of this guide).
- Features confirmed outbreaks and alerts.

- Provides a final bullet that informs the public of action taken by the MOH in response to the public health alerts.
- Provides the location of potential outbreaks (see the second, third, fourth, and last bullets).

Suggestions for improving this highlight box are listed below.

- Include bullets that recommend actions that officials can take to protect public health and the actions that individuals can take to minimize the risk of the health hazard to themselves and their communities.
- The fifth bullet regarding the most frequent alerts can be improved by providing the location(s) of potential outbreaks or recommendations for action. Omitting general summaries in the highlight box is recommended.
- South Sudan's highlight box includes several acronyms that may not be familiar to the reader. Acronyms, abbreviations, and initialisms should be spelled out in the highlight box unless they are universally understood (e.g., HIV).
- The number of bullets should be limited to six. A highlight box of two or three bullets is ideal. If the list is too long, it will be difficult for the reader to prioritize the information.

Introductory Paragraph

The introductory paragraph is the first paragraph of the IDSR article. It includes the following elements:

1. Article objective (i.e., an explanation of why IDSR data are published in the PHB)
2. A description of the data (e.g., timeframe of data, such as the epidemiological week(s), percentage of districts reporting, etc.)
3. A description of how data are collected and analyzed
4. A list of featured diseases or conditions.

[Template 2 in Annex 1](#) provides an example of how to write the introductory paragraph.

Timeliness and Completeness

Data timeliness and completeness are indicators of data quality. The following definitions are provided in the *Technical Guidelines for Integrated Disease Surveillance and Response in the African Region*:

- **Timeliness** is the percentage of reporting sites/facilities that submitted reports on time aggregated at the district or regional level. Note: “on time” is a measure defined by each country in accordance with the WHO Regional Office.
- **Completeness** captures the percentage of reporting sites submitting data regardless of when reports were submitted.
- The **targeted rate** for timeliness and completeness established by the WHO Regional Office for Africa is 80% (WHO Regional Office for Africa, 2019b).

Figure 1 (below) provides formulas for calculating both timeliness and completeness of IDSR reports (WHO Regional Office for Africa, 2019b).

Figure 1: Formulas for calculating timeliness and completeness of IDSR reports

N = Number of health facilities expected to submit reports for a given time period

T = Total number of health facilities submitting reports on time (“on time” is a measure established by each country in accordance with timelines defined by WHO Regional offices)

W = Total number of health facilities not reporting

T/N*100 = Timeliness of reports (%)

(N-W)/N*100 = Completeness of reports (%)

Data on timeliness and completeness of reports are collected to assess quality of the reporting system at all levels. Reports submitted on time increases the feasibility of detecting and responding to potential health threats. If reports are incomplete or not submitted, then the aggregated information for district or regional levels will also be incomplete and not provide an accurate representation of the situation.

A table is the preferred method for presenting timeliness and completeness data. All data tables should be self-explanatory, which means the reader should not have to refer to the text to understand results of the analysis. The title (of tables, figures, and other visualizations) orients readers to the who, what, where, and when. The corresponding data in the body of the table are arranged by key variables of interest. Data can be presented by order of magnitude (i.e., highest to lowest value) of the variable of interest (e.g., risk ratio, percent, or most common condition) to help the reader identify patterns in the data. A template ([Template 3](#)) for creating a table like [Table 1 \(page 10\)](#) is available in Annex 1. Table 1 presents completeness and timeliness rates. In the body of the table, the expected number of reports and completeness and timeliness rates are reported for four sub-national regions and nationally. Definitions for completeness and timeliness are included as footnotes.

Table 1: IDSR report completeness and timeliness rates by region for epidemiological week 3, 2023

Region	Expected reports (N)	Completeness* n (%)	Timeliness† n (%)
Northern	26	25 (96)	23 (88)
Eastern	17	16 (94)	16 (94)
Southern	14	13 (93)	12 (86)
Western	22	20 (91)	20 (91)
National	79	74 (94)	71 (90)

* Completeness captures the percentage of reporting health facilities/surveillance sites that submitted data regardless of when the reports were submitted. The target is at least 80% for each region.

† Timeliness captures the percentage of reporting health facilities/surveillance sites that submitted reports on time at the district or regional level. The target is at least 80% for each region.

The text that accompanies such a table on completeness and timeliness rates should:

- State the number of health facilities expected to report (i.e., establish the denominator for the rates).
- Describe how the data are collected.
- Include dates for the period the data represent (e.g., epidemiological week).
- Provide definitions of on time, late, or incomplete reports.
- Summarize the data without repeating all information included in the table.

Text Box 1 (below) provides an example of how to summarize completeness and timeliness data. A template ([Template 4](#)) is provided in Annex 1.

Text Box 1: Proposed language for summarizing IDSR report completeness and timeliness data

Table 1 summarizes the timeliness and completeness rates of weekly reports for all regions for epidemiological week 16. All regions had timeliness and completeness rates above 80%, which is the target established by the Ministry of Health (MOH). Nationally, there are 76 health facilities and 3 referral hospitals reporting to the integrated disease surveillance and response system. Reports are received and collated at the district and regional levels before being submitted to MOH Headquarters. The timeliness and completeness of weekly reports are primary surveillance system data quality indicators. Each health facility is required to report within five days of the end of the week. Reports submitted between 5-10 days are considered late, and reports submitted after 10 days are considered missing.

It is also acceptable to use figures (e.g., bar charts, line graphs) to present completeness and timeliness data. However, be sure that the figures accurately represent the data.

Featured Diseases

Limit the diseases featured to those that are of concern or interest to health workers and the public. There are several criteria to consider when selecting diseases or conditions to feature in this section of the IDSR article (World Health Organization, 2006):

- Is the disease or condition a priority for control or elimination by the MOH?
- Is an outbreak or unusual health event suspected?
- Were there any unexpected increases in cases (e.g., spikes in cases)?
- How does the observed situation compare to previous observation time periods of the current and previous years?
- Are there any new inputs that may have changed the sensitivity of the surveillance system (e.g., increase/decrease in number of confirmed cases could be related to an improvement/decline in the availability of laboratory testing)?
- What are the disease trends for the reporting period? Are they improving, stable, or worsening?
- What is the burden of disease (e.g., incidence, prevalence, mortality)?
- In what period (e.g., seasonality) is it occurring? Is the period approaching?
- What is the potential for spread of the disease if it is a public health concern?

Once selected, each featured disease should have its own section that:

- Describes the disease or condition and why it is a public health concern.
- Summarizes epidemiological data in tables and figures.
- Provides recommendations and resources (e.g., hotlines and webpages) for actions to be taken and updates on actions taken.

Description of Disease or Condition

The description of the disease or condition under surveillance, which is written or approved by a subject matter expert, provides context for the reader to understand the potential public health impact and the continued need for surveillance. It should be brief and concise and answer the following questions:

- How does the disease affect the population?
 - What is the impact on humans (e.g., is it a life-threatening disease)?
 - What are the symptoms associated with the disease/condition?
 - Who is most at risk for developing the disease/condition?
 - Why is surveillance necessary?
- What is the disease incidence/prevalence in the district/region/country?
 - What are the expected numbers of confirmed cases and deaths in a defined reporting period?
 - Did the number of confirmed cases or deaths surpass the established IDSR threshold?
 - Are the cases and deaths geographically focused?
- What are the modes of transmission (e.g., waterborne, parasite, contact with infected human or animal)?
- What are the current activities implemented to control or prevent disease?

Text Box 2 (below) provides an example of a description of a featured disease, polio, that addresses the questions listed above (Polio Global Eradication Initiative, 2013) (U.S. Centers for Disease Control and Prevention, 2021b) (World Health Organization, 2023). The [WHO](#) and [CDC](#) websites, which were sources for Text Box 2, provide descriptions and recommendations for prevention and treatment for most diseases and conditions. Sources should always be cited.

Text Box 2: An example of a description of a featured disease (polio) in an IDSR article.

Zambia's acute flaccid paralysis (AFP) rate for the past 12 months as of epidemiological week 1 of 2023 is 4.4 per 100,000 persons. A total of 78 AFP cases was reported across 10 provinces during the previous 12 months. No confirmed cases of poliomyelitis were reported. No changes to the current surveillance activities are recommended.

Poliomyelitis (polio) is a highly infectious viral disease that largely affects children under 5 years of age. The virus is transmitted person-to-person and spread mainly through the fecal-oral route or, less frequently, by a common vehicle (e.g., contaminated water or food). The virus multiplies in the intestine, from where it can invade the nervous system and cause paralysis. In 1988, the World Health Assembly adopted a resolution for the worldwide eradication of polio. The African Region was officially certified as wild poliovirus-free on August 25, 2020, but surveillance activities continue until polio is globally eradicated (and will continue post-certification). The number of AFP cases reported each year is used as an indicator of a country's ability to detect polio. Zambia's surveillance system needs to be sensitive enough to detect at least one case of non-polio AFP per 100,000 children under 15 years annually. Accordingly, health staff are required to report every AFP case in children under 15 years of age (Polio Global Eradication Initiative, 2013) (U.S. Centers for Disease Control and Prevention, 2021) (World Health Organization, 2023).

Summary of Epidemiological Data

When best practices are used, tables and figures (e.g., maps, bar charts, and trendlines) summarize large amounts of information in a format that is easy to understand (Lang & Secic, 2006). They describe the epidemiological data in terms of person (who), place (where) and time (when). Tables can summarize the characteristics of who is affected (e.g., age, gender, ethnicity, education, occupation, clinical manifestations, underlying conditions, etc.). Maps show where populations are affected, and trendlines are used to represent when populations were affected. Using the same style of tables and figures across diseases, articles, and PHB issues (including aligning font styles and colors in tables and figures) is recommended to facilitate reader comprehension. The [WHO Weekly Epidemiological Record](#) is an example of a PHB that uses the same table and figure templates for all articles in all issues.

Tables

IDSR articles include two types of tables: analytical tables and reference tables. Both provide data on the number of suspected and confirmed cases and deaths. Analytical tables are used by epidemiologists to present the results of their analyses and investigations. Reference tables are designed to make it easy to find data on disease occurrence. Table 1 ([page 10](#)) and Tables 2a and 2b ([page 13](#)) are analytical tables, which means key data are arranged by magnitude. Table 3 ([page 15](#)) is a reference table, and the row headings are listed in alphabetical order so that it is easy to find a specific value.

Tables 2a and 2b summarize cases of influenza like illness (ILI) by region and district. Regions are listed in order of number of deaths occurring during the reporting period. The title states who, what, when, and where, and the tables lists only the districts with reported cases to avoid several rows of zeros. It is best practice to include a footnote listing the districts that reported zero cases and those that did not submit reports. Table footnotes should also define any terms or acronyms used. The footnotes of Tables 2a and 2b distinguish between zero cases reported and no reports. Each table should be accompanied by no more than three sentences of text summarizing the salient points. However, a well-constructed table should be self-explanatory without text. See [Template 5](#) in Annex 1.

Table 2a: Cases of influenza-like illness (ILI) by region and district for epidemiological week 16

Region	District*	Suspected Cases [†]	Confirmed Cases [‡]	Deaths
Southern	Tourist	527	34	5
	Market	53	5	1
	Total	580	39	6
Eastern	Copper	173	16	2
	Diamond	79	3	0
	Total	252	19	2
Northern	Capital	470	15	0
	Coffee	340	4	1
	Cocoa	15	1	0
	Banking	5	0	0
	Textile	1	0	0
	Total	831	20	1
Western	Forest	1	0	0
	Savannah	1	0	0
	Lake	2	0	0
	Total	4	0	0
Total	1,667	78	9	

* The table does NOT include data from Gold and Tea districts where zero ILI cases were reported. Silver district did not submit data for ILI for epidemiological week 16.

[†] Suspected Cases—ILI is defined as fever (temperature of 38 C° or greater) and cough and/or sore throat. It is used for flu surveillance worldwide.

[‡] Confirmed Cases—A patient who tests positive for influenza virus (flu) infection by an approved laboratory test.

Table 2b: Cumulative cases of influenza-like illness (ILI) by region and district for previous 52 epidemiological weeks

Region	District*	Suspected Cases [†]	Confirmed Cases [‡]	Deaths
Northern	Capital	61,678	8,551	2,587
	Coffee	53,812	7,459	1,014
	Cocoa	7,854	2,001	789
	Banking	4,042	887	193
	Textile	10,980	5,723	1,996
	Total	138,366	23,734	6,579
Western	Forest	7,215	967	309
	Savannah	6,049	806	283
	Lake	3,234	339	206
	Total	16,498	2,112	798
Southern	Tourist	8,661	572	98
	Market	6,823	465	57
	Total	15,484	1,037	155
Eastern	Copper	6,099	889	57
	Diamond	3,155	105	37
	Total	9,254	994	94
Total	179,602	28,764	7,626	

* The table does NOT include data from Gold and Tea districts where zero ILI cases were reported.

[†] Suspected Cases—ILI is defined as fever (temperature of 38 C° or greater) and cough and/or sore throat. It is used for flu surveillance worldwide.

[‡] Confirmed Cases—A patient who tests positive for influenza virus (flu) infection by an approved laboratory test.

Maps

The purpose of a map is to show the geographic location of events or attributes. While there are a variety of maps used to present data, a type of map commonly used in epidemiological reports is an area map or choropleth map, which uses different colors to show the number of cases or rates of a disease or health condition in districts, regions, or other administrative levels. Generally, for an IDSR article, each featured disease should include a map like the one presented in Figure 2 (below). [Annex 2](#) provides information on the free software (QGIS) used to create the map in Figure 2. Shape files used to generate maps using QGIS are also freely available online (OCHA Services, 2023). The shape file used to generate the map in Figure 2 is for the administrative boundaries of Afghanistan. The data represented in this map are fabricated.

Figure 2: Number of suspected influenza-like illness (ILI) cases by region for Epi Week 16 (April 16-22) 2023

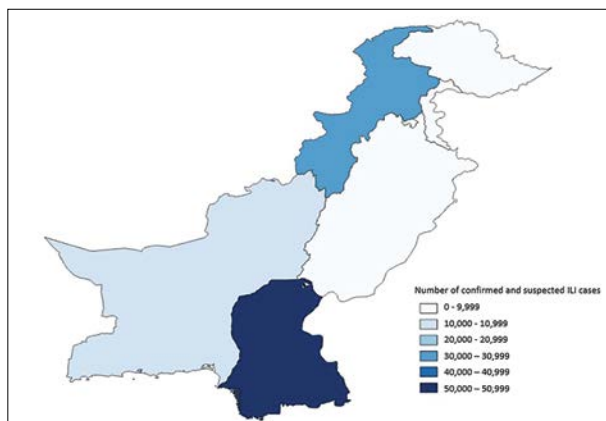
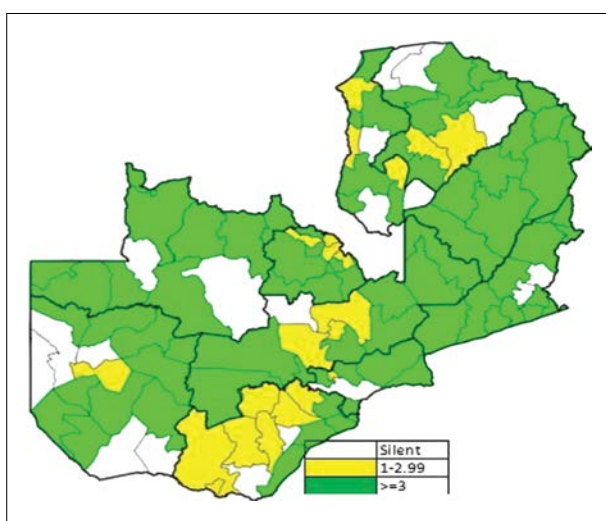


Figure 3 is an area map that summarizes non-polio acute flaccid paralysis (NPAFP) rates in Zambia. Table 3 accompanied Figure 3 in Zambia's IDSR report for epidemiological week 1 of 2023 (Zambia National Public Health Institute, 2023). The first three sentences of Text Box 2 ([page 12](#)) effectively summarize Figure 3 and Table 3.

Figure 3: Area map summarizing non-polio acute flaccid paralysis (AFP) rates by district and province in Zambia for Epidemiological Week 1 of 2023



The map in Figure 3 can be improved by including the names of the provinces, and providing a rationale for using the rate of 3/100,000 as the threshold for distinguishing between yellow and green districts. It is best to use a different intensity of the same color, or contrasting colors, in case the articles are printed in black and white. Yellow may not be visually distinguishable from white if printed in black and white. Note that Table 3 is a reference table because the provinces are listed in alphabetical order instead of by NPAFP rate.

Table 3: Expected and reported AFP cases and NPADP rates for 2022 by province in Zambia

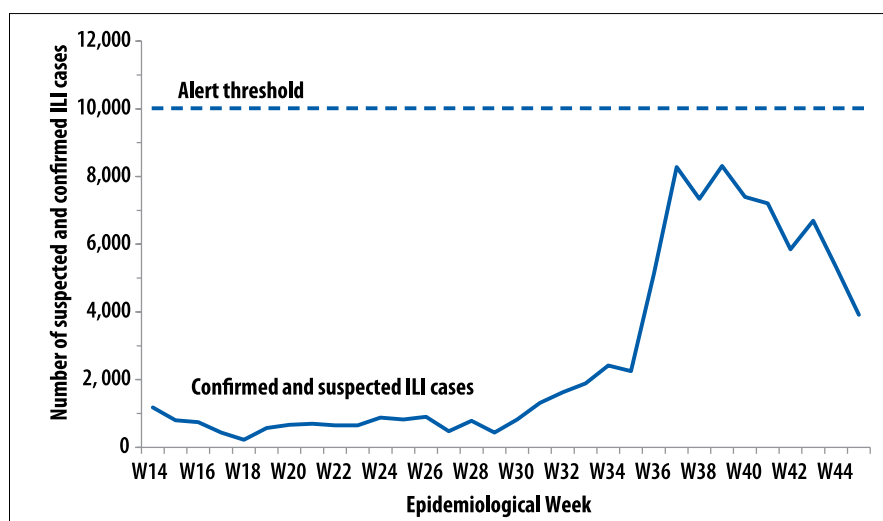
Province	Expected AFP Cases	Reported AFP Cases	NPADP Rate
Central	26	39	4.3
Copperbelt	38	38	3.9
Eastern	29	105	10.5
Luapula	19	20	3.3
Lusaka	47	19	1.2
Muchinga	17	36	6.0
North Western	13	25	6.3
Northern	21	33	4.7
Southern	33	27	2.5
Western	15	36	7.2
Total	258	378	4.4

AFP = Acute flaccid paralysis; AFP = Acute flaccid paralysis

Trendlines

To show trends over time, use a figure like the one presented in Figure 4 (below). This figure presents the trendline of confirmed and suspected cases (solid blue line) reported and the alert threshold (dotted blue line). The solid blue trendline shows that the number of ILIs increased sharply during epidemiological weeks 36-40, plateaued, and then started to decrease at epidemiological week 44. The number of ILI cases remained under the alert threshold.

Figure 4: Trend of Western region influenza-like illness (ILI) cases and alert threshold for epidemiologic weeks 14-44 (April-October 2022)



The text that accompanies Figure 4 should describe the seasonal patterns and emphasize what actions were implemented by health authorities to reduce the number cases or mortality rates. Note that the dataspace is uncluttered (i.e., it does not include gridlines, 3-dimensional images, or shadows), the X- and Y-axes are well-labeled with minimal tick marks, and the title includes who, what, where, and when.



Recommendations and Information Resources

When a featured disease comes close to or surpasses the alert threshold, it is rarely a good idea to recommend more research. Recommendations should clearly describe the action to be taken and state who is responsible for implementing the action. When providing recommendations for action:

1. Consult with subject matter experts to develop recommendations to ensure they are appropriate for treatment and prevention.
2. Consult with the responsible government organization to ensure resources needed to implement the recommendations are available and align with current science-based guidelines.
3. Cite the resources used to develop the recommendation.
4. Clearly describe the recommended actions.
5. State who should be responsible for the actions (e.g., health officials, the public, populations of specific regions or districts). If officials or professionals are deemed responsible, verify that they agree with your recommendations before publicizing them.
6. Define medical terms and avoid using acronyms and abbreviations.
7. Provide resources for more information, including links to webpages of the MOH, NPHI, CDC or WHO.
8. Include contact information (phone or email) where readers can request additional information.
9. Instead of using the term, “should,” use terms like “can” or “should consider” if existing guidelines or evidence are ambiguous.

Table of Reported Cases/Events

This section of the IDSR article provides a complete list of reported diseases in a reference table. Tables 4a and 4b are reference tables. The diseases and events are listed in alphabetical order so the reader can easily find the data for a specific disease or event of interest. Tables 4a and 4b list reported cases and events for the current epidemiological week and the previous 52 epidemiological weeks, respectively. Note that all acronyms are defined and there is a footnote that describes how the CFR is calculated. When creating the table, be sure to align all numbers to the one's place or on the decimal point. Avoid centering the numbers in the column. To reduce the size of the table, consider creating one table for endemic or common diseases and another table for rare and eliminated or eradicated (i.e., smallpox) diseases. Use [Template 6](#) in Annex 1 to create a similar table in an IDSR article.

Table 4a: Number of nationally reported suspected and confirmed cases, deaths, and CFRs by disease/event for epidemiological week 15, 2023

Disease / Event	Suspected Cases	Confirmed Cases	Deaths	CFR*
Acute flaccid paralysis (AFP) (suspected polio)	26	2	0	0
Acute hemorrhagic fever syndrome	0	0	-	-
Adverse event following immunization	0	0	-	-
Anthrax	0	0	-	-
Acute watery diarrhea in persons aged ≥5	3,837	234	29	12.39
Cholera	238	5	3	60.00
Dengue fever	87	0	0	0
Dracunculiasis (Guinea worm)	0	0	-	-
Influenza-like illness	28,860	0	0	0
Maternal deaths	0	0	-	-
Measles	310	44	5	11.36
Meningitis	13	3	0	0
Neonatal deaths	0	0	-	-
Plague	0	0	-	-
Public health event of international concern (PHIEC)	0	0	-	-
Human rabies	910	0	0	0
Severe acute respiratory syndrome	0	0	-	-
Yellow fever	0	0	-	-
National Total	34,281	288	37	12.85

*CFR = Case fatality rate: number of deaths divided by the number of confirmed cases multiplied by 100

Table 4b: Number of nationally reported suspected and confirmed cases, deaths, and CFRs by disease/event for the previous 52 epidemiological weeks (Week 15, 2022-Week 14, 2023)

Disease / Event	Suspected Cases	Confirmed Cases	Deaths	CFR*
Acute flaccid paralysis (AFP) (suspected polio)	1,983	18	1	5.56
Acute hemorrhagic fever syndrome	0	0	-	-
Adverse event following immunization	0	0	-	-
Anthrax	0	0	-	-
Acute watery diarrhea in persons aged ≥5	69,027	1,263	294	23.28
Cholera	18,926	3,008	341	11.34
Dengue fever	12,349	0	0	0
Dracunculiasis (Guinea worm)	0	0	-	-
Influenza-like illness	223,689	0	0	0
Maternal deaths	0	0	-	-
Measles	16,981	1,022	184	18.00
Meningitis	539	18	2	11.11
Neonatal deaths	0	0	-	-
Plague	0	0	-	-
Public health event of international concern (PHIEC)	0	0	-	-
Human rabies	9,231	0	0	0
Severe acute respiratory syndrome	0	0	-	-
Yellow fever	0	0	-	-
National Total	352,725	5,329	822	15.43

*CFR = Case fatality rate: number of deaths divided by the number of confirmed cases multiplied by 100

Back Page

Image 4 (below) is the back page of CDC's *Morbidity and Mortality Weekly Report (MMWR)* (U.S. Centers for Disease Control and Prevention, 2023). Other PHBs use the back page to provide names of the editorial staff and board members and instructions on how to cite articles. The information included on the back page will vary and can include:

- The copyright policy
- Access policy
- Editorial staff contact information
- The ISSN
- Links to the PHB webpage.

Image 4: Example from *Morbidity and Mortality Weekly Report's* back page

Morbidity and Mortality Weekly Report

The *Morbidity and Mortality Weekly Report (MMWR)* Series is prepared by the Centers for Disease Control and Prevention (CDC) and is available free of charge in electronic format. To receive an electronic copy each week, visit *MMWR* at <https://www.cdc.gov/mmwr/index.html>.

Readers who have difficulty accessing this PDF file may access the HTML file at <https://www.cdc.gov/mmwr/index2023.html>. Address all inquiries about the *MMWR* Series to Editor-in-Chief, *MMWR* Series, Mailstop V25-5, CDC, 1600 Clifton Rd., N.E., Atlanta, GA 30329-4027 or to mmwrq@cdc.gov.

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References to non-CDC sites on the Internet are provided as a service to *MMWR* readers and do not constitute or imply endorsement of these organizations or their programs by CDC or the U.S. Department of Health and Human Services. CDC is not responsible for the content of these sites. URL addresses listed in *MMWR* were current as of the date of publication.

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Annex 1—DSR Article Templates

Template 1—Highlight box

Template 1 provides sample language to include in the highlight box. The highlight box can be formatted according to the PHB's style guide. Regarding the last bullet, some MOHs will create a separate website for diseases of national and international concern like COVID-19. Recommendations for action should include reliable resources of information to discourage readers from performing simple internet searches that will likely recommend websites that promote misinformation.

Epidemiological Week XX Highlights

- All districts and regions have timeliness and completeness rates above X%, which is [above/below] the national target.
- During the epidemiological week XX, Y cases were reported for Z disease, X% above the threshold for declaring an outbreak.
- The outbreak of X disease in Y region continues, but the number of cases is declining.
- During the epidemiological week XX, Y cases were reported for Z disease, X cases above the average for this year.
- Region X saw the highest number of suspected cases for disease X. Only X cases were confirmed.
- Health workers are advised to implement X protocol and screen patients for Y disease. More information on Y disease can be found at [URL of website].

Template 2—Introductory paragraph

Template 2 provides an example of the language to use in the introductory paragraph, which should immediately follow the highlight box and include the following elements:

1. Article objective (i.e., an explanation of why IDSR data are published in the PHB)
2. A description of the data (e.g., timeframe of data such as epidemiological week(s), percentage of districts reporting, etc.)
3. A description of how data are collected and analyzed
4. A list of featured diseases or conditions.

Dissemination of Integrated Disease Surveillance and Response (IDSR) data informs national strategies and policies and strengthens public health systems to detect, respond, and prevent disease outbreaks and other public health threats. IDSR data are collected at the community and district level health facilities and reported to the national level for analysis and dissemination via [Name of PHB]. This IDSR article provides data for XX reportable diseases and events for epidemiological week XX (dates), collected from XX% (XXXX/XXXX) of public and private health facilities nationwide. This IDSR article also features X [List Diseases/Conditions].

Template 3—IDSR Report Timeliness and Completeness Table

Template 3 is used to present timeliness and completeness data in a table.

Template 3: IDSR report completeness and timeliness rates by region for epidemiological week X

Region	Expected reports (N)	Completeness* n (%)	Timeliness† n (%)
Region 1	0	0 (0)	0 (0)
Region 2	0	0 (0)	0 (0)
Region 3	0	0 (0)	0 (0)
Region 4	0	0 (0)	0 (0)
Region 5	0	0 (0)	0 (0)
National	0	0 (0)	0 (0)

* Completeness captures the percentage of reporting sites that submitted data regardless of when the reports were submitted. The target is at least 80% for each region.

† Timeliness captures the percentage of reporting sites that submitted reports on time at the district or regional level. On time is defined as [include MOH definition]. The target is at least 80% for each region.

Template 4—Text to Summarize Completeness and Timeliness of Data

Template 4 provides an example of how to summarize data presented in Template 3.

Nationally, there are XXX health facilities and X referral hospitals reporting to the integrated disease surveillance and response system. The reports are received and collated at the district and then regional levels before they are submitted to Ministry of Health (MOH) Headquarters. The timeliness and completeness of weekly reports are the main surveillance system indicators. Each health facility has to report within [include definition of on time (e.g., within five days of the end of the week)]. [Include definitions of late and missing (e.g., Reports submitted between 5–10 days are considered late, and reports submitted after 10 days are considered missing.)] Table X summarizes the timeliness and completeness rates for all regions. All regions, except Region X, had timeliness and completeness rates above XX%, which is the target established by the MOH.

Template 5—Table to Summarize a Specific Disease or Condition by Region and District

Template 5 is used to present data for a specific disease or condition in a table. Table footnotes should define any terms or acronyms used and list districts that reported zero cases. An additional footnote should list the districts that did not submit reports. The text corresponding to the table should include no more than two or three sentences summarizing trends and any outliers in the data.

Table X: Number of suspected and confirmed cases and deaths for disease X by district and region for epidemiological week X

Region	District	Suspected Cases*	Confirmed Cases†	Deaths
Region 1	District 1	0	0	0
	District 2	0	0	0
Region 2	District 1	0	0	0
	District 2	0	0	0
Region 3	District 1	0	0	0
	District 2	0	0	0
Region 4	District 1	0	0	0
	District 2	0	0	0
Region 5	District 1	0	0	0
	District 2	0	0	0
Total		0	0	0

*Suspected Cases—[provide case definition of disease]

†Confirmed Cases—[provide explanation of how cases were confirmed]

Template 6—Template for Creating a Reference Table of Diseases and Conditions Under Surveillance

Template 6 is used to create a reference table of all reportable diseases and conditions. The table is a reference table. Therefore, the diseases and conditions should be listed in alphabetical order to make finding data for a specific disease easier.

Table X: Number of nationally reported suspected and confirmed cases, deaths, and CFRs by disease/ event for epidemiological week(s) XX-XX

Disease / Event	Suspected Cases	Confirmed Cases	Deaths	CFR*
Acute flaccid paralysis (AFP) (suspected polio)	0	0	0	0.00
Acute hemorrhagic fever syndrome	0	0	0	0.00
Adverse event following immunization	0	0	0	0.00
Anthrax	0	0	0	0.00
Acute watery diarrhea in persons aged ≥5	0	0	0	0.00
Cholera	0	0	0	0.00
Dengue fever	0	0	0	0.00
Dracunculiasis (Guinea worm)	0	0	0	0.00
Influenza-like illness	0	0	0	0.00
Maternal deaths	0	0	0	0.00
Measles	0	0	0	0.00
Meningitis	0	0	0	0.00
Neonatal deaths	0	0	0	0.00
Plague	0	0	0	0.00
Public health event of international concern (PHIEC)	0	0	0	0.00
Human rabies	0	0	0	0.00
Severe acute respiratory syndrome	0	0	0	0.00
Yellow fever	0	0	0	0.00
National Total	0	0	0	0.00

*CFR = Case fatality rate: calculated by dividing the number of deaths by the number of confirmed cases, multiplied by 100



Annex 2—Free resources for creating maps

- Quantum GIS - QGIS is a professional GIS application that is a free and open-source software. (<https://www.qgis.org/en/site/about/index.html>).
- Online curriculum is available to walk the user through the steps of creating maps using the QGIS software (<https://www.qgis.org/en/site/forusers/trainingmaterial/index.html>)
- Users will need a shape file with the district-level administrative boundaries. Shape files are provided by Humanitarian Data Exchange (<https://data.humdata.org/group>)

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