Health impacts on populations of Yangon and Mandalay caused by PM2.5

- Annual PM2.5 data of Yangon and Mandalay are collected from EANET, World bank, IQair.
- In Yangon and Mandalay, emissions from vehicles and industries are the major source of air pollution (PM2.5) and also biomass burning is a part of air pollution.

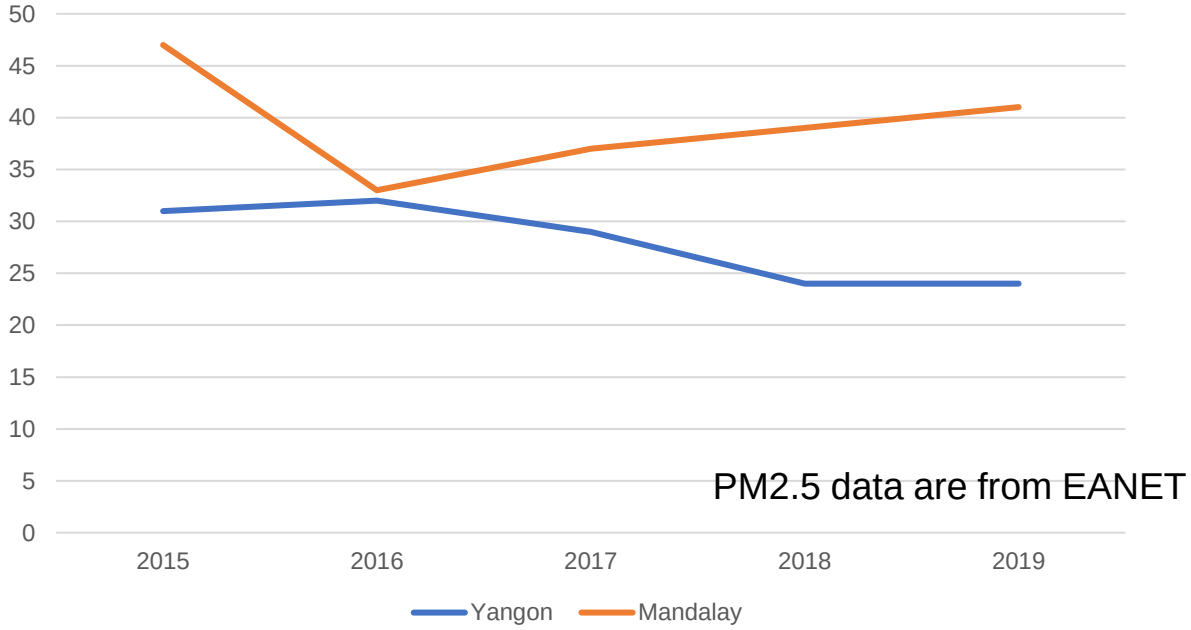


Fig 1. PM2.5 concentration(ug/m^3)

AirQ+

AirQ+ software is used to estimate the health impact of PM2.5

- AirQ+ is a software tool from WHO for quantifying the health burden and impact of air pollution.
- AirQ+ includes methodologies to assess the impacts of short- and long-term exposure to ambient air pollution
- We focused on long term effect of PM2.5

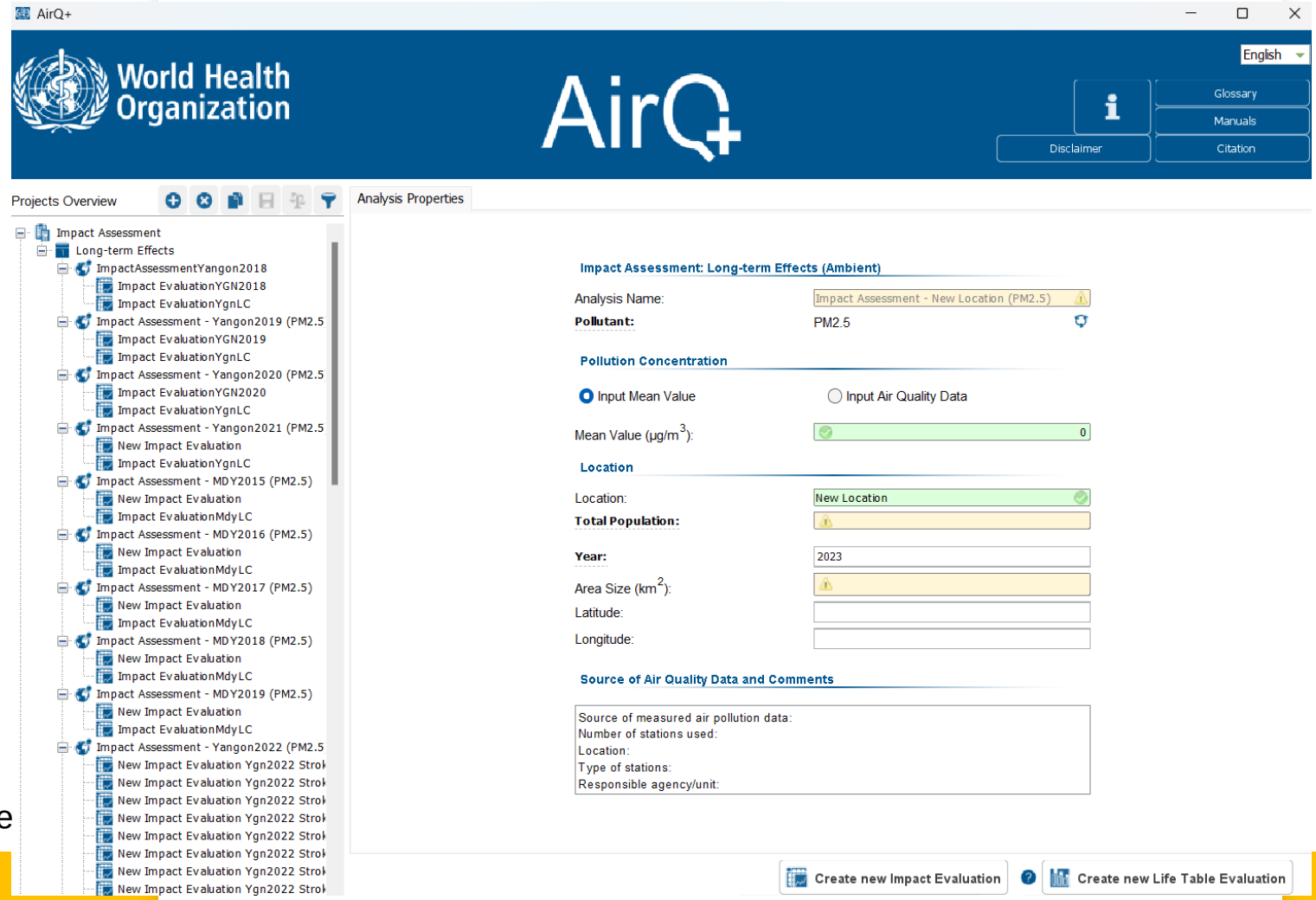
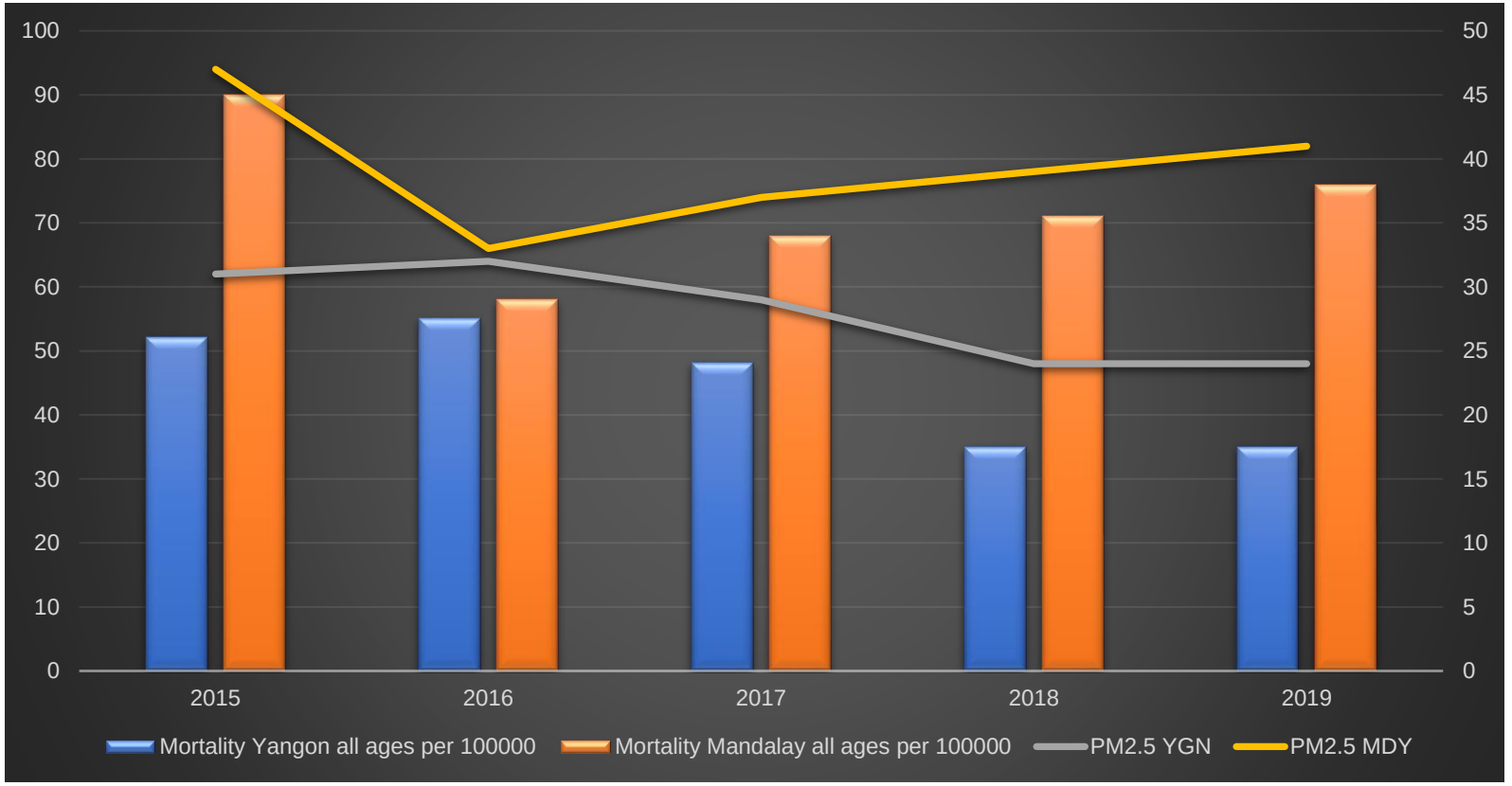


Fig 2. AirQ+ software interface

All causes mortality in Yangon & Mandalay due to PM2.5

- Increase in PM2.5 concentration is directly proportional to increase in mortality rate
- PM2.5 concentration in Mandalay > PM2.5 concentration in Yangon



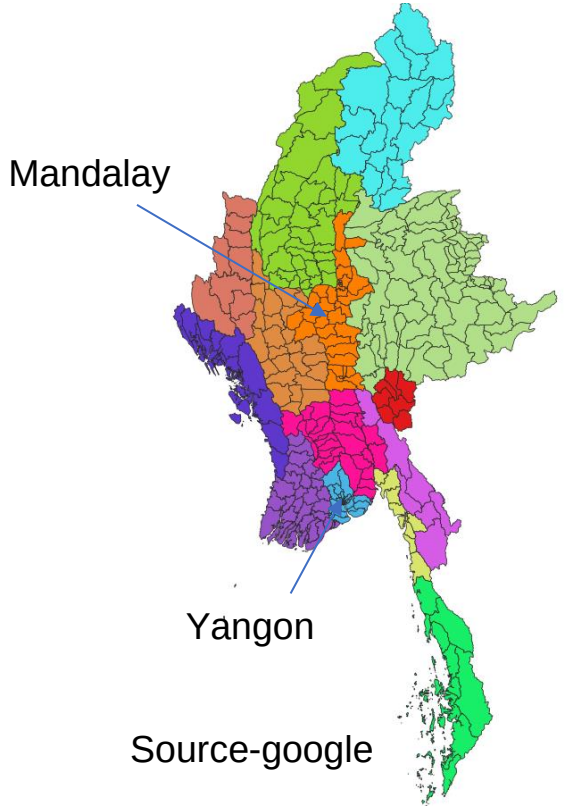
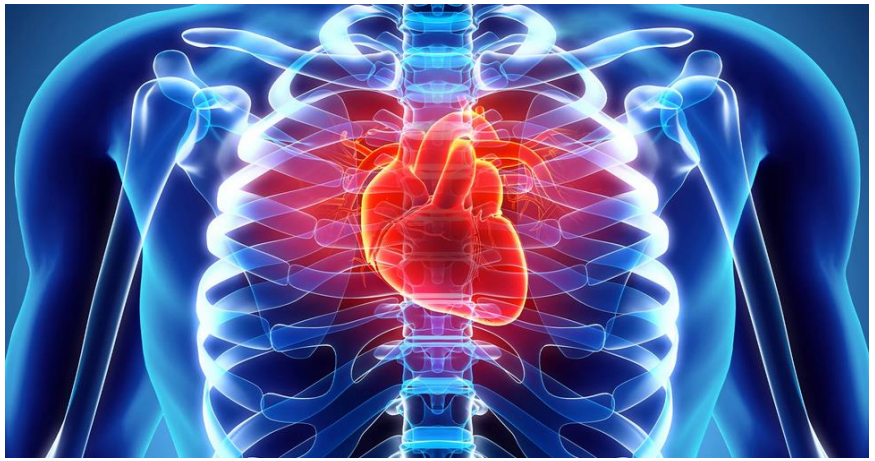


Fig 3. Comparison between PM2.5 concentration and mortality per 100,000 people

Cardiovascular diseases due to PM2.5

- Previous studies have shown that exposure to fine particulate matter (PM2.5) increases the risk of cardiovascular events and death
- long-term exposures (>1year) posed a greater risk to cardiovascular mortality than short-term exposures
- Among cardiovascular diseases, impact of Ischemic Heart Disease (IHD) and Stroke are estimated in our research.

Source-google



Mortality rate due to IHD and Stroke in Yangon

- We have estimated the mortality cases of IHD and stroke due to PM2.5 in Yangon per 100,000 people from 2012 to 2019
- 5 years age range(25-29 to 85-89)

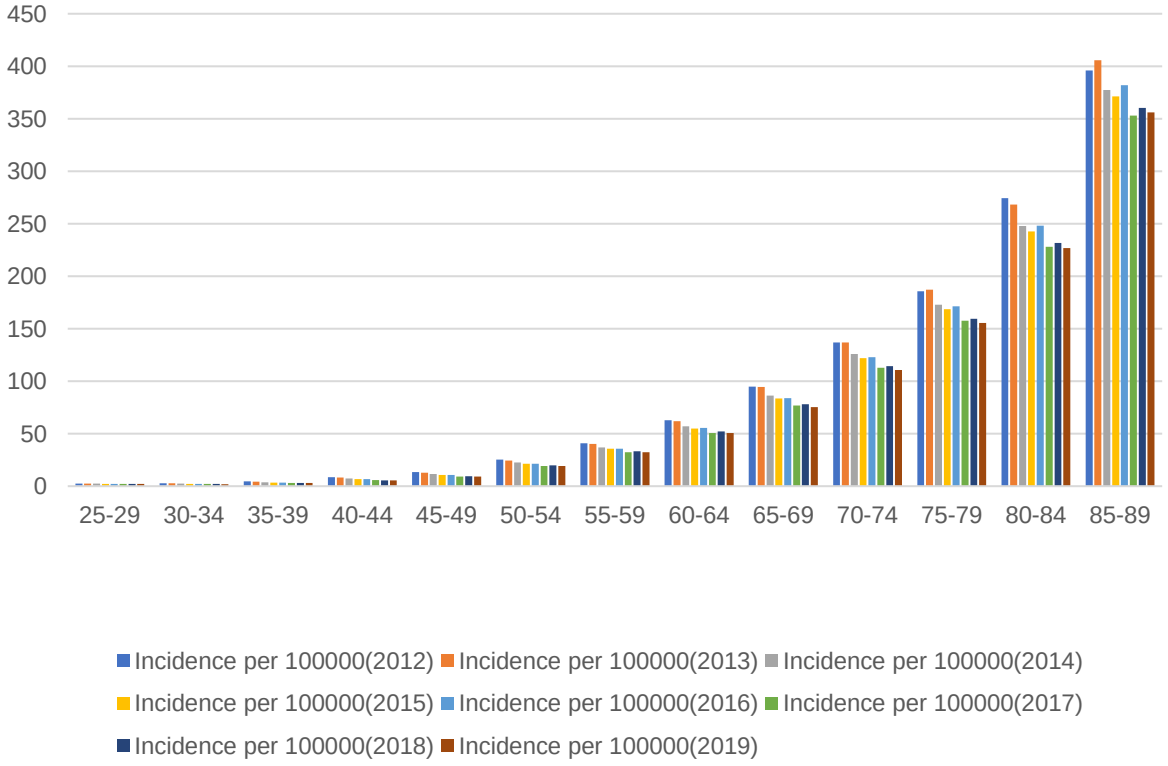


Fig 4. Estimate number of death per 100000 due to IHD

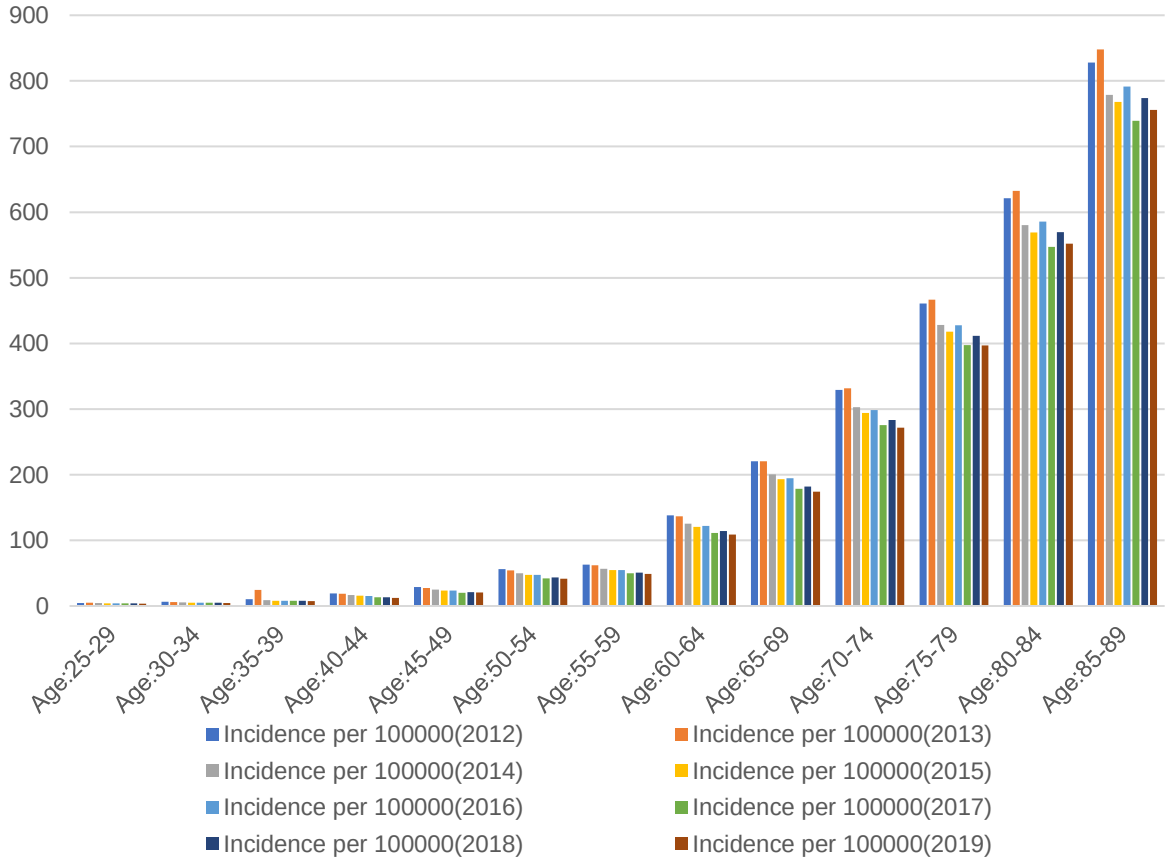


Fig 5. Estimate number of death per 100000 due to Stroke

Mortality rate due to IHD and Stroke in Mandalay

- Estimated mortality cases of IHD and stroke due to PM2.5 in Mandalay per 100,000 people from 2015 to 2019
- The older people had higher mortality rate by IHD and Stroke due to PM2.5 than younger age group.

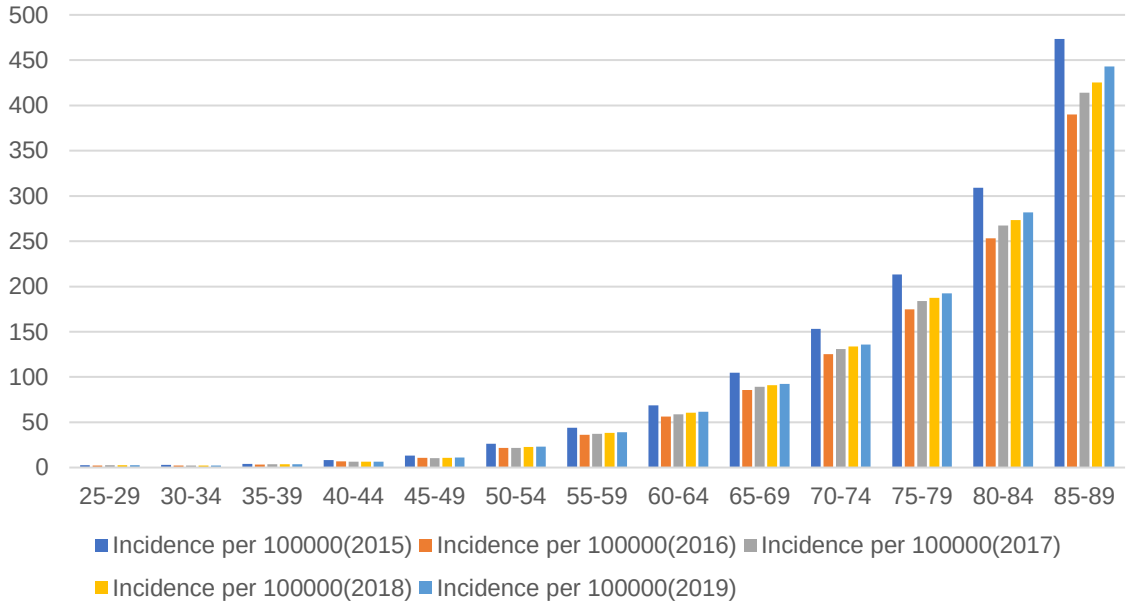


Fig 6. Mortality of IHD per 100000 due to PM2.5

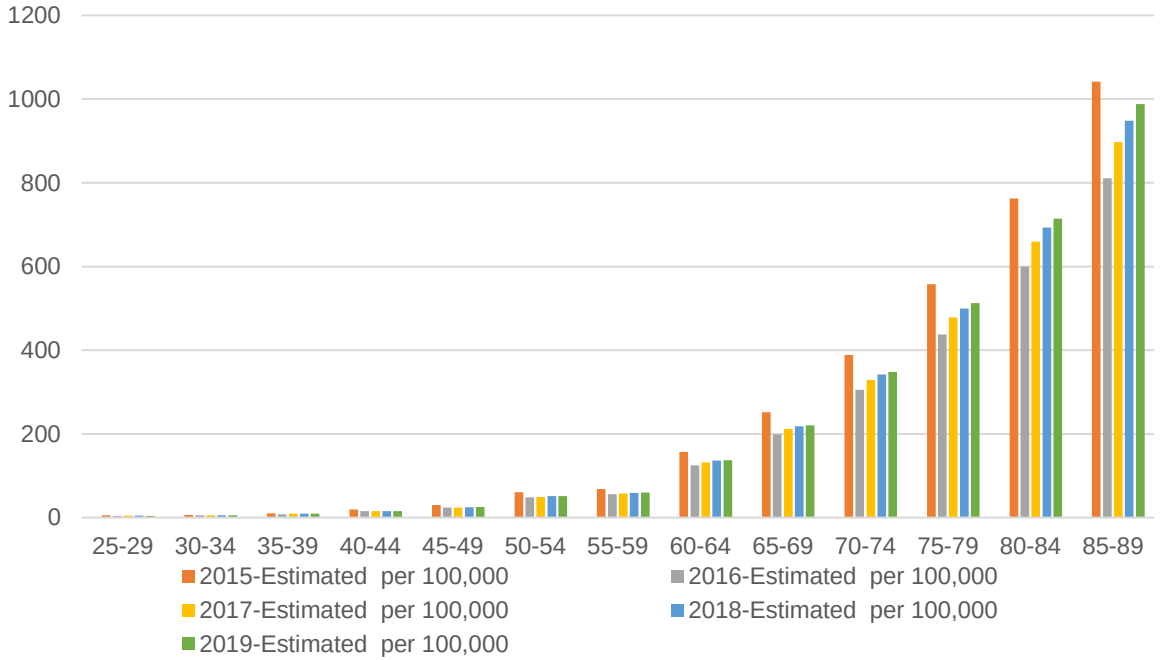


Fig 7. Mortality of stroke per 100000 due to PM2.5

PM2.5 → serious threat to human health

Therefore, it is important to limit PM2.5 concentration in our atmosphere