WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit
Ministry of Health & Mass Media

231, de Saram Place, Colombo 01000, Sri Lanka
Tele: + 94 11 2695112, Fax: +94 11 2696583, E mail: epidunit@sltnet.lk
Epidemiologist: +94 11 2681548, E mail: chepid@sltnet.lk
Web: http://www.epid.gov.lk

WEER SRI LANKA 2025

Vol. 52 No. 21 **17th – 23rd May 2025**

Strengthening Health Information Systems in Sri Lanka: Towards Integrated and Interoperable Solutions - Part I

This is the first article of two in a series on "Strengthening Health Information Systems in Sri Lanka: Towards Integrated and Interoperable Solutions"

A robust health information system (HIS) is the backbone of any well-functioning health sector. In Sri Lanka, various digital platforms have been introduced to support healthcare delivery, disease surveillance, and public health decision-making. However, many of these systems continue to operate in silos, limiting their ability to communicate with one another. As the country moves forward with digital transformation in healthcare, it is essential to strengthen these systems using global standards, local innovations, and integrated approaches.

This article outlines the key components of a health information system, provides examples from Sri Lanka, and explores how principles like **interoperability**, **open-source development**, and **digital public goods** can make health systems more efficient, accessible, and responsive.

What is a Health Information System?

A **Health Information System (HIS)** is a system that collects, stores, manages, and transmits information related to the health of individuals or the activities of organisations that work within the health sector. These systems are used to support decision-making at all levels—from individual patient care to national health planning.

An effective HIS should not only collect data but also ensure that this data is complete, timely, accurate, and available to be used for planning and action.

Components of a Health Information System

According to the World Health Organisation (WHO), there are **six key components** of a well-functioning health information system:

1. **Health Information System Resources**
   This includes the **people**, **infrastructure**, **software**, **hardware**, and **funding** necessary to operate HIS. In Sri Lanka, trained public health staff, servers maintained by the Ministry of Health, and IT officers are examples of these resources.

2. **Indicators**
   Indicators are measurable variables used to assess, monitor, and evaluate specific attributes or dimensions of health services. They help track progress, identify gaps, and support decision-making.

A well-functioning HIS uses different types of indicators:

- **Input indicators** – Measure resources used (e.g., number of health workers).
- **Process indicators** – Track whether planned activities are carried out (e.g., percentage of pregnant women receiving antenatal care).
- **Output indicators** – Measure immediate results (e.g., number of vaccines given).

- **Outcome indicators** – Show the short-term effects (e.g., increase in immunisation coverage).
- **Impact indicators** – Reflect long-term health goals (e.g., reduction in maternal mortality ratio)

3. **Data Sources** Data is collected from multiple sources, including:
- Facility-based records
- Community reports
- Surveillance systems
- Surveys and censuses

4. **Data Management**
This refers to how data is stored, protected, cleaned, and analysed. For example, **DHIS2**, the backbone of **EPI-NET (**Epidemiology Information System), is used in Sri Lanka to manage

disease surveillance data at the national level. Ensuring data quality and security is a priority in this component.

5. **Information Products**
The output from the system must be meaningful. Weekly Epidemiological Reports, Quarterly Epidemiological Bulletins, and data dashboards are all examples of information products that support planning, resource allocation, and monitoring.

6. **Dissemination and Use**
Data must be **used for decision-making**. This means that information reaches the right people (e.g., Medical Officers of Health, hospital administrators, policy makers) at the right time, in a format that is easy to understand and act upon.

Compiled by:

Dr. Niradh Mojitha Fernando
Medical officer - Health Informatics
Epidemiology unit

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Table 1 : Water Quality Surveillance
Number of microbiological water samples April 2025

District	MOH areas	No: Expected *	No: Received
Colombo	18	108	**0**
Gampaha	15	90	**0**
Kalutara	13	78	**46**
Kalutara NIHS	2	12	**12**
Kandy	23	138	**43**
Matale	13	78	**7**
Nuwara Eliya	13	78	**11**
Galle	20	120	**116**
Matara	17	102	**0**
Hambantota	12	72	**74**
Jaffna	14	84	**NR**
Kilinochchi	4	24	**34**
Mannar	5	30	**0**
Vavuniya	4	24	**0**
Mullatvu	6	36	**35**
Batticaloa	14	84	**24**
Ampara	7	42	**0**
Trincomalee	12	72	**0**
Kurunegala	29	174	**NR**
Puttalam	13	78	**5**
Anuradhapura	23	138	**19**
Polonnaruwa	9	54	**27**
Badulla	16	96	**88**
Moneragala	11	66	**13**
Rathnapura	20	120	**66**
Kegalle	11	66	**7**
Kalmunai	13	78	**0**

* No of samples expected (6 / MOH area / Month)
NR = Return not received

To be Continued...

Table 1: Selected notifiable diseases reported by Medical Officers of Health 10th – 16th May 2025 (20th Week)

RDHS	Dengue Fever		Dysentery		Encephalitis		En. Fever		F. Poisoning		Leptospirosis		Typhus F.		Viral Hep.		H. Rabiies		Chickenpox		Meningitis		Leishmania-		Tuberculosis		WRCD	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	T*	C**
Colombo	359	5050	0	15	0	3	0	4	0	5	1	188	0	5	1	9	0	0	11	227	0	26	0	1	24	795	**100**	100
Gampaha	224	3140	0	22	0	22	0	1	3	53	26	322	0	7	0	5	0	0	13	378	1	59	0	19	14	440	**100**	100
Kalutara	35	907	0	23	0	6	1	6	0	24	1	287	0	1	0	4	0	0	22	369	0	23	0	1	28	243	**100**	100
Kandy	98	1307	0	31	0	2	0	4	1	12	4	124	1	28	0	5	0	0	12	198	0	12	1	32	15	309	**100**	100
Matale	16	647	0	12	0	1	0	0	0	46	4	101	0	3	0	5	0	0	2	55	0	2	4	102	0	60	**100**	100
Nuwara Eliya	9	95	1	31	0	4	0	4	0	45	1	53	0	24	0	0	0	0	2	102	0	10	0	0	1	113	**100**	100
Galle	44	806	0	21	0	3	0	0	1	30	12	345	0	35	0	6	0	1	12	331	4	76	0	1	5	200	**100**	100
Hambantota	20	378	1	12	0	4	0	0	0	3	6	201	0	14	0	3	0	0	4	180	2	11	4	127	1	59	**100**	100
Matara	27	701	0	7	0	2	0	1	0	4	10	218	0	10	1	3	0	0	9	188	1	21	0	49	2	70	**88**	100
Jaffna	27	619	4	43	0	2	0	10	3	25	1	116	6	321	0	2	0	1	18	208	1	15	0	0	5	84	**100**	93
Kilinochchi	4	56	0	8	0	0	0	4	0	4	1	54	0	11	0	1	0	0	0	2	0	0	0	1	2	21	**100**	100
Mannar	3	97	0	4	0	0	0	0	0	2	0	18	1	11	0	0	0	0	0	14	0	12	0	0	0	22	**100**	100
Vavuniya	2	39	1	7	0	0	0	1	1	27	2	52	0	7	0	0	0	0	0	20	0	13	1	10	2	23	**100**	100
Mullaitivu	2	34	0	4	0	0	0	1	0	2	0	46	0	6	0	0	0	0	0	17	0	4	0	1	0	15	**83**	100
Batticaloa	58	1193	1	84	0	10	0	0	4	77	6	52	0	1	2	15	0	0	7	97	0	19	0	1	6	62	**100**	100
Ampara	6	97	3	20	1	8	0	0	0	5	9	101	0	2	0	3	0	0	6	78	3	20	1	12	1	23	**100**	100
Trincomalee	45	673	0	26	0	2	1	1	0	25	5	86	1	9	0	4	0	0	1	60	0	9	0	3	0	36	**100**	100
Kurunegala	44	546	1	20	0	11	0	1	0	23	16	383	1	20	0	2	0	1	9	337	3	64	8	216	4	140	**27**	100
Puttalam	8	338	0	9	0	1	0	0	0	4	3	158	0	26	0	1	1	1	4	80	4	41	1	14	0	80	**92**	100
Anuradhapura	11	311	0	21	0	6	0	3	1	16	10	240	0	14	0	7	0	0	6	153	0	40	17	304	2	109	**74**	100
Polonnaruwa	7	123	0	9	0	3	0	1	0	3	3	121	0	1	0	13	0	0	4	85	1	9	2	167	0	33	**100**	91%
Badulla	7	313	0	16	0	6	0	3	0	0	4	154	0	15	0	20	0	0	4	188	0	33	0	17	6	111	**100**	100
Monaragala	17	390	0	9	0	3	0	0	0	4	16	327	1	23	1	9	0	0	2	74	0	23	4	83	0	44	**78**	100
Ratnapura	251	2100	1	72	0	5	0	3	0	22	40	737	0	16	1	5	0	1	12	216	1	58	7	82	8	172	**100**	100
Kegalle	45	595	0	37	0	8	0	9	0	26	24	313	0	7	1	8	0	0	18	362	2	49	1	16	5	118	**91**	100
Kalmunai	10	229	1	16	0	2	0	0	0	15	3	54	0	1	0	1	0	0	4	82	1	18	0	0	2	55	**100**	100
SRILANKA	**137**	**20784**	**14**	**579**	**1**	**114**	**2**	**57**	**14**	**502**	**208**	**4851**	**11**	**618**	**7**	**131**	**1**	**5**	**182**	**4101**	**24**	**667**	**51**	**1259**	**133**	**3437**	**94**	**99**

Source: Weekly Returns of Communicable Diseases (esurvillance.epid.gov.lk). T=Timeliness refers to returns received on or before 16th May, 2025 Total number of reporting units 361 Number of reporting units data provided for the current week: 360 **C****-Completeness

A = Cases reported during the current week. B = Cumulative cases for the year.

Table 2: Vaccine-Preventable Diseases & AFP

10th – 16th May 2025 (20th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2025	Number of cases during same week in 2024	Total number of cases to date in 2025	Total number of cases to date in 2024	Difference between the number of cases to date in 2025 & 2024
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	00	00	01	00	00	01	00	00	00	01	00	27	33	-18.8%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Mumps	00	02	01	00	00	00	00	00	00	03	09	92	119	-22.6 %
Measles	00	00	00	00	00	00	00	00	00	00	00	01	209	-99.5%
Rubella	00	00	00	00	00	00	00	00	00	00	00	01	02	-50%
CRS**	00	00	00	00	00	00	00	00	00	00	00	01	00	0 %
Tetanus	00	01	00	00	00	00	00	00	00	01	00	03	02	50 %
Neonatal Tetanus	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Japanese Enceph-alitis	00	00	00	00	00	00	00	00	00	00	00	04	01	300 %
Whooping Cough	00	00	00	00	00	00	00	00	00	00	03	12	09	33.3 %

Key to Table 1 & 2

Provinces: **W**: Western, **C**: Central, **S**: Southern, **N**: North, **E**: East, **NC**: North Central, **NW**: North Western, **U**: Uva, **Sab**: Sabaragamuwa.

RDHS Divisions: **CB**: Colombo, **GM**: Gampaha, **KL**: Kalutara, **KD**: Kandy, **ML**: Matale, **NE**: Nuwara Eliya, **GL**: Galle, **HB**: Hambantota, **MT**: Matara, **JF**: Jaffna, **KN**: Killinochchi, **MN**: Mannar, **VA**: Vavuniya, **MU**: Mullaitivu, **BT**: Batticaloa, **AM**: Ampara, **TR**: Trincomalee, **KM**: Kalmunai, **KR**: Kurunegala, **PU**: Puttalam, **AP**: Anuradhapura, **PO**: Polonnaruwa, **BD**: Badulla, **MO**: Moneragala, **RP**: Ratnapura, **KG**: Kegalle.

Data Sources:

Weekly Return of Communicable Diseases: Diphtheria, Measles, Tetanus, Neonatal Tetanus, Whooping Cough, Chickenpox, Meningitis, Mumps., Rubella, CRS,

Special Surveillance: AFP* (Acute Flaccid Paralysis), Japanese Encephalitis

CRS =**Congenital Rubella Syndrome

NA = Not Available

Take prophylaxis medications for leptospirosis during the paddy cultivation and harvesting seasons.

It is provided free by the MOH office / Public Health Inspectors.

Comments and contributions for publication in the WER Sri Lanka are welcome. However, the editor reserves the right to accept or reject items for publication. All correspondence should be mailed to The Editor, WER Sri Lanka, Epidemiological Unit, P.O. Box 1567, Colombo or sent by E-mail to **chepid@sltnet.lk. Prior approval should be obtained from the Epidemiology Unit before publishing data in this publication**

ON STATE SERVICE

Dr. H. A. Tissera
Actg. CHIEF EPIDEMIOLOGIST
EPIDEMIOLOGY UNIT
231, DE SARAM PLACE
COLOMBO 10