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ASEAN BIODIASPORA VIRTUAL CENTER

H5N1 AVIAN INFLUENZA DISEASE UPDATE IN THE ASEAN REGION

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Korea Disease Control and Prevention Agency
In partnership with Canada
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Issue by Demand

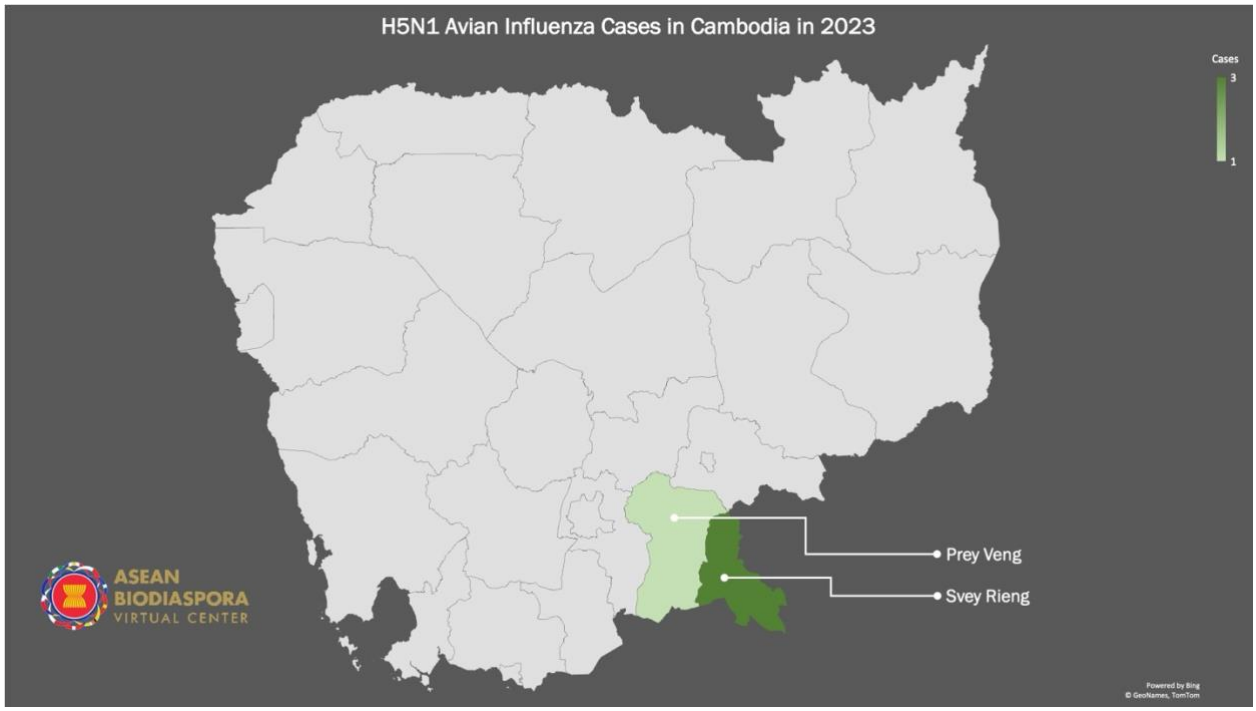
REPORT ON AVIAN INFLUENZA H5N1 INCIDENT IN CAMBODIA

SUBLOCATIONS AFFECTED: Prey Veng, Svay Rieng

EVENT DESCRIPTION

On 10-Oct-2023, the Ministry of Health Cambodia reported two unrelated confirmed human deaths caused by the avian influenza strain H5N1. This report provides an overview of the current situation, including surveillance data, epidemiological information, and additional context.

SURVEILLANCE DATA SINCE THE BEGINNING OF THE YEAR (as of 10-Oct-2023)



Breakdown of location of two most recent confirmed cases & deaths

- Kamchay Mear district (Prey Veng province): 1 case, 1 death
- Romeas Hek district (Svay Rieng province): 1 case, 1 death
- Laboratory-confirmed since the beginning of 2023: 4 cases (2 deaths)

The listed locations are neighboring districts within 30km of each other in southeastern Cambodia.

EPIDEMIOLOGICAL INFORMATION

Kamchay Mear district, Prey Veng province

- Case information: A 2-year-old female confirmed 09-Oct-2023 in the Chhmar Lot village, South Stong commune.
- Exposure: the individual had possible poultry exposure given the discovery of dead chickens in their residence upon investigation.

Romeas Hek district, Svay Rieng province

- Case information: 50-year-old male confirmed 07-Oct-2023 in the Mrak Teap village.
- Exposure: the patient had domestic poultry exposure in their home; however, the source of infection has not been confirmed.
- Animal outbreak: a mortality event affecting at least 50 poultry was reported within the village. This included the patient's residence, where dead poultry were shared amongst the village.

In both events, several outstanding/unknown pieces of information exist, including symptomology and clinical progression, genomic sequencing and viral clade of the pathogen, confirmed sources of infection, the number of close contacts of the patients and those exposed to the environment, and any connection between both events in source of infection or environmental factors.

ADDITIONAL CONTEXT

Prior outbreak: An outbreak of avian influenza H5N1 (clade 2.3.2.1c) was previously reported in February 2023 in the Prey Veng province with two confirmed cases. Viruses similar to the 2.3.2.1c clade have been circulating in the region in bird populations since 2014.

LATEST KNOWN MEASURES

Standard protocols are underway in both of the affected locations, including outbreak investigation, contact tracing, monitoring, and public education. Antiviral medication has been distributed to close contacts.

IMPORTATION LIKELIHOOD

Origin Location	Destination Location	Importation Likelihood	Importation Likelihood Date
Cambodia	Brunei Darussalam	0	11-Oct-23
	Indonesia	0	
	Lao PDR	1.00×10^{-4}	
	Malaysia	4.00×10^{-4}	
	Myanmar	1.00×10^{-4}	
	Philippines	1.00×10^{-4}	
	Singapore	3.00×10^{-4}	
	Thailand	1.30×10^{-3}	
	Vietnam	5.00×10^{-4}	

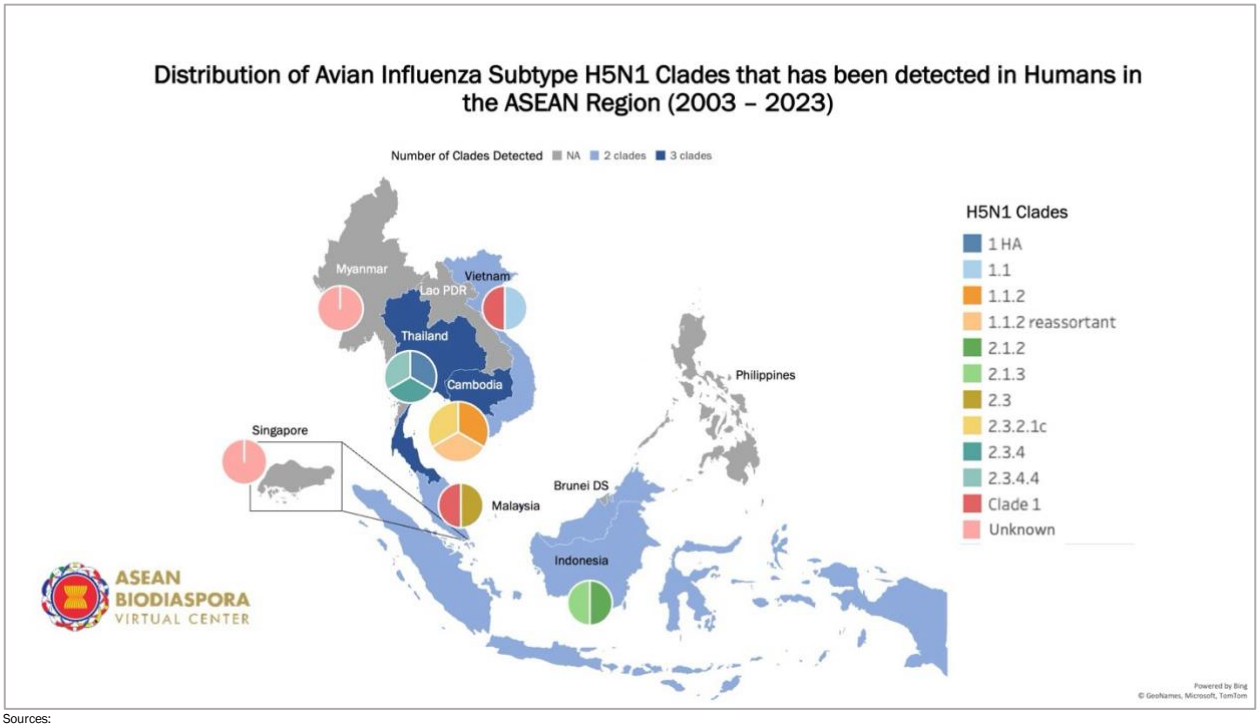
Source: Bluedot API

Importation of a disease indicates the probability of an infected patient (value between 0 and 1) arriving at the destination from origin with the disease in the next 30 days.

H5N1 CLADES SEQUENCED IN THE ASEAN REGION

Analyzing peer-reviewed journal articles on H5N1 cases in humans in the ASEAN Region since 2003, ABVC finds a diverse distribution of clades across different countries. Specifically, Cambodia has reported three (3) distinct clades in human cases, Indonesia has reported two (2), Malaysia has reported two (2), Myanmar one (labeled as unknown), Singapore has reported one (labeled as unknown), Thailand has reported three (3), and Vietnam has reported two (2). This diversity underscores the regional complexity of H5N1 infections and the importance of continuous surveillance and research.

Map of distribution of H5N1 clades detected in humans in the ASEAN Region from 2003-2023



Sources:
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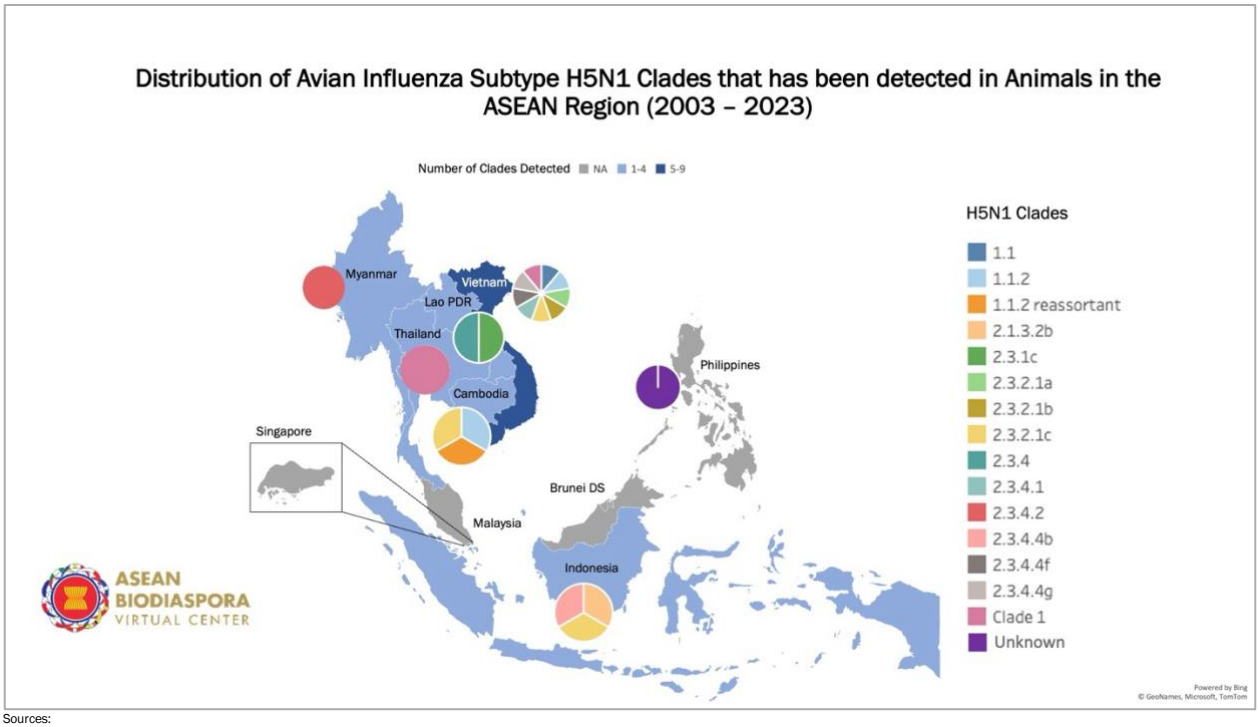
Vietnam: San Sorn et al., "Dynamic of H5N1 Virus in Cambodia and Emergence of a Novel Endemic Sub-Clade," *Infection, Genetics and Evolution* 15 (2013): 87–94, https://doi.org/10.1016/j.meegid.2012.05.013.

Upon a comprehensive analysis of peer-reviewed journal articles concerning H5N1 cases in animals within the ASEAN Region since 2003, ABVC finds a multifaceted distribution of clades spanning various nations. In particular, Cambodia has documented three (3) unique clades, Indonesia has reported three (3), Lao PDR has confirmed three (3), Myanmar has recorded one (1), the Philippines has reported one (1) unknown, Thailand has documented one (1), and Vietnam has reported nine (9) distinct clades. This wide-ranging diversity underlines the intricate regional landscape of H5N1 infections and underscores the utmost significance of sustained surveillance and dedicated research efforts.

Distribution of H5N1 clades detected in animals in the ASEAN Region from 2003-2023



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Lao PDR: Pilaipan Puthavathana et al., "Avian Influenza Virus (H5N1) in Human, Laos," *Emerging Infectious Diseases* 15, no. 1 (2009): 127–29, https://doi.org/10.3201/eid1501.080524.
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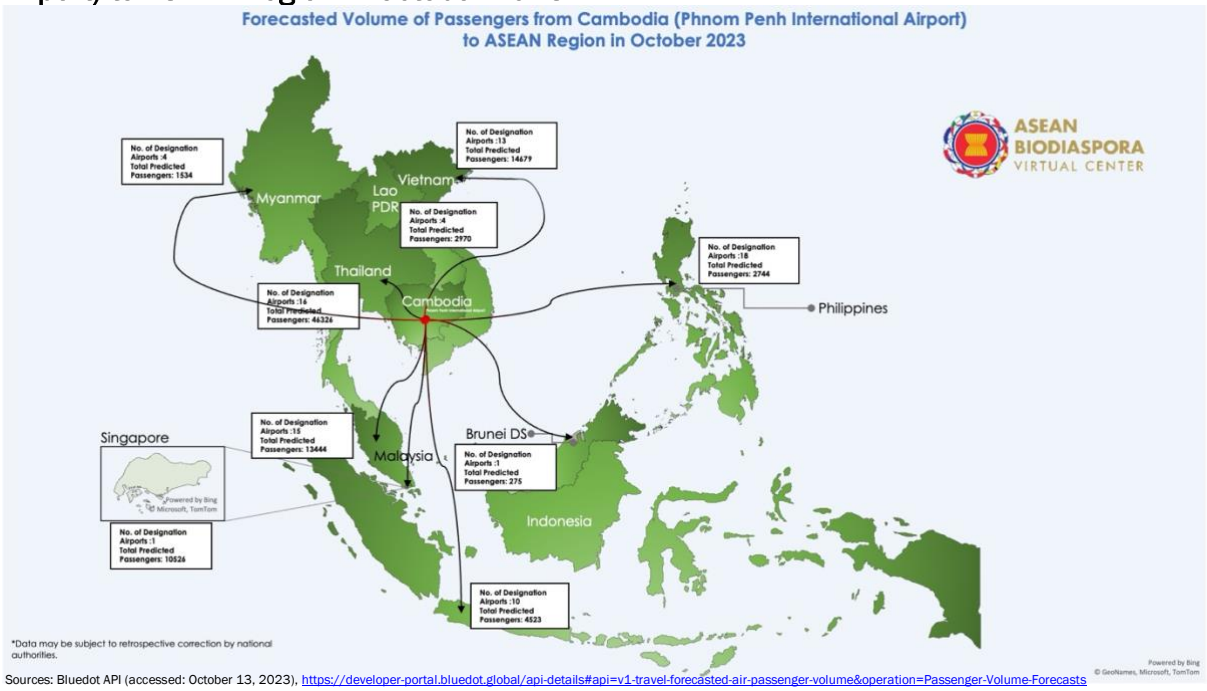
FORECASTED VOLUME OF PASSENGERS FROM CAMBODIA (Phnom Penh International Airport) to ASEAN Region in October 2023



Sources: Bluedot API (accessed: October 13, 2023), https://developer-portal.bluedot.global/api-details#api=v1-travel-forecasted-air-passenger-volume&operation=Passenger-Volume-Forecasts

The most forecasted volume of passengers from Phnom Penh International Airport (Cambodia) to other ASEAN Member States Airports in October 2023 are Cambodia to Thailand and Cambodia to Vietnam with 46,326 and 14,679 people respectively. Understanding and forecasting flight volumes play a pivotal role in the early detection, prevention, and management of infectious diseases. By integrating this data into disease surveillance systems, health authorities can better protect public health and reduce the risk of disease importation, especially in an increasingly interconnected and globalized world.

TABLE OF FORECASTED PASSENGERS FROM PHNOM PENH INTERNATIONAL AIRPORT TO AMS AIRPORTS

To provide a comprehensive breakdown of the airports to which passengers departing from Phnom Penh International Airport in Cambodia will arrive within other ASEAN Member States, the subsequent table offers a detailed overview of the airport names and the total number of passengers arriving at each respective airport.

AMS	Airport Name	Total Passengers
Brunei Darussalam	Brunei Airport	275
Indonesia	Soekarno-Hatta International Airport	3,254
	Ngurah Rai International Airport	846
	Sultan Hasanuddin International Airport	106
	Medan Kuala Namu Airport	62
	Adisumarmo International Airport	53
	Komodo Airport	45
	Yogyakarta International Airport	45
	Sultan Syarif Kasim II International Airport	37
	Juanda International Airport	26
	Sultan Mahmud Badaruddin II Airport	25
	Tabing Airport	21
	Lombok International Airport	3
Lao PDR	Wattay International Airport	2,878
	Luang Prabang International Airport	86
	Pakse International Airport	5
	Louang Namtha Airport	1
Malaysia	Kuala Lumpur International Airport	12,221
	Penang International Airport	381
	Kota Bharu Airport	187
	Langkawi International Airport	181
	Jesselton	179
	Johore Bharu / Senai	166
	Kuching International Airport	62
	Miri Airport	27
	Sultan Abdul Halim Airport	20
	Sibu Airport	7
	Bintulu Airport	5
	Sultan Mahmud Airport	3
	Labuan Airport	2
	Sultan Haji Ahmad Shah Airport	2
	Tawau Airport	1
Singapore	Singapore Changi Airport	10,526
Myanmar	Yangon International Airport	1,497
	Mandalay International Airport	33
	Kalay Airport	3
	Akyab	2

AMS	Airport Name	Total Passengers
Vietnam	Tan Son Nhat International Airport	9,157
	Noi Bai International Airport	4,640
	Da Nang International Airport	495
	Cat Bi International Airport	140
	Phu Bai International Airport	77
	Phu Cat Airport	54
	Cam Ranh International Airport	39
	Lien Khuong Airport	24
	Phu Quoc International Airport	22
	Vinh Airport	21
	Tho Xuan Airport	6
	Buon Ma Thuot Airport	2
	Pleiku Airport	2
Thailand	Suvarnabhumi Airport	30,706
	Don Mueang International Airport	12,919
	Phuket International Airport	1,168
	Chiang Mai International Airport	727
	Mae Fah Luang-Chiang Rai International Airport	326
	Tha Akatsayan Hat Yai	179
	Krabi Airport	131
	Koh Samui Airport	94
	Khon Kaen Airport	30
	Sukhothai Airport	17
	Udon Thani International Airport	10
	Ubon Ratchathani Airport	6
	Trat Airport	4
	Lampang Airport	3
	Ranong Airport	3
	Sanam Bin Mae Sot	3
Philippines	Ninoy Aquino Manila International Airport	2,441
	Mactan-Cebu International Airport	103
	Francisco Bangoy International Airport	54
	Sayak Airport	22
	Tacloban Airport	21
	Laguindingan International Airport	20
	Dumaguete-Sibulan Airport	19
	Catarman Airfield	13
	Godofredo P. Ramos Airport	11
	Puerto Princesa Airport	9
	Bacolod Silay International Airport	8
	Francisco B. Reyes Airport	7
	Tagbilaran Airfield (historical)	5
	Iloilo International Airport	4
	Calbayog	2
	Clark International Airport	2
	Roxas	2
	Zamboanga International Airport	1

Reference:

Bluedot. (2023, October 11). *Home*. BlueDot Developer Portal. https://developer-portal.bluedot.global/.

Bluedot. (2023, October 13). *Home*. BlueDot Developer Portal. https://developer-portal.bluedot.global/api-details#api=v1-travel-forecasted-air-passenger-volume&operation=Passenger-Volume-Forecasts

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