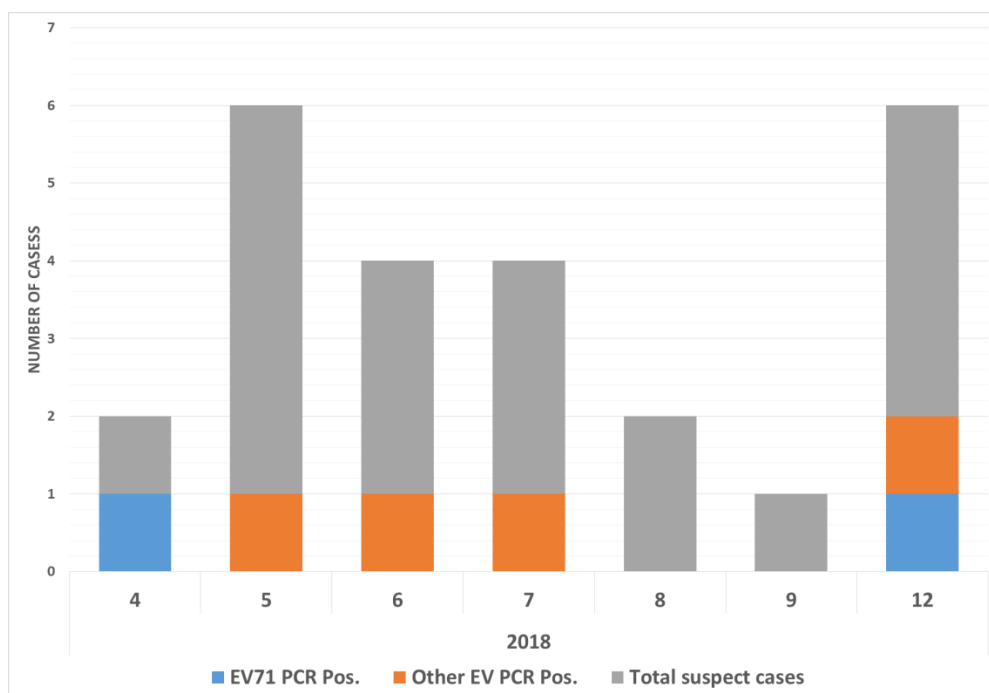




Enterovirus Surveillance Report
January – December 2018

Cambodia

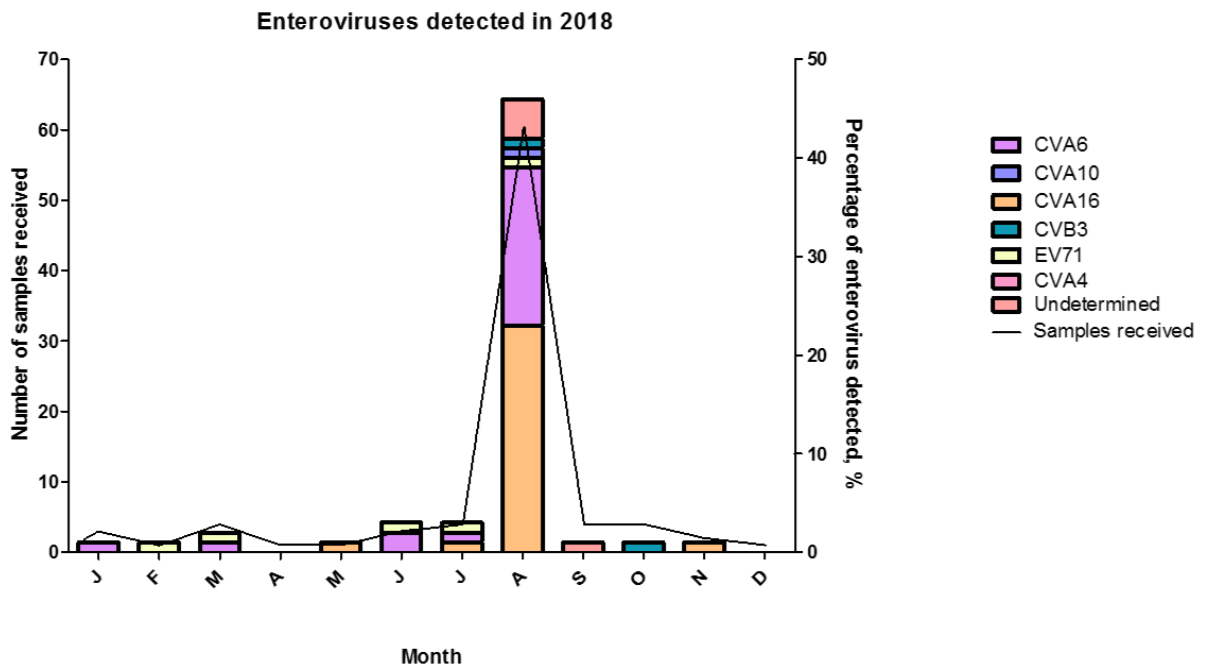
In 2018, Institut Pasteur in Cambodia has received 71 samples from 19 patients including throat and rectal swabs, CSF or blood sample from Kuntha Bopha hospital. By using real time RT-PCR, EV-A71 was detected only in 2 cases and 4 cases were positive for other Enterovirus. Genotyping was conducted on the 4 EV positive samples using CODEHOP: 1 EV-B82, 1 ECHO9, 1 CV-A1 and 1 EV-C96. 2018 was a low epidemic year compared to 2012, 2014 and 2017. Although the enterovirus surveillance data was only from Kuntha Bopha hospital which is based in Phnom Penh, and might not represent the circulation of enterovirus in different region of the country, patients across the country seek for health care in this large and free of charge pediatric hospital.



Malaysia

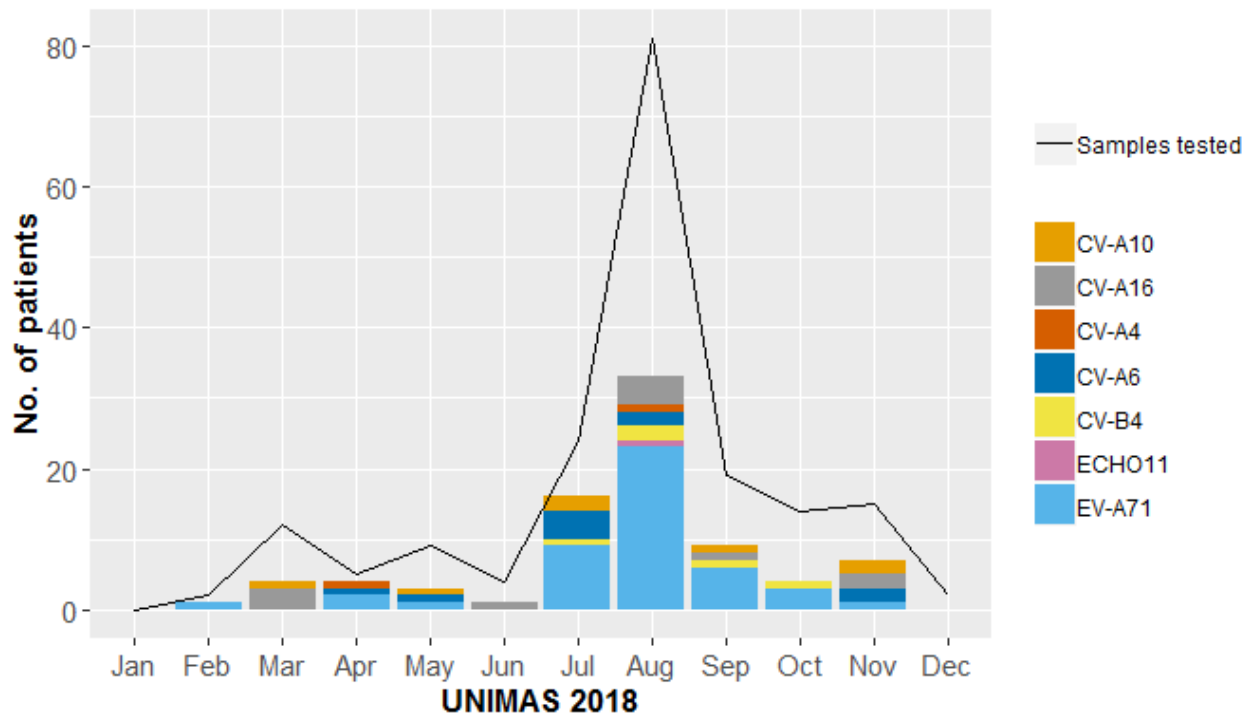
Malay Peninsula

In 2018, University of Malaya has collected 89 samples from clinically suspected HFMD patients, and 60 samples (67.4%) were positive using CODEHOP-PCR. Sequencing results identified 26 CV-A16, 21 CV-A6, 5 EV-A71, 1 CV-A10 and 2 CV-B3.



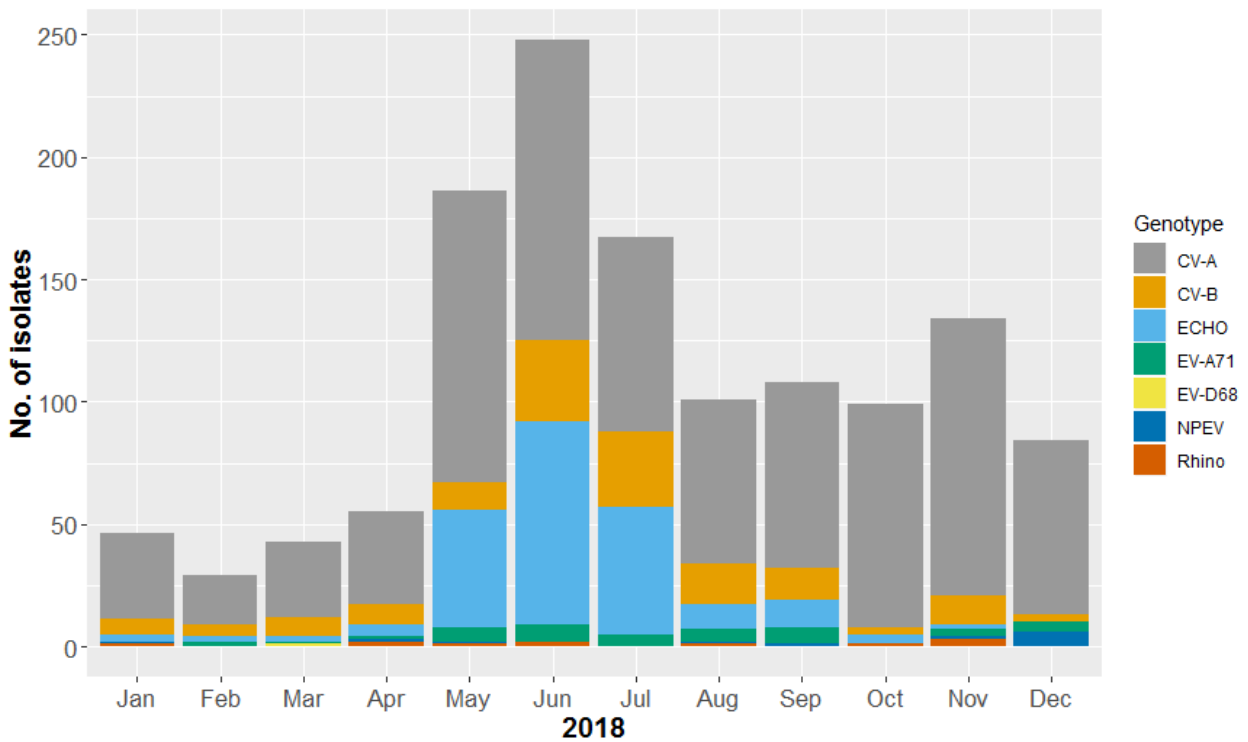
Sarawak

In 2018, the Institute of Health and Community Medicine, Universiti Malaysia Sarawak (UNIMAS) has tested 187 samples from 191 HFMD hospitalized cases. Sequencing analysis based on VP1-CODEHOP has shown: 46 (24.6%) EV-A71, 11 (5.90%) CV-A16, 7 (3.74%) CV-A10, 10 (5.35%) CV-A6, 2 (1.07%) CV-A4, 5 (2.67%), CV-B4 and 1 (0.53%) ECHO11, with a clear peak in August. Most of EV-A71 belong to genotype B5. Some of the EV-A71 isolated have been shipped to NHRI, Taiwan for genome sequencing.



Taiwan

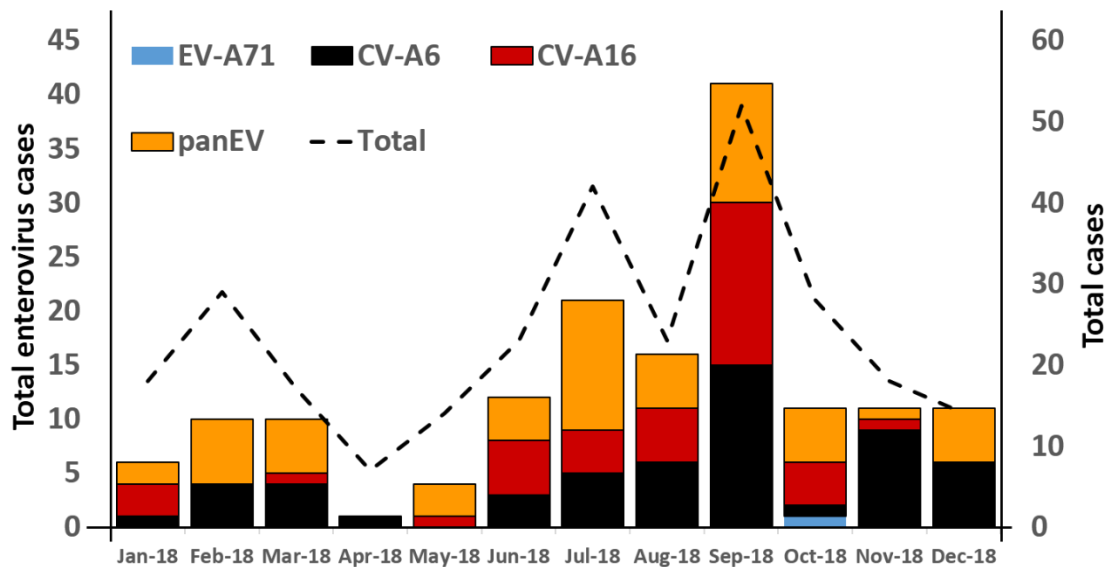
Based on Taiwan CDC surveillance report in 2018, a total of 1300 enterovirus (EV) isolates have been identified including 36 with severe complications. Among the 36 severe cases, 12 (33.3%) were ECHO11, 8 (22.2%) were EV-A71, and the rest were CV-A4, CV-A9, CV-A10, CV-A16, CV-B1, CV-B2, CV-B3, CV-B5 and EV-D68 infections. A total of 8 deaths have been reported, seven were related to ECHO11. Overall, Taiwan experienced more severe EV epidemics in 2018 than in 2017 (24 severe cases and 1 fatal case).



Thailand

In 2018, 285 suspected HFMD patients had been reported to Chulalongkorn University, Faculty of Medicine. Throat swab specimens were collected from these patients and possible causative pathogens were identified by using real-time RT-PCR strategies (EV-A71, CV-A6, CV-A16 and pan enterovirus). Samples tested positive for EV-A71 were subjected to the full-length VP1 gene amplification using a conventional RT-PCR and nucleotide sequencing to identify EV-A71 genotypes. Positive samples for pan EV were subjected to a conventional RT-PCR with CODEHOP degenerate primers to identify enterovirus serotypes other than EV-A71, CV-A6, and CV-A16.

In 2018, CV-A6 comprised the most frequently found enterovirus (19.3%), followed by CV-A16 (13.7%) and EV-A71 (0.4%). The only one EV-A71 was genotype C4. Among other enteroviruses, CV-A10 accounted for 5.6% (16/285), followed by 4.6% CV-A5 (13/285) and 1.1% ECHO21 (3/285). Minor genotypes were 0.7% (2/285) of ECHO11 and ECHO25. One positive sample for CV-A2, CV-A9, CV-B4, CV-B5 and ECHO9 were found, with the remaining 6.0% (17/285) positive for pan-enterovirus being untypable.





Vietnam

In 2018, there have been a total of 242 HFMD-related inpatients reported in Children's Hospital no. 1, Ho Chi Minh City (HCMC). Throat swabs were collected for enterovirus isolation using RD cells. Among the 242 samples, 24 (10%) were EV positive including 19 severe cases (stage 2A or higher). EV-A71 were detected in 10 cases. These samples will be shipped to NHRI, Taiwan for molecular tests.

In Vietnam, the distribution of HFMD cases and deaths vary by region. Over 80% of cases and deaths were in Southern Vietnam in 2018. Among EV-A71-associated HFMD cases which admitted hospitals in Southern Vietnam and was tested by Pasteur Institute in Ho Chi Minh City in 2018, the presence of EV-A71 were higher in the severe cases. Overall, the majority of EV infections were CV-A10, and the rest were CV-A6, CV-A16 and other EVs. the predominant genotype was C4 and minor genotypes were B5 and C5.

