

*Coronavirus disease*

## **HIGHLIGHTS:**

- \**Seven new countries/territories/areas (African Region [3], Eastern Mediterranean Region [1], European Region [1], and Region of the Americas [2]) have reported cases of COVID-19.*
- \**The number of confirmed cases worldwide has exceeded 200 000.*
- \**It took over three months to reach the first 100 00 confirmed cases, and only 12 days to reach the next 100 000.*
- \**A new protocol to investigate the extent of COVID-19 infection in the population, as determined by positive antibody tests in the general population has been developed.*



## **SUBJECT IN FOCUS:**

- \* *New protocol for Early Epidemiologic investigations for public health response With the emergence of COVID-19 virus, many uncertainties remain as to certain epidemiological.*
- \**Clinical and virological characteristics of the virus and associated disease. Studies to assess these characteristics in different settings are critical to furthering our understanding.*
- \* *They will also provide the robust information needed to refine forecasting models and inform public health measures. As such, WHO, in collaboration with technical partners, has adapted early epidemiological investigations protocols from pandemic influenza and from MERS-CoV, to better understand these characteristics and how they may be used to inform public health measures.*
- \* *To date, five early seroepidemiological core protocols and data collection forms are available on the WHO COVID-19 Technical guidance website.*
- \**All protocols propose a standardized methodology to allow data and biological samples to be systematically collected, taking into consideration local setting and outbreak characteristics, and shared rapidly in a format that can be easily aggregated, tabulated and analyzed across many different settings globally.*

- \*The latest protocol, the Population-based age-stratified seroepidemiological investigation protocol for COVID-19 virus infection, is intended to provide key epidemiological and serologic characteristics of COVID-19 virus.
- \*The general population. Specifically, data from this protocol will provide critical information about the extent of infection (as measured by the presence of antibodies in study subjects) in the general population, age-specific infection cumulative incidence, and the fraction of people with asymptomatic or subclinical infection.

- ***COVID-19 virus, including:***
- \* *Key epidemiological parameters, such as: secondary infection rate and secondary clinical attack rate of COVID-19 infection among close contacts, asymptomatic fraction of infection, serial interval and incubation period of COVID-19, the basic reproduction number of COVID-19 infection .*
- \* *Clinical presentation of COVID-19 infection and course of associated disease* • *Risk factors for transmission and infection, and identification of possible routes of transmission .*
- \* *Impact of infection prevention and control measures in health care settings.*
- \* *Serological response following symptomatic COVID-19 infection.*
- \* *Age-stratified seroprevalence of antibodies against COVID-19 virus .*
- \* *Cumulative incidence of infection, including extent of age-specific infection.*
- \* *Infection and disease-severity ratios (case-hospitalization ratio [CHR] and case-fatality ratio [CFR]).*
  - • *Viral load and shedding profiles.*

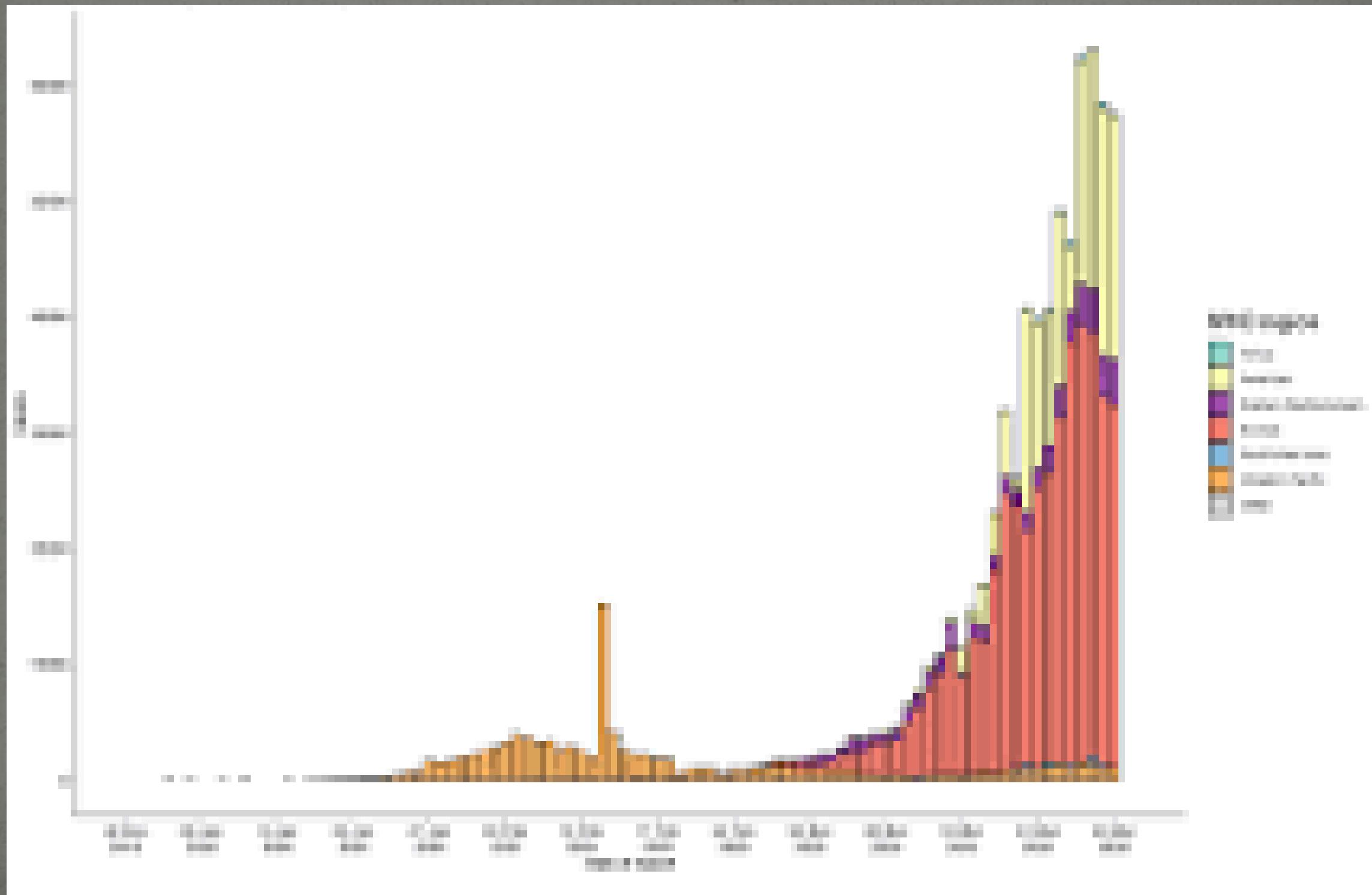
- *To date, 13 countries across five of the six WHO regions, including both high-income and low-and middle-income countries, have begun to implement at least one of the early investigation protocols.*
- *\*A further 18 countries have signaled their intention to implement one of the protocols.*
- *\*WHO will continue to support countries in their epidemiological investigations through the provision of clear and comprehensive protocols.*

- \*Numbers include both domestic and repatriated cases.
- \*The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part.
- \* WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.
- \* Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.
- \*Case classifications are based on WHO case definitions for COVID-19.
- \*Transmission classification is based on WHO analysis of available official data and may be subject to reclassification as additional data become available.
- \*Countries/territories/areas experiencing multiple types of transmission are classified in the highest category for which there is evidence; they may be removed from a given category if interruption of transmission can be demonstrated.
- \*It should be noted that even within categories, different countries/territories/areas may have differing degrees of transmission as indicated by the differing numbers of cases and other factors.
- \*Not all locations within a given country/territory/area are equally affected.

- **Terms:**
- \*Community transmission is evidenced by the inability to relate confirmed cases through chains of transmission for a large number of cases, or by increasing positive tests through sentinel samples (routine systematic testing of respiratory samples from established laboratories).
- \*Local transmission indicates locations where the source of infection is within the reporting location.  
\*Imported cases only indicates locations where all cases have been acquired outside the location of reporting. \*Under investigation indicates locations where type of transmission has not been determined for any cases. \*Interrupted transmission indicates locations where interruption of transmission has been demonstrated (details to be determined) .

- \* “Territories” include territories, areas, overseas dependencies and other jurisdictions of similar status  
Including 13 cases from Kosovo[1].
- \*All references to Kosovo should be understood to be in the context of the United Nations Security Council resolution 1244 (1999).
- \*Due to differences in reporting methods, retrospective data consolidation, and reporting delays, the number of new cases may not always reflect the exact difference between yesterday’s and today’s totals.
- \*WHO COVID-19 Situation Reports present official counts of confirmed COVID-19 cases, thus differences between WHO reports and other sources of COVID-19 data using different inclusion criteria and different data cutoff times are to be expected.
- \*New countries/territories/areas are shown in red.

□ *Epidemic curve of confirmed COVID-19, by date of report and WHO region through 19 March 2020 :*



## **STRATEGIC OBJECTIVES:**

- \*WHO's strategic objectives for this response are to:
  - Interrupt human-to-human transmission including reducing secondary infections among close contacts and health care workers, preventing transmission amplification events, and preventing further international spread.
  - Identify, isolate and care for patients early, including providing optimized care for infected patients.
  - Identify and reduce transmission from the animal source;
    - Address crucial unknowns regarding clinical severity, extent of transmission and infection, treatment options, and accelerate the development of diagnostics, therapeutics and vaccines
    - \*Communicate critical risk and event information to all communities and counter misinformation
  - Minimize social and economic impact through multisectoral partnerships.
- \*This can be achieved through a combination of public health measures, such as rapid identification, diagnosis and management of the cases, identification and follow up of the contacts, infection prevention and control in health care settings, implementation of health measures for travelers, awareness-raising in the population and risk communication.

## **□ PREPAREDNESS AND RESPONSE:**

- \*To view all technical guidance documents regarding COVID-19, please go to this webpage.**
- \*WHO has developed interim guidance for laboratory diagnosis, advice on the use of masks during home care and in health care settings in the context of the novel coronavirus (2019-nCoV) outbreak, clinical management, infection prevention and control in health care settings, home care for patients with suspected novel coronavirus, risk communication and community engagement and Global Surveillance for human infection with novel coronavirus (2019-nCoV).**
- \*WHO is working closely with International Air Transport Association (IATA) and have jointly developed a guidance document to provide advice to cabin crew and airport workers, based on country queries. The guidance can be found on the IATA webpage.**
- \*WHO has been in regular and direct contact with Member States where cases have been reported.**
- \*WHO is also informing other countries about the situation and providing support as requested.**
- \*WHO is working with its networks of researchers and other experts to coordinate global work on surveillance, epidemiology, mathematical modelling, diagnostics and virology, clinical care and treatment, infection prevention and control, and risk communication.**
- \*WHO has issued interim guidance for countries, which are updated regularly.**

- • WHO has prepared a disease commodity package that includes an essential list of biomedical equipment, medicines and supplies necessary to care for patients with 2019-nCoV.
- \*WHO has provided recommendations to reduce risk of transmission from animals to humans.
- \*WHO has published an updated advice for international traffic in relation to the outbreak of the novel coronavirus 2019-nCoV. \*WHO has activated the R&D blueprint to accelerate diagnostics, vaccines, and therapeutics.
- \*OpenWHO is an interactive, web-based, knowledge-transfer platform offering online courses to improve the response to health emergencies.
- \*COVID-19 courses can be found here. Specifically, WHO has developed online courses on the following topics.
  - \*A general introduction to emerging respiratory viruses, including novel STRATEGIC OBJECTIVES WHO' s strategic objectives for this response .
  - \*Interrupt human-to-human transmission including reducing secondary infections among close contacts and health care workers, preventing transmission amplification events, and preventing further international spread.

- *Identify, isolate and care for patients early, including providing optimized care for infected patients.*
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- *\*Address crucial unknowns regarding clinical severity, extent of transmission and infection, treatment options, and accelerate the development of diagnostics, therapeutics and vaccines.*
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- \*coronaviruses (available in Arabic, Chinese, English, French, Russian, Spanish, Portuguese, Persian, Serbian, and Turkish).
- \* Clinical Care for Severe Acute Respiratory )
- \*Health and safety briefing for respiratory diseases PROTECT available in EnglishInfections (available in English, French, Russian, and Vietnamese, French, Russian, Indonesian, and Portuguese).
- \*Infection Prevention and Control for Novel Coronavirus (COVID-19) (available in English, French, Russian, Spanish, Indonesian, Italian, Japanese, Portuguese, and Serbian).
- \*COVID-19 Operational Planning Guidelines and COVID-19 Partners Platform to support country preparedness and response (available in English and coming soon in additional languages).

- \*WHO is providing guidance on early investigations, which are critical in an outbreak of a new virus.
- \*The data collected from the protocols can be used to refine recommendations for surveillance and case definitions, to characterize the key epidemiological transmission features of COVID-19, help understand spread, severity, spectrum of disease, impact on the community and to inform operational models for implementation of countermeasures such as case isolation, contact tracing and isolation.
- \*Several protocols are available here.
- \*One such protocol is for the investigation of early COVID-19 cases and contacts (the “ First Few X (FFX) Cases and contact investigation protocol for 2019-novel coronavirus (2019-nCoV) infection” ).
- \*The protocol is designed to gain an early understanding of the key clinical, epidemiological and virological characteristics of the first cases of COVID-19 infection detected in any individual country, to inform the development and updating of public health guidance to manage cases and reduce the potential spread and impact of infection.

## **RECOMMENDATIONS AND ADVICE FOR THE PUBLIC:**

- \**If you are not in an area where COVID-19 is spreading or have not travelled from an area where COVID-19 is spreading or have not been in contact with an infected patient, your risk of infection is low. It is understandable that you may feel anxious about the outbreak.*
- \**Get the facts from reliable sources to help you accurately determine your risks so that you can take reasonable precautions (see Frequently Asked Questions).*
- \**Seek guidance from WHO, your healthcare provider, your national public health authority or your employer for accurate information on COVID-19 and whether COVID-19 is circulating where you live.*
- \**It is important to be informed of the situation and take appropriate measures to protect yourself and your family (see Protection measures for everyone).*

- \*If you are in an area where there are cases of COVID-19 you need to take the risk of infection seriously.
- \*Follow the advice of WHO and guidance issued by national and local health authorities.
- \*For most people, COVID-19 infection will cause mild illness however, it can make some people very ill and, in some people, it can be fatal.
- \*Older people, and those with pre-existing medical conditions (such as cardiovascular disease, chronic respiratory disease or diabetes) are at risk for severe disease (See Protection measures for persons who are in or have recently visited (past 14 days) areas where COVID-19 is spreading).

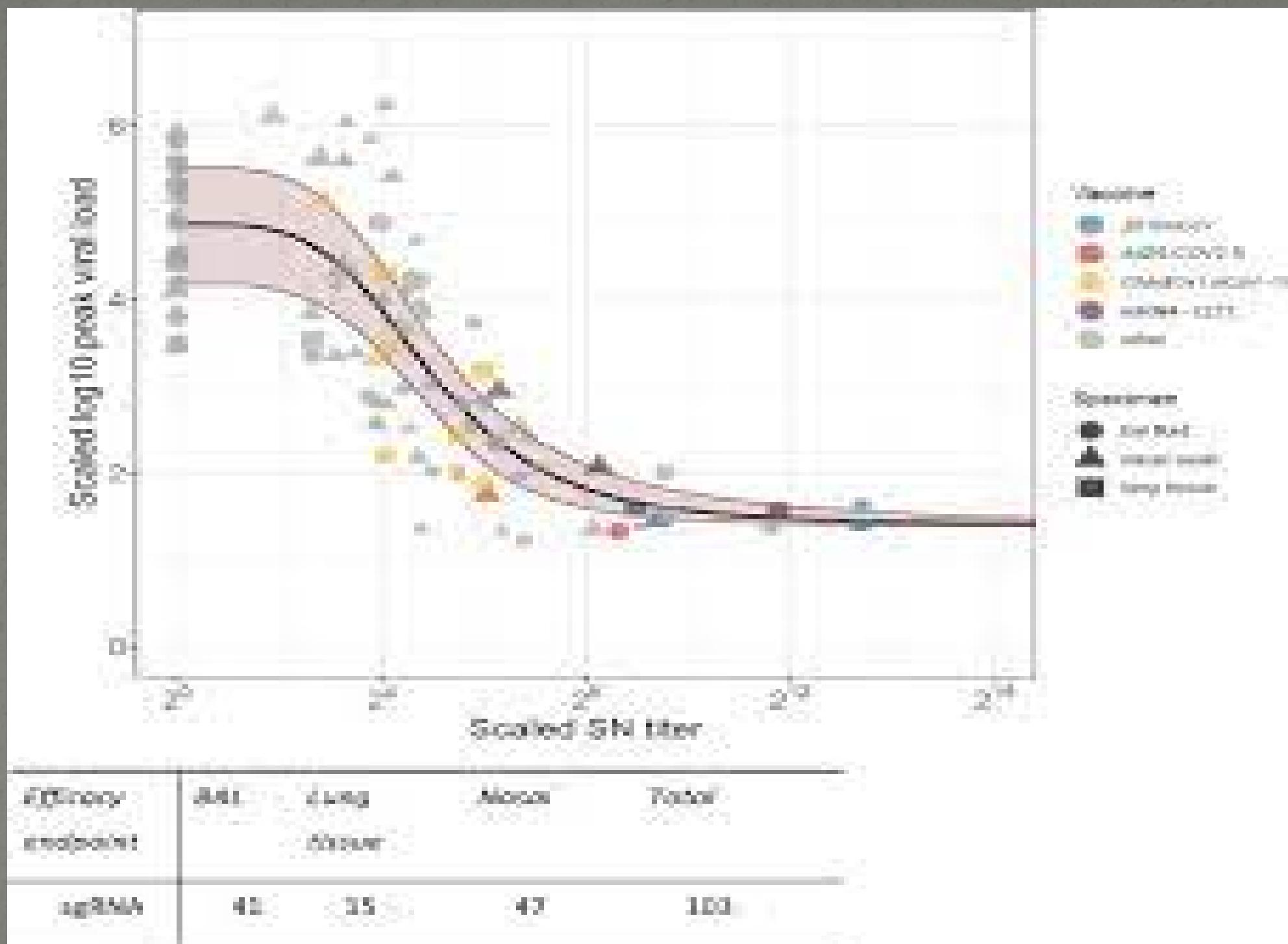
- **CASE DEFINITIONS:**
- WHO periodically updates the Global Surveillance for human infection with coronavirus disease (COVID-19) document which includes case definitions.
- \*For easy reference, case definitions are included below.  
*Suspect case A.*
- \*A patient with acute respiratory illness (fever and at least one sign/symptom of respiratory disease).
- \*(EXAMPLE., cough, shortness of breath), AND with no other etiology that fully explains the clinical presentation AND a history of travel to or residence in a country/area or territory reporting local transmission (See situation report) of COVID-19 disease during the 14 days prior to symptom onset.

## *PROGRAM:*

```
import pandas as pd
# Sample COVID-19 vaccine datadata
{
    'Country': ['USA', 'UK', 'India', 'Brazil', 'Germany'],
    'Vaccine_Efficacy': [95, 92, None, 78, 88],
    'Vaccination_Rate': [60, 55, 40, None, 70]
}
df = pd.DataFrame(data)
#Data imputation
df['Vaccine_Efficacy'].fillna(df['Vaccine_Efficacy'].mean(),
                             inplace=True)
df['Vaccination_Rate'].fillna(df['Vaccination_Rate'].mean(),
```

```
□ inplace=True)  
□ # Display the imputed data  
□ print("ImputedDataFrame:")  
□ print(df)  
□ # Perform analysis or calculations on the imputed data  
here  
□ # For example, you can calculate the average efficacy or  
vaccination rate  
□ average_efficiency=df['Vaccine_Efficacy'].mean()  
□ average_vaccination_rate=df['Vaccination_Rate'].mean()  
□ print("\nAverage Vaccine Efficacy:" ,average_efficiency)  
□ print("Average Vaccination Rate:" ,  
average_vaccination_rate)
```

## □ OUTPUT:



- **PROGRAM:**
- *import pandas as pd*
- *import matplotlib.pyplot as plt*
- *# Sample time series COVID-19 vaccine data*
  - {
  - 'Date': ['2023-01-01', '2023-01-02', '2023-01-03',  
'2023-01-04', '2023-01-05'],
  - 'Vaccinations': [5000, 6000, 7500, 8000, 9000]
  - }
- *df = pd.DataFrame(data)*
- *# Convert the 'Date' column to a datetime object*  
*df['Date'] = pd.to\_datetime(df['Date'])*

- *# Set 'Date' as the index for time series*  
`analysisdf.set_index('Date', inplace=True)`
- *# Resample the data on a weekly basis and sum the values*
- `weekly_data = df.resample('W').sum()`
- *# Plot the time series data*
- `plt.figure(figsize=(10, 6))`
- `plt.plot(weekly_data.index,`
- `weekly_data['Vaccinations'], marker='o')`
- `plt.title('Weekly COVID-19 Vaccinations')`
- `plt.xlabel('Date')`
- `plt.ylabel('Total Vaccinations')`
- `plt.grid(True)`
- `plt.show()`

# **OUTPUT:**

