



WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit
Ministry of Health

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Brucellosis - Part I

This is the first article of two in a series on "Brucellosis"

Brucellosis is a bacterial infection caused by various *Brucella* species, mainly affecting cattle, pigs, goats, sheep, and dogs. Human infection typically occurs through direct contact with infected animals, consumption of contaminated animal products, or inhalation of airborne pathogens. Most human cases are associated with the consumption of unpasteurized milk or cheese from infected animals.

Brucellae are Gram-negative coccobacilli that are non-spore-forming, non-motile, and aerobic, though some strains may require additional CO₂ for growth. Three species—*B. melitensis*, *B. abortus*, and *B. suis*—are significant pathogens in humans, while *B. canis* is less common. These species are distinguished by their production of urease and hydrogen sulfide, sensitivity to dyes, cell wall antigens, and phage susceptibility. The major species are further classified into multiple biovars.

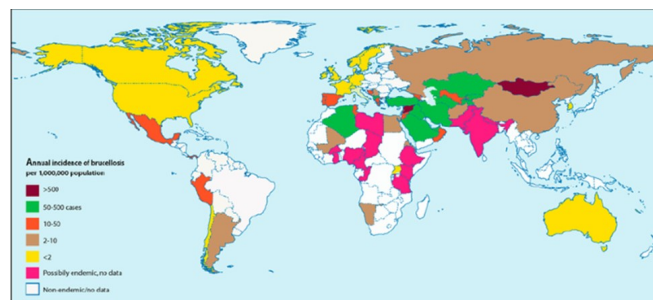
Global Burden of Brucellosis

The World Health Organization ranks brucellosis among the leading neglected zoonotic diseases globally. Despite its significant impact in many developing nations, the disease frequently

receives inadequate attention.

Brucellosis has been endemic worldwide since David Bruce discovered *Brucella melitensis* on the island of Malta in 1887. Although human cases have been reported in at least 170 countries, brucellosis remains both the most widespread and one of the most overlooked diseases. The causes of brucellosis outbreaks differ across regions. In Africa, the high demand for animal products and insufficient prevention programs increase the risk. In Asia, close contact with small livestock and the consumption of unpasteurized dairy products contribute to the heightened risk. In the Americas, the risk is more dispersed, with Central America facing the greatest threat, followed by the northern and southern regions of South America, largely due to the farming of cattle, small livestock, pigs, and the trade of unpasteurized milk products.

The epidemiology of human brucellosis has shifted significantly in recent decades, with its geographic spread continuing to grow. Centre for Disease Control and Prevention (CDC) of the United States has estimated the global incidence of human brucellosis to be 1.6–2.1 million new cases per year, which is three to four times higher than the previous estimate of 500,000 new cases per year.



re- Photo credit- https://www.researchgate.net/figure/The-Global-Incidence-of-Human-Brucellosis_fig1_5687521

Contents	Page
1. Brucellosis - Part I	1
2. Summary of selected notifiable diseases reported (17 th – 23 rd Aug 2024)	3
3. Surveillance of vaccine preventable diseases & AFP (17 th – 29 rd Aug 2024)	4

WEEKLY EPIDEMIOLOGICAL REPORT SRI LANKA 2024

The disease is both emerging and re-emerging, often being imported from endemic regions through travel, immigration, and international trade. Brucellosis remains widespread in parts of Asia and Africa, particularly in West and Central Asia, as well as North and East Africa, with the highest incidence reported in countries like Syria, Kyrgyzstan, Mongolia, Iran, Algeria, and Kenya. In regions where the disease had previously been controlled, such as Bosnia and Herzegovina, Azerbaijan, and the USA, re-emergence of cases is frequently observed.

In South Asia, human brucellosis is endemic, particularly in Afghanistan, Nepal, and India. While the disease is widespread in Afghanistan, a significant decline in cases was noted from 2007 (11.13 per 100,000) to 2019 (0.06 per 100,000). Brucellosis was introduced to Sri Lanka during World War II through cattle imports.

Transmission of Brucellosis

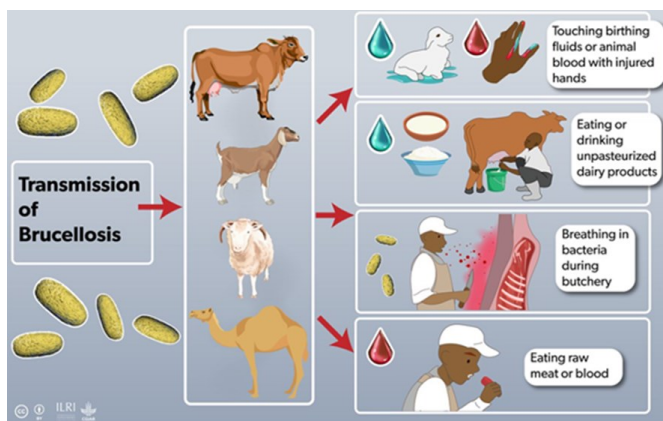


Photo credit- <https://www.flickr.com/photos/ilri/53013617827> Brucellosis is a zoonotic disease caused by Brucella sp. bacteria. Created and uploaded by a.slater@cgiar.org

Animal transmission

Brucellosis is primarily transmitted to susceptible animals through direct contact with infected animals or contaminated environments, particularly during events such as abortion or birth, when high concentrations of bacteria are present in the birth fluids. The bacteria can survive outside the animal in the environment for several months, especially in cool, moist conditions, remaining infectious to other animals that ingest them. In addition to colonizing the udder and contaminating the milk, the bacteria can also spread to animals through cuts in the skin or mucous membranes. Brucellosis poses a significant concern in wildlife, affecting species such as feral pigs, bison, elk, and European hares, which complicates eradication efforts. Furthermore, the bacteria have been detected in marine mammals, highlighting the disease's broad impact across different species.

Human Transmission

Brucellosis poses significant public health risks, particularly in endemic regions, where it persists due to factors like the expansion of animal industries, urbanization, and inadequate hygiene in animal farming and food handling. It is considered

an occupational hazard, especially for those working in the livestock sector, such as farmers, butchers, hunters, veterinarians, and laboratory personnel, who are at higher risk due to direct exposure to infected animal blood, placenta, fetuses, or uterine secretions.

Human transmission of brucellosis typically occurs through direct contact with infected animals, consumption of contaminated animal products, or inhalation of airborne agents. Most human cases are linked to the consumption of unpasteurized milk or cheese from infected animals.

Transmission from human to human is rare.

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Table 1: Selected notifiable diseases reported by Medical Officers of Health 17th–23rd Aug 2024 (34th Week)

RDHS	Dengue Fever		Dysentery		Encephalitis		En. Fever		F. Poisoning		Leptospirosis		Typhus F.		Viral Hep.		H. Rabies		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	A	B	A	B	T*	C**
Colombo	263	8198	0	24	0	7	0	46	1	19	13	353	0	8	0	8	0	0	8	366	1	29	1	1	43	1479	100	100	
Gampaha	124	3745	1	33	2	25	0	13	1	72	16	514	0	8	0	8	0	0	9	297	3	97	0	16	26	831	93	99	
Kalutara	43	2080	2	21	0	2	0	30	1	35	9	527	0	7	0	8	0	1	9	440	4	45	0	1	2	420	87	100	
Kandy	72	3312	1	32	0	2	0	9	0	54	1	184	2	26	2	10	0	1	3	304	0	13	2	33	17	452	100	100	
Matale	21	559	0	11	0	0	0	7	0	20	0	77	0	2	1	5	0	0	1	115	0	10	14	214	3	88	100	100	
Nuwara Eliya	7	275	3	107	1	7	0	9	1	200	2	143	2	33	1	6	0	0	6	179	0	15	0	1	3	185	100	100	
Galle	27	1541	2	41	0	20	0	9	0	80	13	542	2	84	0	7	0	1	22	541	1	65	0	3	7	302	85	100	
Hambantota	11	656	0	25	0	3	0	5	0	44	10	358	0	40	1	6	0	2	3	244	0	23	5	359	22	115	92	100	
Matara	22	728	0	8	0	6	0	2	0	26	5	341	1	20	0	4	0	0	15	261	0	62	0	88	7	111	100	100	
Jaffna	16	5193	1	50	0	2	0	23	1	33	0	17	1	440	0	5	0	1	1	161	1	17	0	1	7	187	100	93	
Kilinochchi	3	285	1	11	0	0	0	2	0	2	1	18	0	10	0	0	0	1	0	7	0	5	0	0	0	18	100	100	
Mannar	10	238	0	7	0	0	0	1	0	0	0	21	0	11	0	1	0	0	1	6	0	3	0	1	0	41	100	100	
Vavuniya	3	162	0	12	0	1	0	1	0	21	1	76	0	4	0	4	0	0	0	33	2	18	0	8	0	26	100	100	
Mullaitivu	0	192	0	7	0	0	0	0	0	17	2	66	0	11	0	0	0	0	0	4	1	5	0	9	0	23	100	100	
Batticaloa	21	1337	0	96	0	10	0	6	0	52	0	59	0	2	0	17	0	2	4	90	3	37	1	4	2	109	79	100	
Ampara	2	217	0	27	0	3	0	0	0	17	0	152	0	1	0	5	0	1	8	95	2	31	1	20	1	94	100	100	
Trincomalee	3	609	0	13	0	1	0	3	0	5	3	131	0	12	0	3	0	0	3	62	1	12	0	15	0	79	100	100	
Kurunegala	20	1846	0	38	1	29	0	3	0	345	9	471	1	19	0	4	1	4	11	384	4	207	11	443	3	364	100	100	
Puttalam	9	883	2	7	0	3	0	3	0	3	6	187	2	24	0	3	0	1	3	105	3	54	0	27	0	146	100	100	
Anuradhapura	7	615	6	23	0	6	0	2	0	38	6	327	0	27	0	10	0	1	6	201	1	40	20	630	6	206	91	100	
Polonnaruwa	10	643	1	16	0	0	0	1	0	8	1	62	0	5	0	4	0	0	5	172	1	12	0	0	0	80	100	100	
Badulla	10	303	1	18	1	1	0	1	1	7	2	213	0	2	0	41	0	0	3	107	0	25	26	381	2	163	81	100	
Monaragala	15	681	0	26	0	5	1	5	0	31	6	397	1	30	2	23	0	0	6	271	1	27	0	30	2	84	100	100	
Ratnapura	25	618	1	15	0	3	0	3	0	84	3	563	0	25	3	29	0	1	8	93	2	71	5	179	12	232	100	100	
Kegalle	77	2121	2	81	0	5	0	8	0	15	25	1290	1	21	1	20	0	2	8	242	4	99	6	132	9	255	91	100	
Kalmunai	36	1605	1	13	0	6	0	9	0	11	11	521	1	23	0	9	0	1	15	640	2	51	1	21	3	98	100	100	
SRILANKA	857	38642	25	762	5	147	1	201	6	1239	145	7610	14	895	11	240	1	20	158	5420	37	1073	93	2617	177	6122	96	99	

Source: Weekly Returns of Communicable Diseases (esurveillance.avid.gov.lk). T=Timeliness refers to returns received on or before 23rd Aug, 2024. Total number of reporting units 358. Number of reporting units data provided for the current week: 357. C**=Completeness. A = Cases reported during the current week. B = Cumulative cases for the year.

Table 2: Vaccine-Preventable Diseases & AFP

17th – 23rd Aug 2024 (34th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2024	Number of cases during same week in 2023	Total number of cases to date in 2024	Total number of cases to date in 2023	Difference between the number of cases to date in 2024 & 2023
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	00	00	00	00	00	00	00	01	00	01	01	48	64	-35.9 %
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Mumps	00	01	00	00	02	01	02	00	01	07	02	190	155	22.6 %
Measles	01	00	08	01	00	02	00	00	00	10	39	282	331	-14.8 %
Rubella	00	00	00	00	00	00	00	00	00	00	00	02	03	-33.3 %
CRS**	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Tetanus	00	00	00	00	00	00	00	00	00	00	00	05	06	-16.6 %
Neonatal Tetanus	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Japanese Encephalitis	00	00	00	00	00	00	00	00	00	00	00	06	02	200 %
Whooping Cough	00	00	00	00	00	00	01	00	01	02	01	39	06	550 %

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

Number of Malaria Cases Up to End of August 2024,
05
 All are Imported!!!

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@slt.net.lk. **Prior approval should be obtained from the Epidemiology Unit before publishing data in this publication**

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