Multi-Systemic Risks and Disease Burdens of Post-Acute Sequelae of Dengue at 2 Years

Jue Tao Lim[1,3], Ian Wee Liang En[2,3], Jo Yi Chow1,Wei Zhi Tan[3]
[1]Lee Kong Chian School of Medicine [2]Singapore General Hospital, [3]National Centre for Infectious Diseases

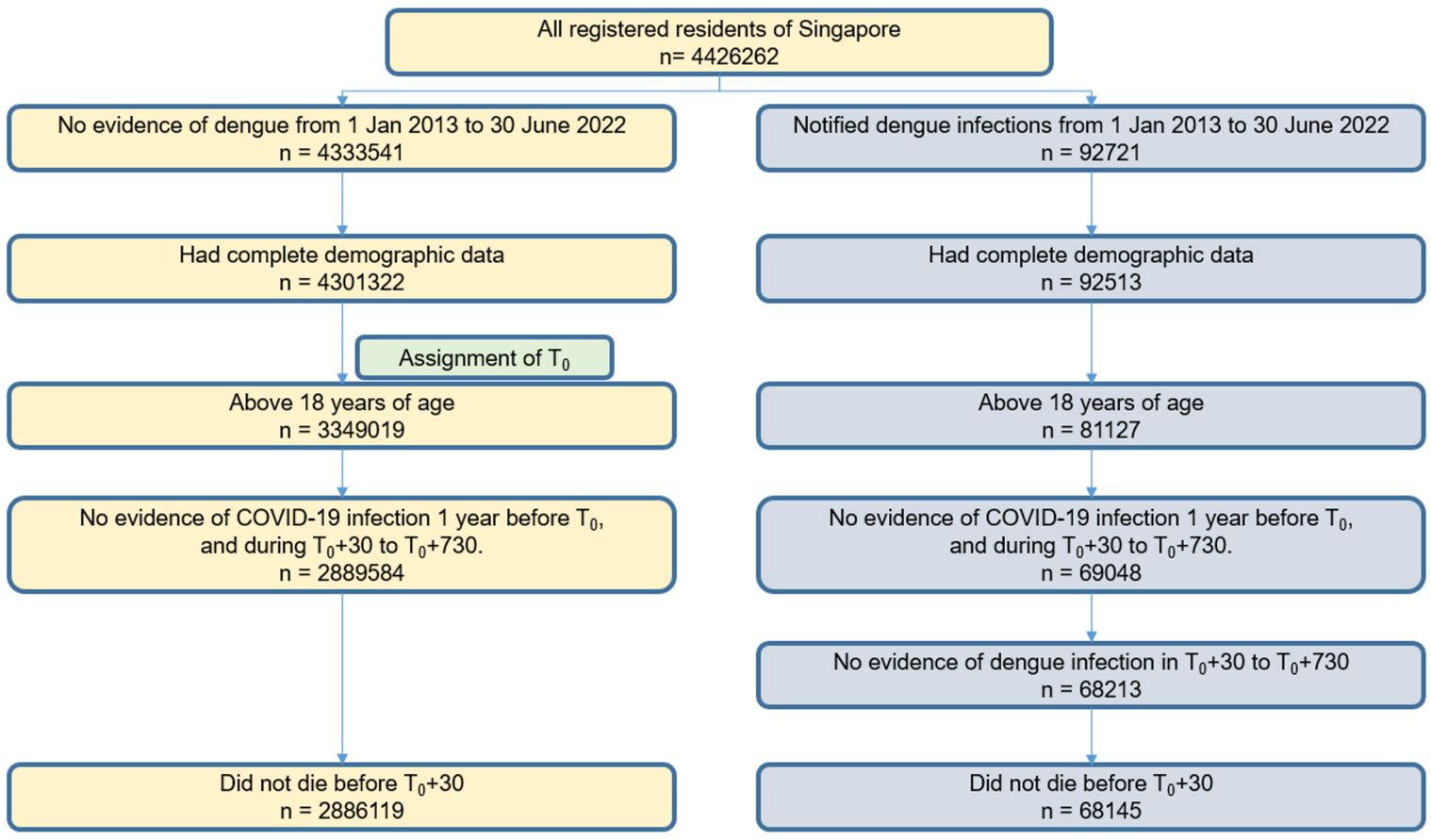
APCCMI2025 BANGKOK
RES-090

- Dengue has one of the highest burden amongst all vector-borne diseases globally
- Long-term sequelae and post-infective syndromes following dengue infections not well characterized
- Assessment of dengue burdens typically accounts only for morbidity/mortality in acute phase
- We establish (**1**) population-wide prevalence of post-acute sequelae (**2**) excess healthcare utilization following dengue infection (**3**) Excess burdens of dengue due to post-acute sequelae

Data and Cohort Construction

Data
National dengue surveillance database Administrative claims data (outcomes, utilization)

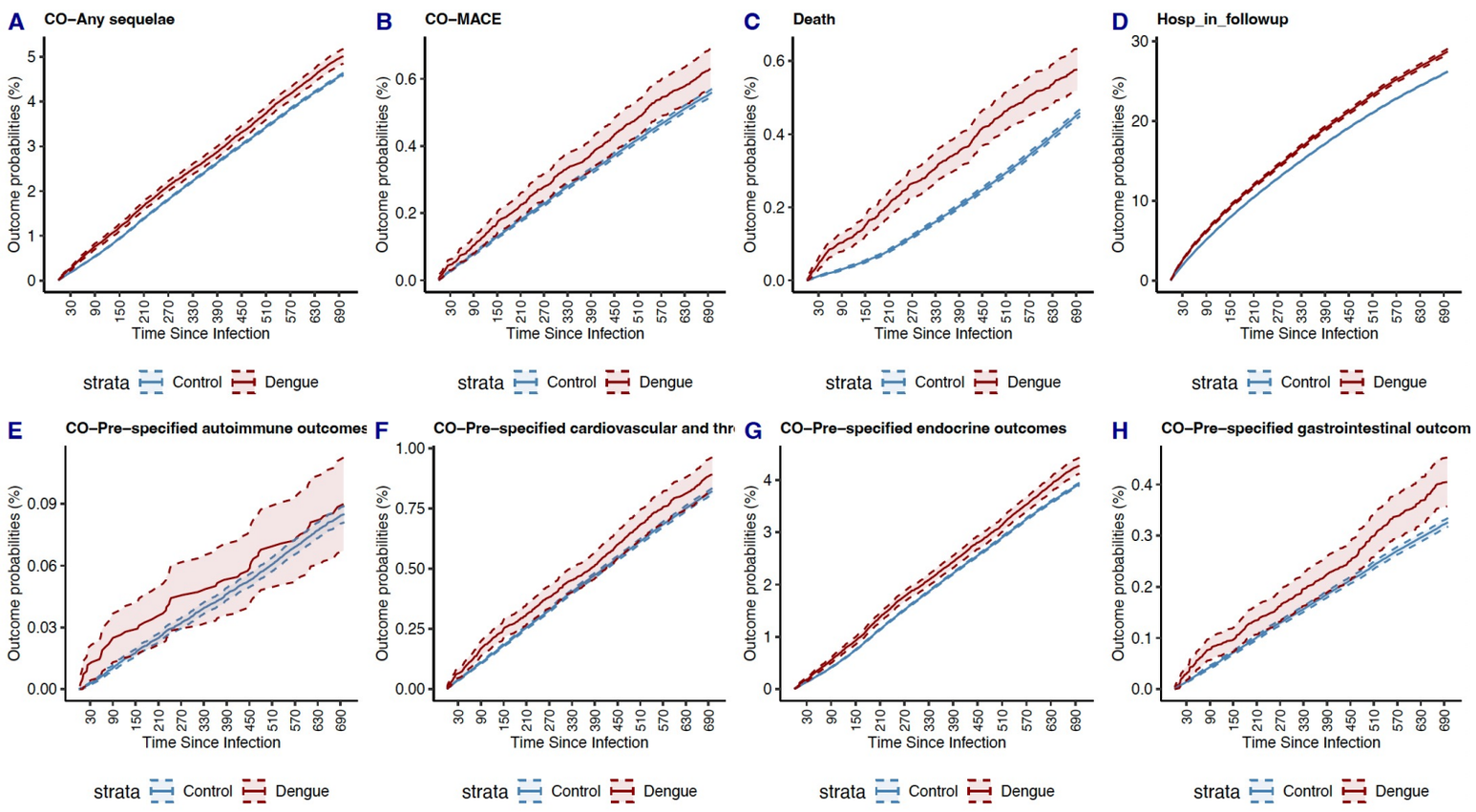
Cohort Construction
73,851 dengue cases v. 4,301,798 population-based controls No evidence of dengue/COVID-19 infection 300 days before/after enrollment Enrollment time of controls based on infection date of cases



Analysis

- Competing risk regression with overlap weights employed
- Overlap weights to balance demographics, socioeconomic status, prior comorbidities between comparator groups
- Outcomes: multi-organ sequalae/healthcare utilization 30-300 days following dengue (ICD-codes)
- Computed the **excess disability-adjusted life-years** (DALYs) **due to dengue**: attributable number of complications due to dengue (weighted excess burdens per person day) x average DALYs per incident case

Risk of post-acute complications 2 years post-infection



- 207.5% higher risk of all-cause mortality,
- 122.1% higher risk of all-cause hospitalization
- 19.1% higher risk of any sequelae
- 45.7% increase in cardiovascular sequelae
- 28.6% increase in neuropsychiatric sequelae
- 41.7% increase in gastrointestinal sequelae
- 129.5% increase in renal sequelae

Excess burdens of dengue due to post-acute sequelae

- Additional 257 DALYs per year due to post-acute sequelae from 2017–2023
- Primarily due to neurological outcomes
- Previous disease burdens estimates of dengue in Singapore may have **underestimated the true population-level impact of dengue on healthcare systems by around 13.29% – 36.98%**