P-23

Seroprevalence of Zika in Malaysia

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Introduction

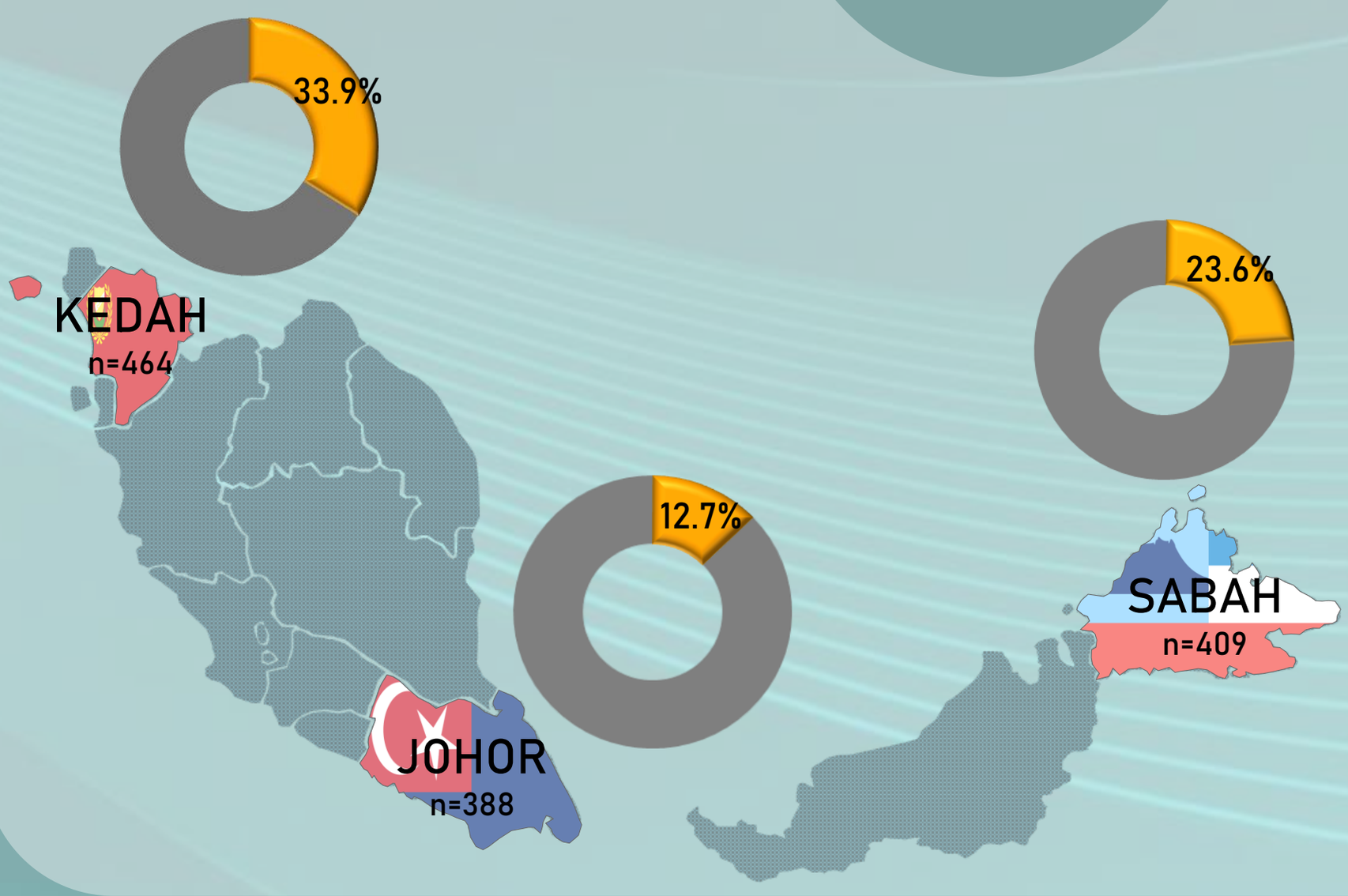
- Zika virus (ZIKV) is an emerging arthropod-borne virus in many parts of the world[1]
- Like the dengue and Chikungunya viruses, ZIKV is a member of the *Flaviviridae* family and transmitted by the same vectors (*Aedes* mosquitoes)
- Discovery of links between ZIKV infection with microcephaly and Guillain-Barre syndrome triggered alarm bells[2]
- Ability of ZIKV to adapt to urban cycle in dengue endemic areas suggest that Zika incidence is underestimated[1]
- This study examined the seroprevalence of Zika in three Malaysian states: Kedah, Johor and Sabah

Aedes aegypti

Materials and methods

- Population-based serosurvey conducted in Johor, Sabah and Kedah between April to July 2017 according to WHO protocol[3]
- Blood samples were tested for presence of antibodies against Zika virus (ZIKV) IgM by anti-ZIKV and IgG ELISA and respondents interviewed using a structured questionnaire
- ZIKV seropositivity was based on either positivity for IgM or IgG or both
- ZIKV seroprevalence estimated based on seropositivity rate with (-36%) correction for DENV cross-reactivity[4]
- Multiple logistic regression analysis was used to identify risk factors for ZIKV seropositivity

Results



- Overall seroprevalence of ZIKV was estimated at 24.1%
- Dengue IgG seropositive rate lowest in Kedah and dengue seropositivity was closely associated with Zika seropositivity in Johor and Sabah, but not in Kedah
- Age 18 years and above and “other” ethnicity were significantly associated with higher odds of ZIKV seropositivity
- Self-reported history of dengue fever, wearing long trousers or sleeves and having screened windows at home were associated with lower odds of Zika seropositivity

Discussion/Conclusion

- Our findings suggest that ZIKV is co-circulating with other flaviviruses in Malaysia. Dengue endemic countries are expected to have high Zika infection rates because both ZIKV and DENV have a common vector
- The high seroprevalence in Kedah could be due to cross border transmission as people travel to and from Thailand where Zika has been shown to be endemic
- ZIKV transmission is most likely influenced by the mosquito vector activity
- Risk factors to Zika are similar to dengue, thus dengue protective measures may also protect against Zika
- Limitation: The plaque reducing neutralizing test (PRNT), the gold standard test should be used instead of ELISA which has low specificity due to cross-reactivity with other flaviviruses. However, we have adjusted the seroprevalence with a correction factor to account for this.

References

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