Top 20 Countries with Dengue Cases and Deaths: How Are They Different from Other Countries?

Follow some structure from this article: <https://doi.org/10.1016/j.ijregi.2023.01.011>

Duration:

Option 1: 2019-2024

Option 2: 2014 – 2024

Aim: To understand the factors driving transmission and fatalities caused by dengue virus in top 20 countries with cases and deaths and rest of the world

**Methods:**

Top 20 countries with dengue:

**We used WHO’s global surveillance database** to identify the top-20 countreis in the world with number of denue cases for the period 2019-2024

**Results:**

**Fig 1a: The 20 countries with the highest dengue cases and CFR for the period 2014-2024**



**Fig 1b: The 20 countries with the highest dengue cases and CFR for the period 2019-2024**



**Table 1: Average annual number of dengue cases, deaths, Case-fatality rate, and deaths/M in top 20 counties and rest of the world (2014-2024)**

|  |  |  |
| --- | --- | --- |
|  | Top 20 countries | Rest of the world |
| Annual cases (mean) | 1820783.10 | 19057.10 |
| Annual deaths (mean) | 1270.35 | 8.04 |
| CFR (%) | 0.13 | 0.36 |
| Deaths/M | 22.67 | 0.05 |

**Table 1: Average annual number of dengue cases, deaths, Case-fatality rate, and deaths/M in top 20 counties and rest of the world (2019-2024)**

|  |  |  |
| --- | --- | --- |
|  | Top 20 countries | Rest of the world |
| Annual cases (mean) | 1408522 | 11954.92 |
| Annual deaths (mean) | 997.4 | 6.35 |
| CFR (%) | 0.13 | 0.37 |
| Deaths/M | 18.34 | 0.09 |

**Table 2: Factors associated with number of dengue cases/M, CFR and Deaths/M in top 20-countreis of dengue cases and rest of the world (2014-2024)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Top 20 Countries | | | Rest of the world | | |
|  | Cases/M | Deaths/M | CFR | Cases/M | Deaths/M | CFR |
| Annual average Temp |  |  |  |  |  |  |
| Annual total rainfall |  |  |  |  |  |  |
| Humidity |  |  |  |  |  |  |
| Population density |  |  |  |  |  |  |
| GDP |  |  |  |  |  |  |
| Obesity |  |  |  |  |  |  |

**Table 2: Factors associated with number of dengue cases/M, CFR and Deaths/M in top 20-countreis of dengue cases and rest of the world (2019-2024)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Top 20 Countries | | | Rest of the world | | |
|  | Cases/M | Deaths/M | CFR | Cases/M | Deaths/M | CFR |
| Annual average Temp |  |  |  |  |  |  |
| Annual total rainfall |  |  |  |  |  |  |
| Humidity |  |  |  |  |  |  |
| Population density |  |  |  |  |  |  |
| GDP |  |  |  |  |  |  |
| Obesity |  |  |  |  |  |  |

**Fig 2a: Maps of dengue cases/M, deaths/M, and CFR in the world (2019-2024)**

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| Map of global countries with Dengue cases/M |
| Map of global countries with dengue deaths/M |
| Map of global countries with dengue CFR |

**Fig 2b: Maps of dengue cases/M, deaths/M, and CFR in the world (2014-2024)**

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| --- |
| Map of global countries with Dengue cases/M |
| Map of global countries with dengue deaths/M |
| Map of global countries with dengue CFR |

**Fig 3: Time series model**

1. Observed and predicted monthly reported Dengue cases/M using the Simple Exponential Smoothing (SES), and ARIMA model in Top-20 countries with dengue cases
2. Observed and predicted monthly reported Dengue cases/M using the Simple Exponential Smoothing (SES), and ARIMA model in rest of the world

|  |
| --- |
| Top 20 countries : Observed , SES and ARIMA |
| Rest of the world : Observed, SES and ARIMA |