

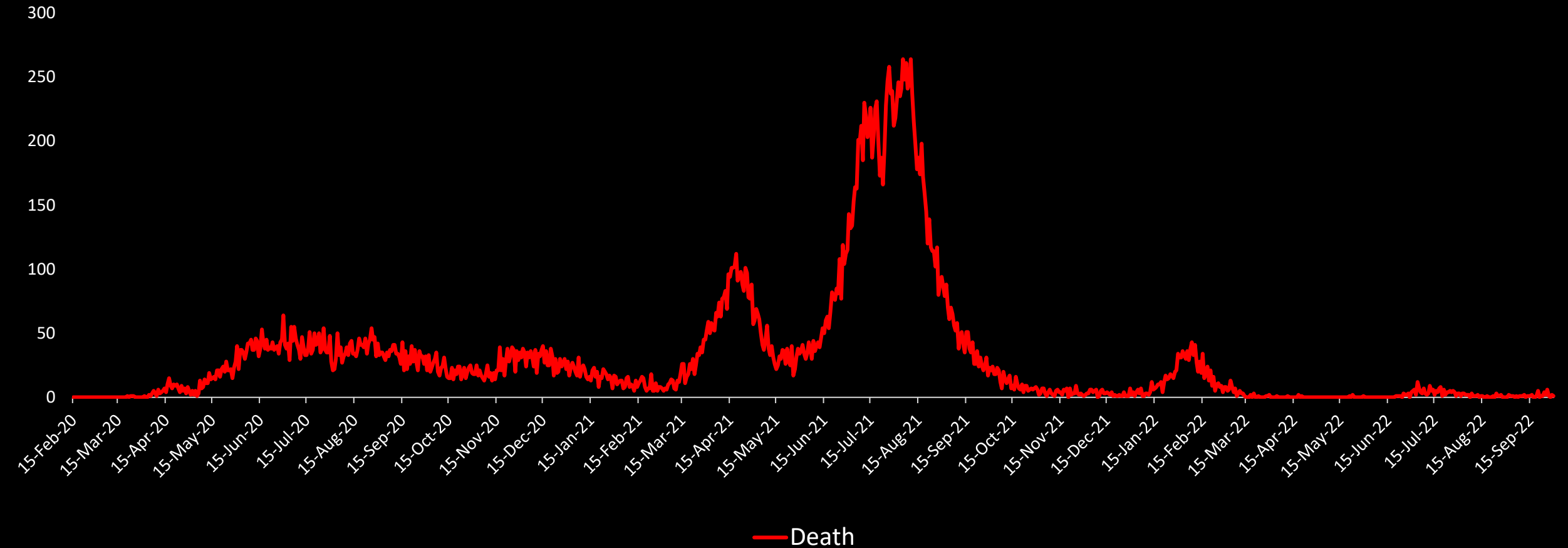
***Estimating excess mortality during COVID-19 pandemic in Bangladesh-
findings from a household survey in a rural sub-district***

BILL & MELINDA
GATES *foundation*



COVID-19 death in Bangladesh: official estimates

29,446



COVID-19 death in Bangladesh: official estimates

29,446

Is this official number a true reflection of all the deaths that happened **due to COVID** or **because of the pandemic**?

Deaths due to COVID-19 disease is linear to report



Gets sick



Gets tested



Hospitalised



Dies in hospital



COVID reported

The overall effect of the pandemic is more complex

Economic disruption



Communication hindrance

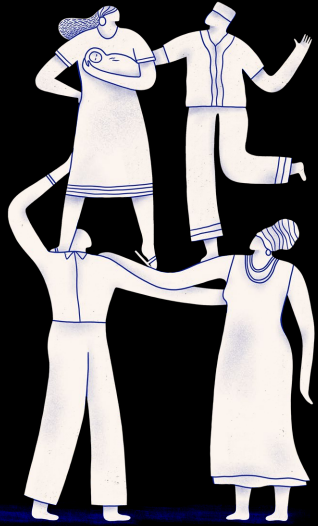


Care seeking challenges

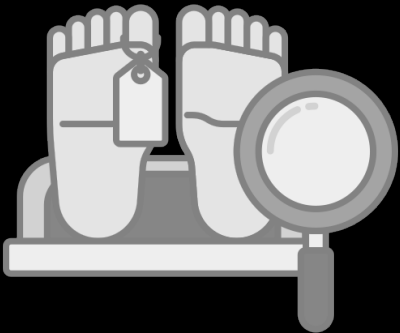


Excess mortality
refers to the total
impact of the pandemic
which is the
number of deaths
from all causes
during a crisis above
and beyond what we
would have expected

Challenges in Bangladesh and LMICs



Coverage of **civil registration of deaths** is low and incomplete



Poor **cause of death data** and deaths happen **without testing out of hospital**



How do we measure Excess Mortality?

Direct method with both numerator (number of deaths) and denominators (population)



HDSS

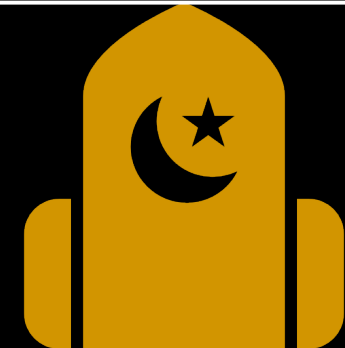


Survey

Indirect method with only numerator (number of deaths)

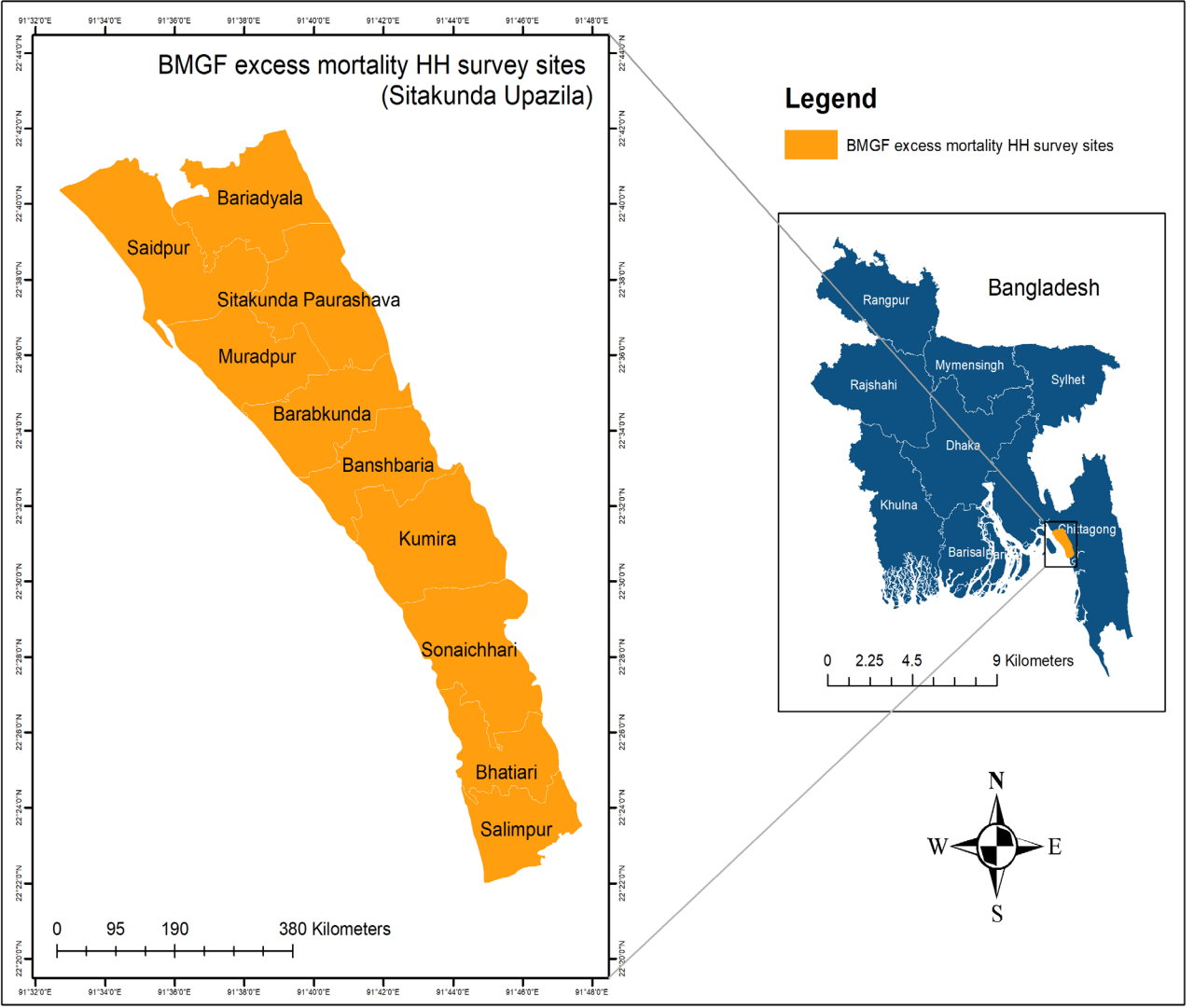


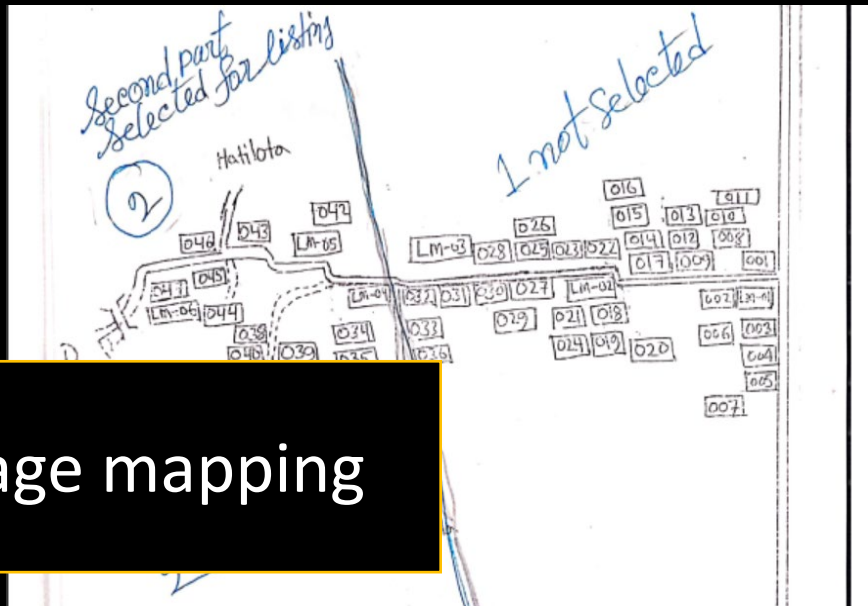
Sentinel surveillance



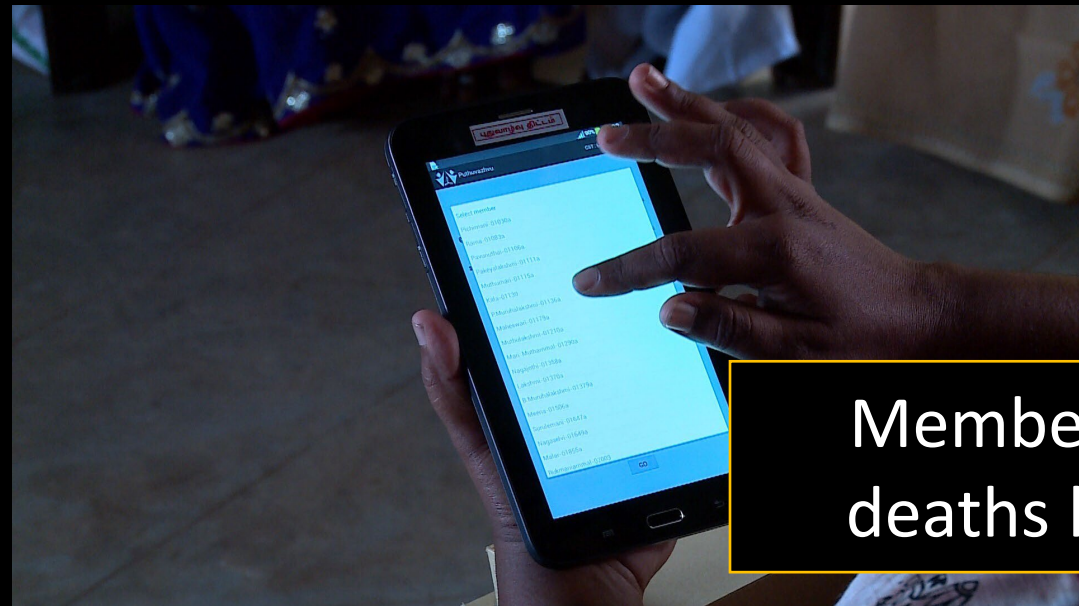
Graveyard surveillance

Household Survey at Sitakundu, Chattogram





Village mapping



Member and deaths listing

Quality monitoring using social hub



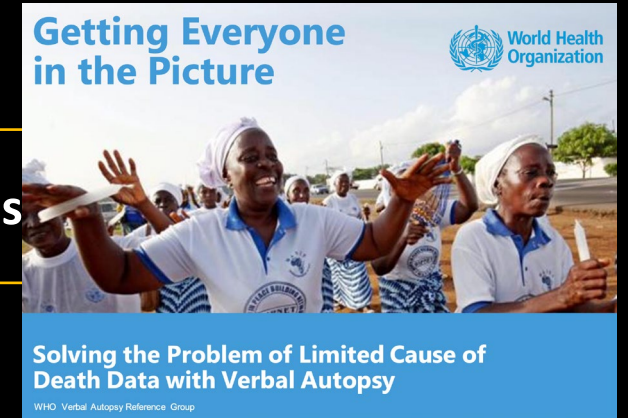
Verbal autopsy



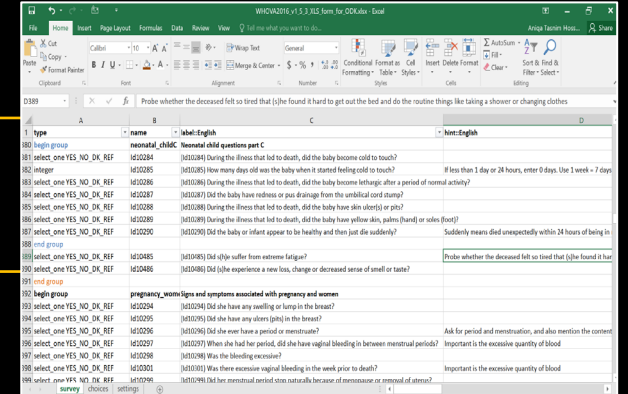
WHO VA tool with COVID questions



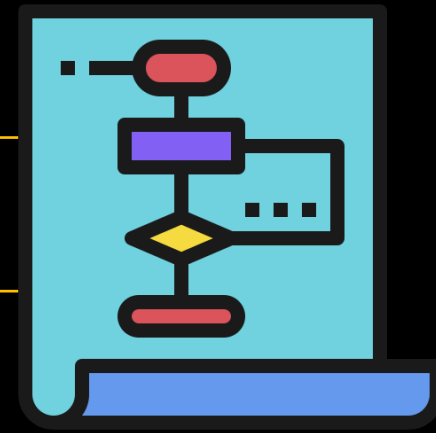
Verbal autopsy



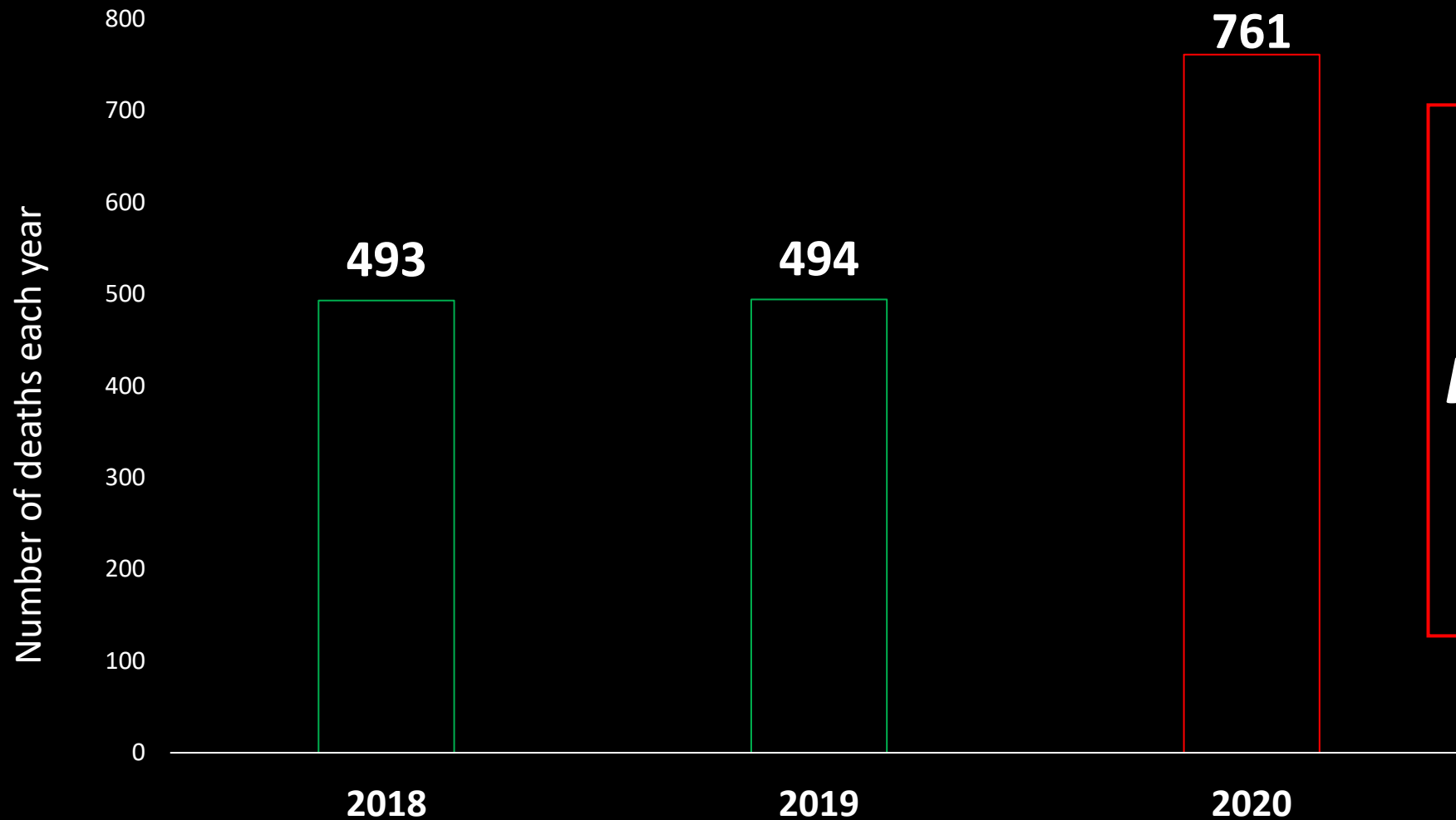
ODK translated in Bangla



InterVA Algorithm

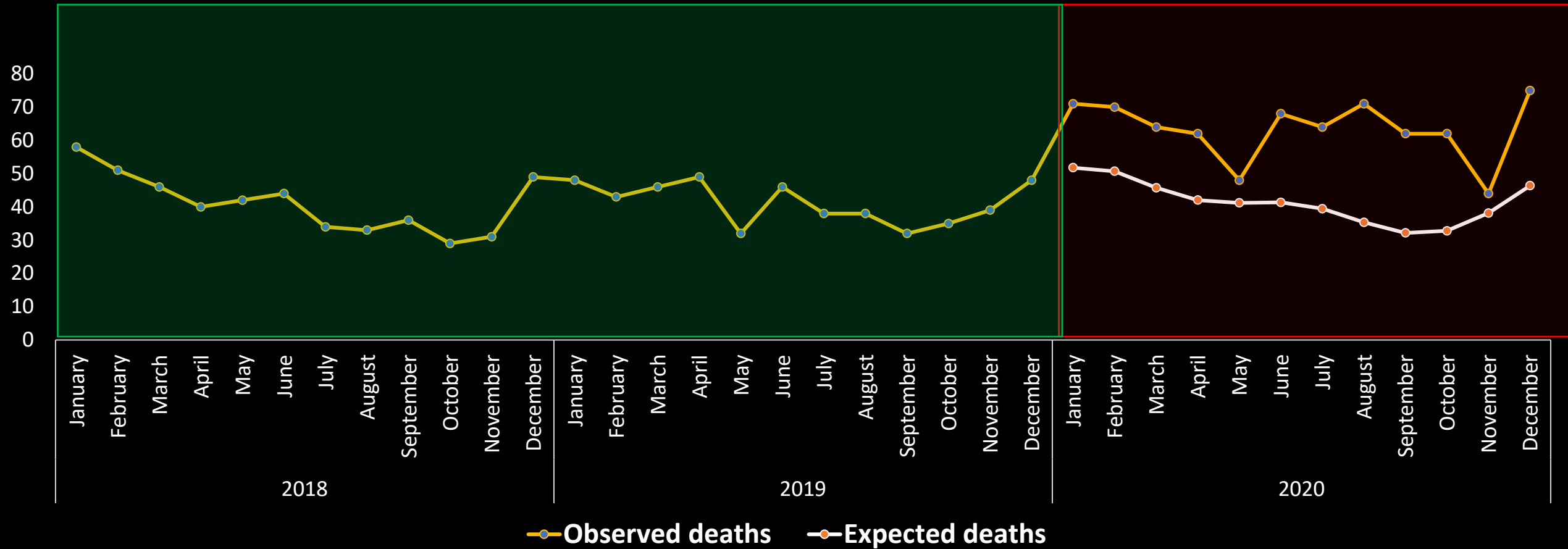


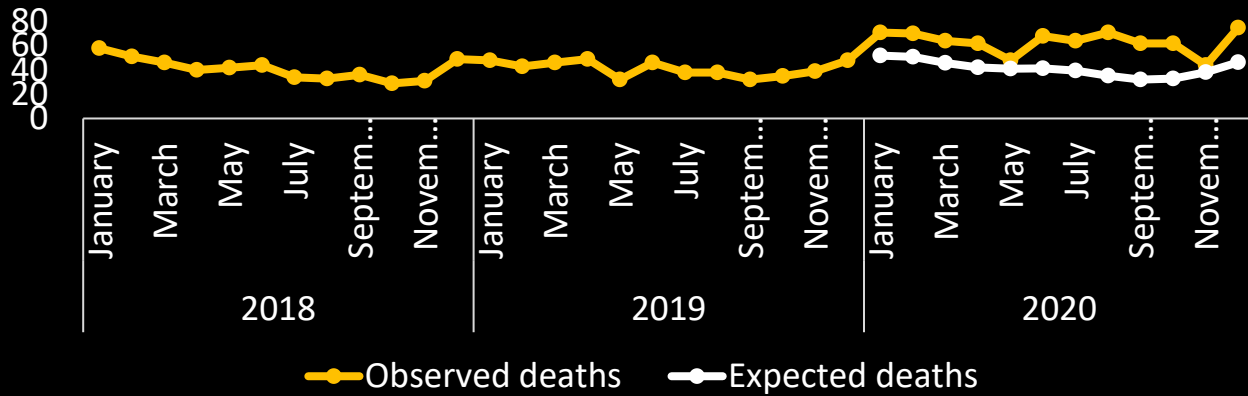
Excess mortality for all age group in Sitakundu



***54% excess
mortality for
all age***

Sitakundu, Chattogram in terms of p-score

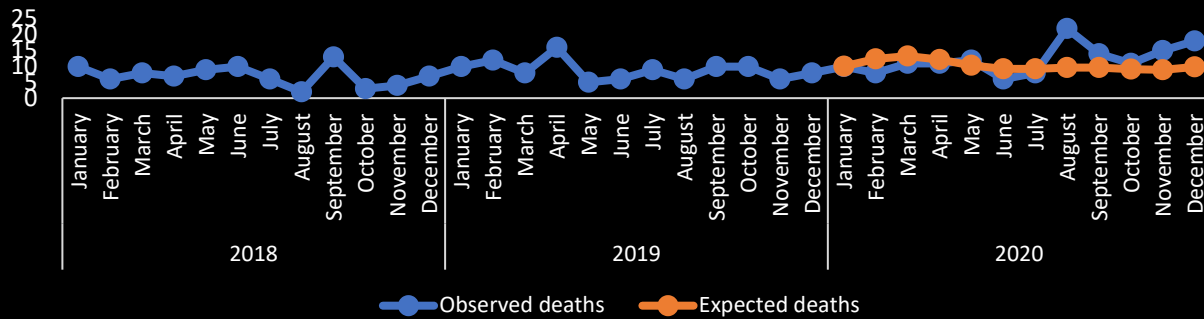




P-score: 54%

IRR: 1.4

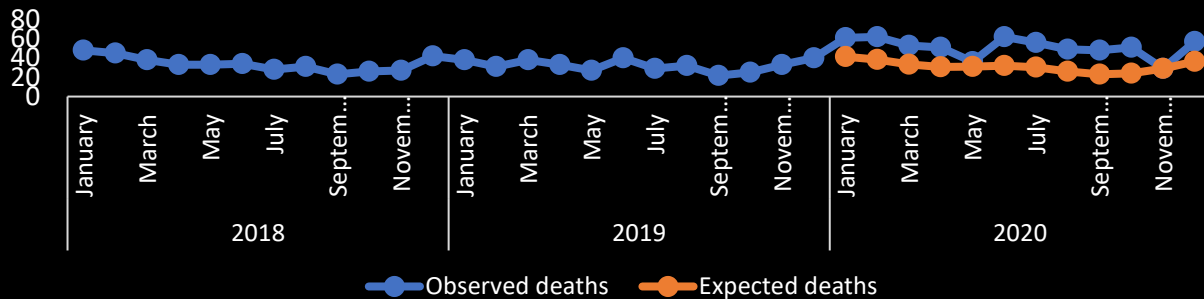
Observed and expected deaths for aged below 40



P-score: 53%

IRR: 1

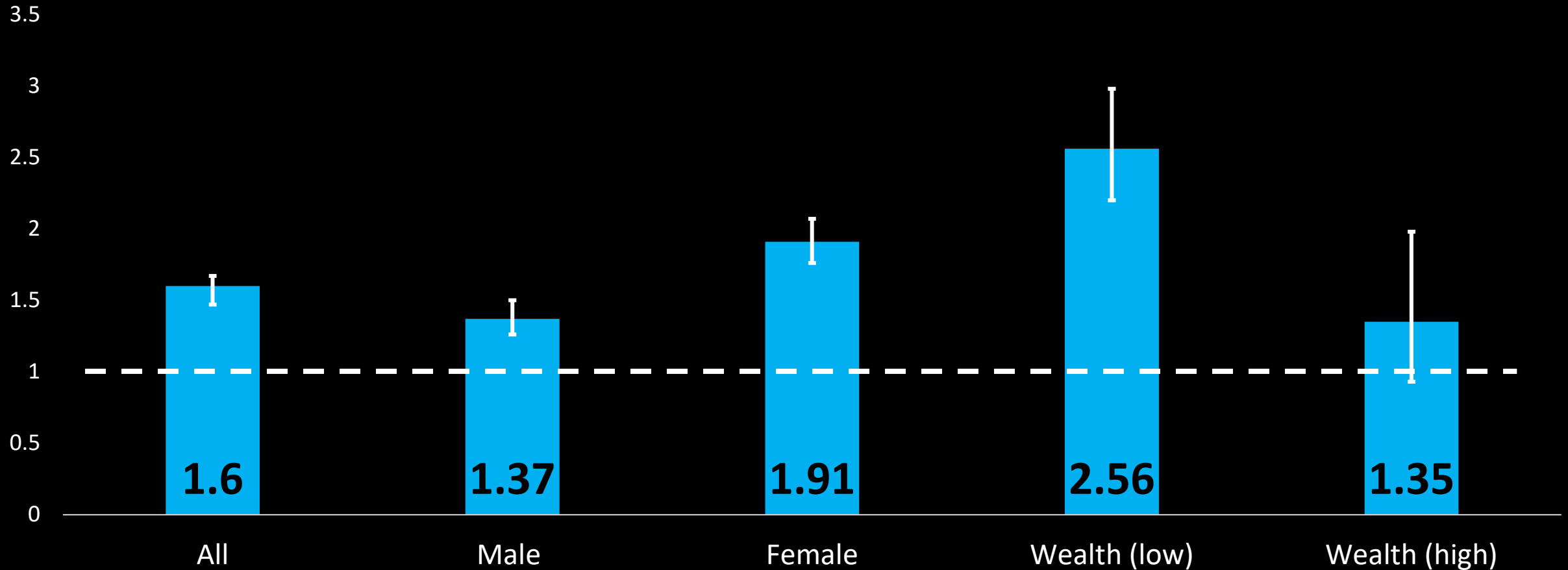
Observed and expected deaths for aged 40 or above



P-score: 55%

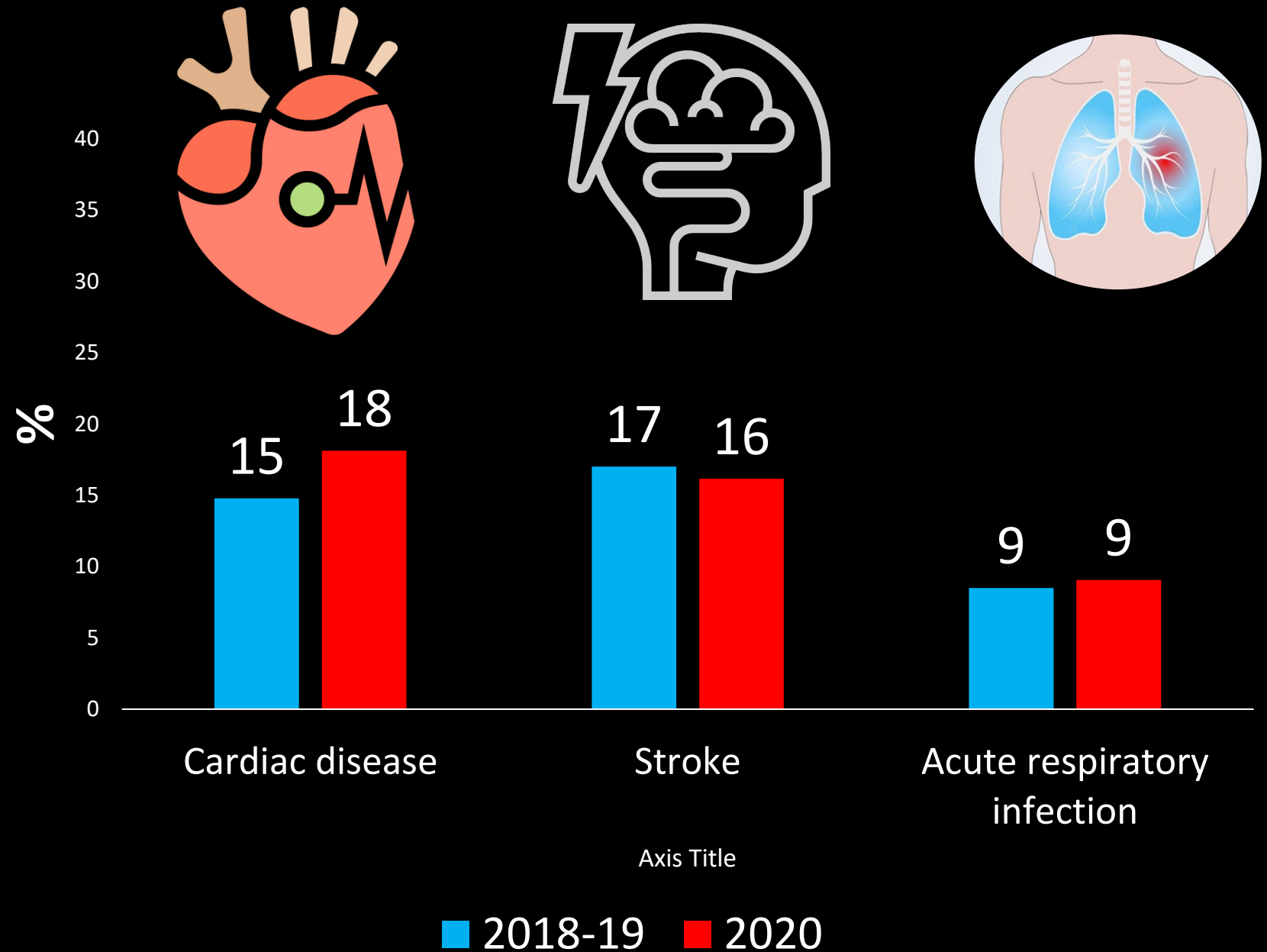
IRR: 1.6

IRR using interrupted time series analysis stratified by different groups among people aged 40 years and above

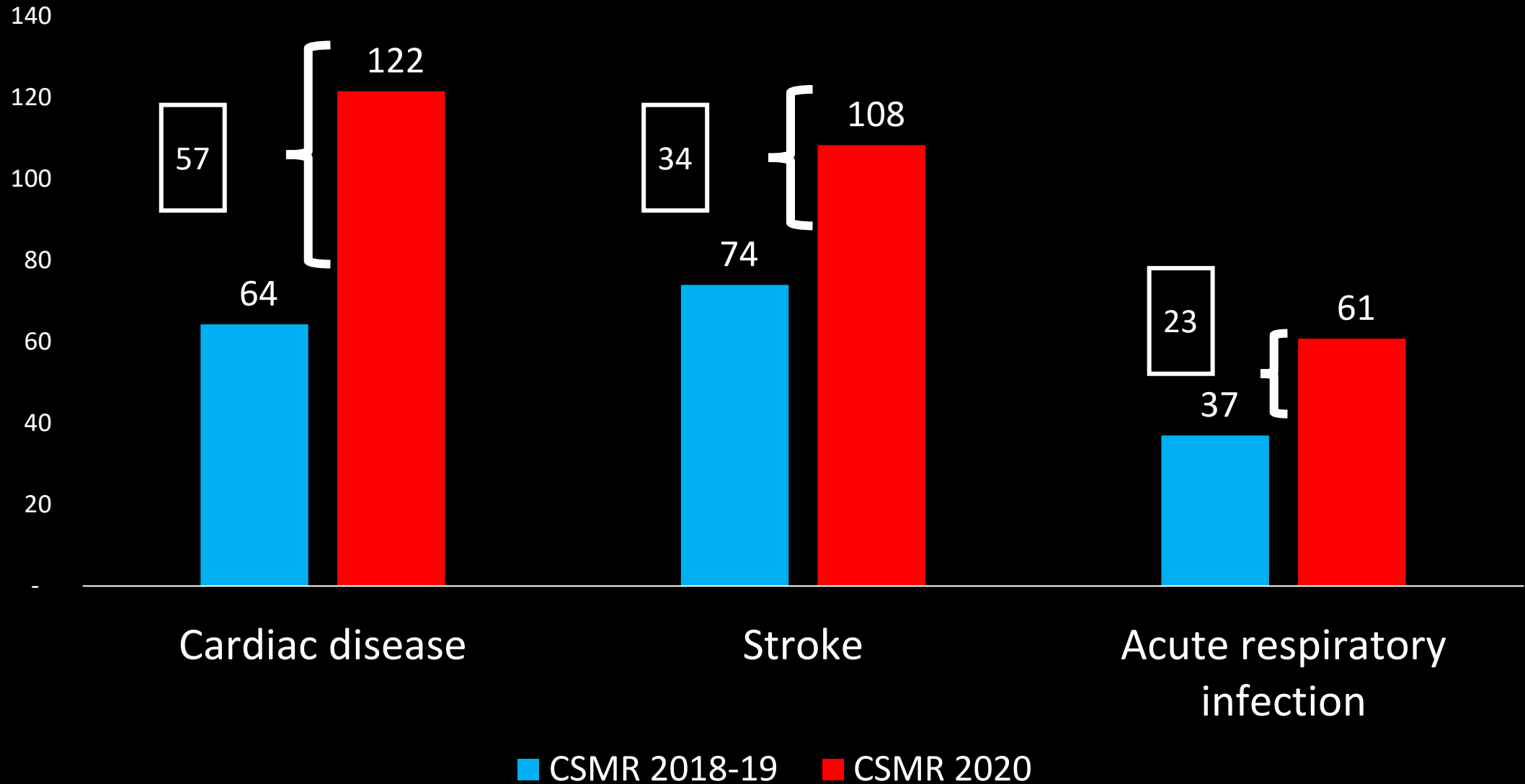


What are the major causes of deaths?

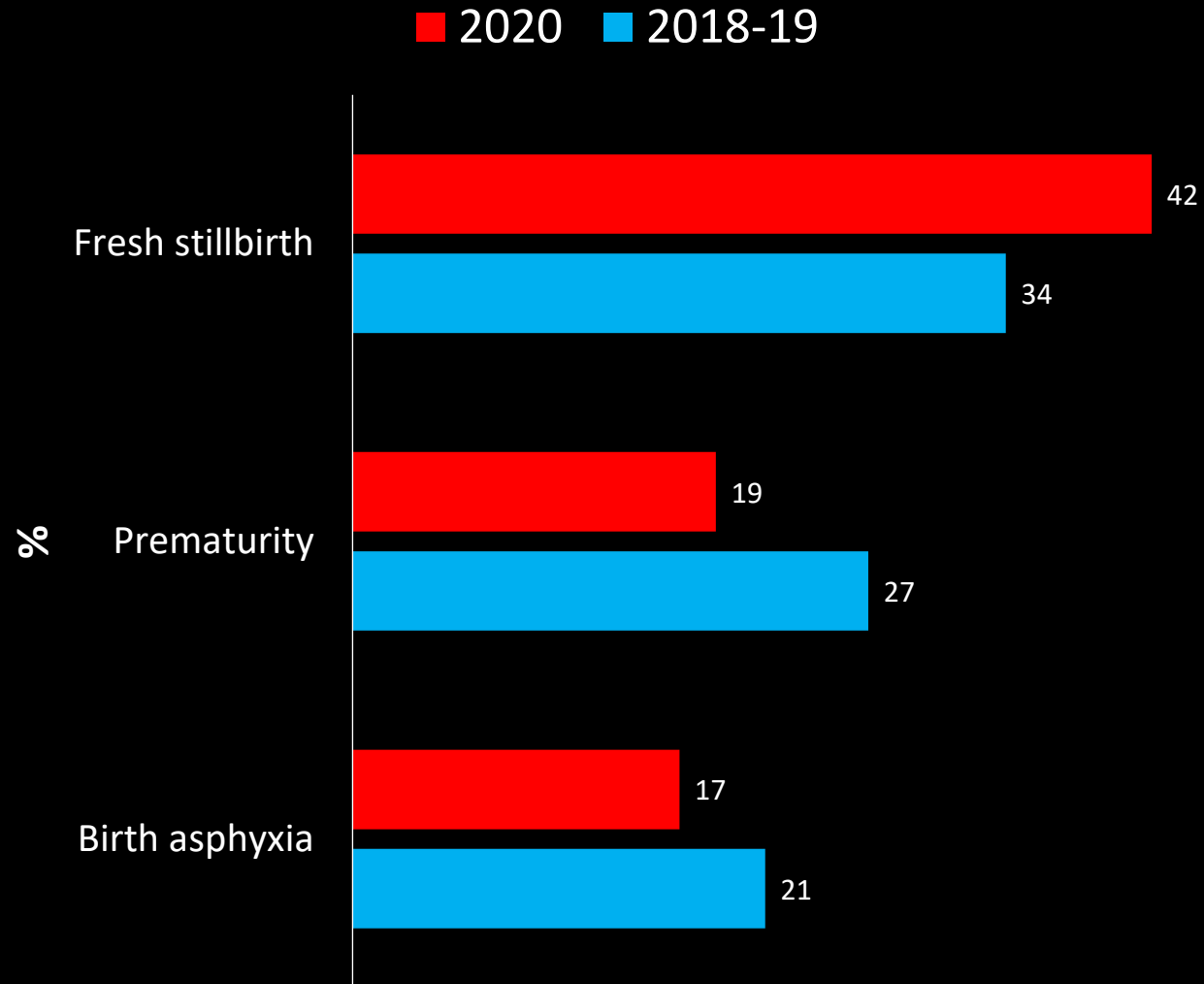
Not much difference in terms of proportional distribution of causes of death between during and pre-pandemic! The true difference could be understood through Cause-specific mortality rates



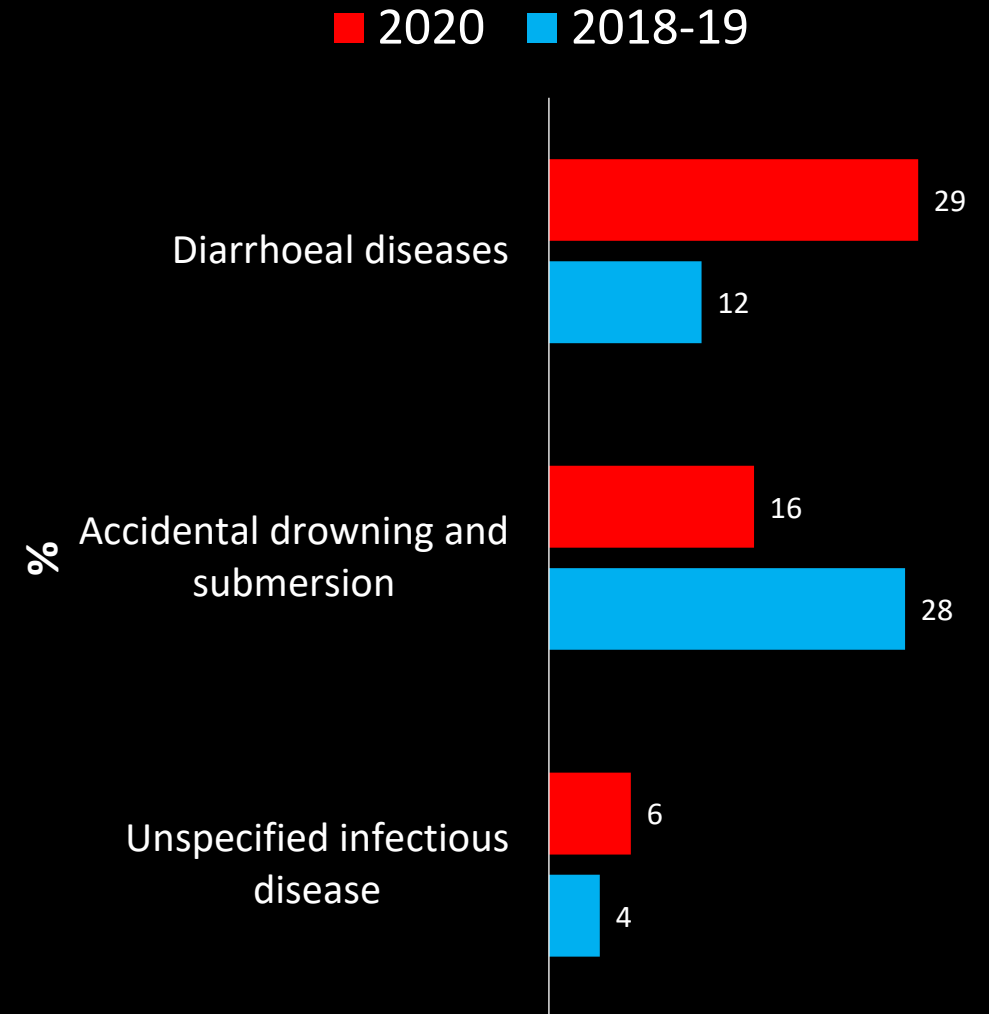
Cause-specific mortality rate for the major causes of deaths per 100,000 population



Neonate including stillbirth



Child

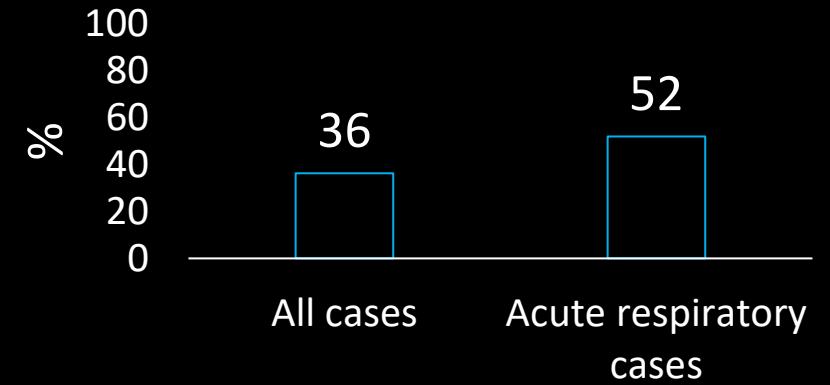


Sensitivity of COVID-19 questions

COVID-19 response	All cases	Acute respiratory cases	Proportion difference P-value
	Yes, n(%)	Yes, n(%)	
1. Was there any diagnosis by a health professional of COVID-19?	10 (0.5)	1 (0.6)	0.989
2. Did s(h)e have a recent test by a health professional for COVID-19?	89 (4.7)	7 (4.1)	0.942
3. Was the COVID-19 test result positive?	5 (0.3)	0 (0)	
4. Did s(h)e suffer from extreme fatigue?	826 (43.8)	76 (47.2)	0.568
5. Did (s)he experience a new loss, change or decreased sense of smell or taste?	307 (16.3)	25 (15.5)	0.917
6. In the two weeks before death, did (s)he live with, visit, or care for someone who had any COVID-19 symptoms or a positive COVID-19 test?	6 (0.3)	2 (1.2)	0.879
7. In the two weeks before death, did (s)he travel to an area where COVID-19 is known to be present?	58 (3.1)	9 (5.3)	0.735
Total	1888	169	

Other symptoms?

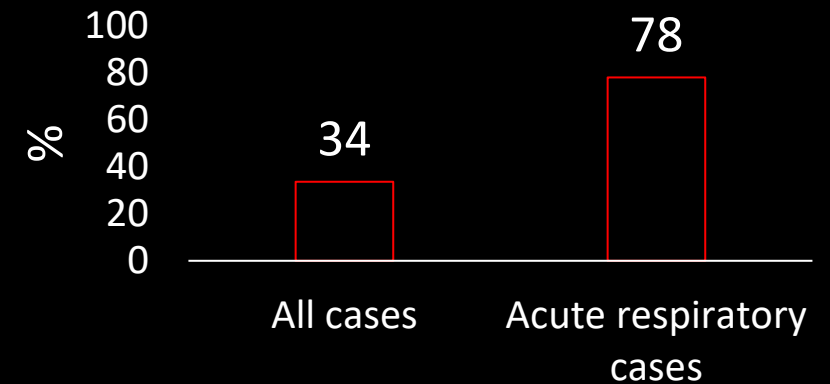
Did (s)he have a fever?



Did (s)he have a cough?



Did (s)he have any difficulty breathing?



There may be issues with the construct validity of the questions??

Special thanks to

BILL & MELINDA
GATES *foundation*

icddr,b thanks its core donors for their on-going support



Government of the People's
Republic of Bangladesh

Canada 

