

# Hypothetical scenarios for estimating the number of people who are likely to be infected with COVID-19

The Higher Population Council presents three hypothetical scenarios for estimating the number of individuals likely to be infected with the Corona Virus (COVID-19), cases that may need hospitalization, and deaths that may occur.

These scenarios help provide insight into what may happen in the future to the spread of the Corona virus. The Council emphasizes that it is still unclear how the virus eventually spreads, but modeling is used as a planning tool for the Council to stakeholders and decision makers to support measures and policies to reduce the potential spread of the virus on the assumption that the mechanism for the spread of the virus is unclear.

The three scenarios were based on an initial expectation from the onset of the infections until May 28th, and not necessarily an absolute accuracy because the spread or decline of the epidemic depends on on different factors.

# How do scenarios help answer sensitive questions?

In just a few months, Corona Virus infection has spread to more than 207 countries , we rarely see the full picture during the outbreak from the beginning, and here the scenarios are necessary.

Since the incubation period of the Corona virus is relatively long (14 days) or more, today's data may not reveal the true number of cases that may carry the disease, since these cases may appear in a week or two.

With the three possible scenarios, we can predict how quickly the disease spreads, how affective government policies are , along with changes in individual behavior by following protective instructions to reduce infection rate.

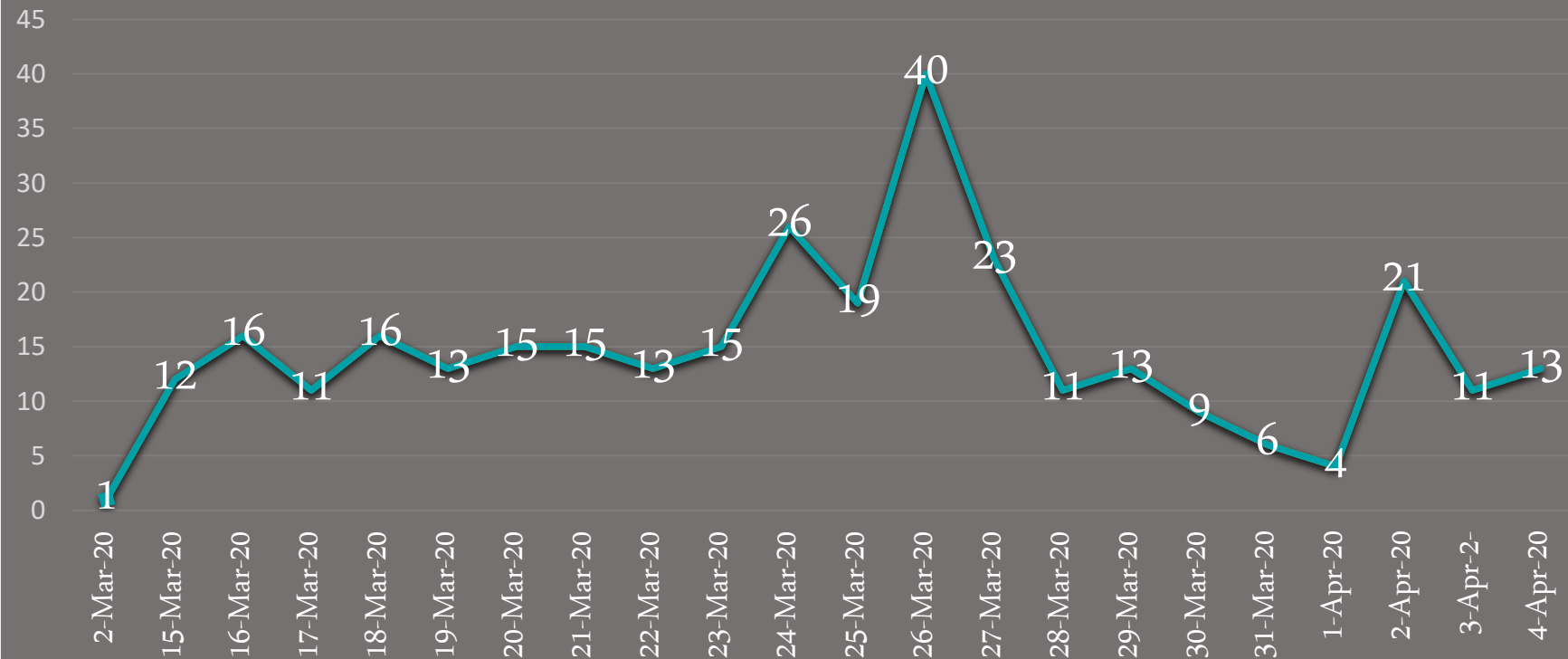
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# Epidemiological status of the Corona virus (CoVID-19) as of April 4

How did the epidemic's spread changes in association with the impact of government measures to reduce the spread of the disease and community commitment to the prevention measures



## Three possible scenarios of Corona virus infection and disease outbreak

### Pessimistic scenario

Cases

24,654

15 May

Non-continuation of government measures to prevent the spread of infection and the non-compliance of the population with prevention measures.

### Medium scenario

Cases

3,367

8 May

Reducing the stricter of preventive measures without a radical change in individual behavior, which may cause outbreak of the disease in the third incubation period, the incidence of cases can suddenly rise.

### Optimistic scenario

cases

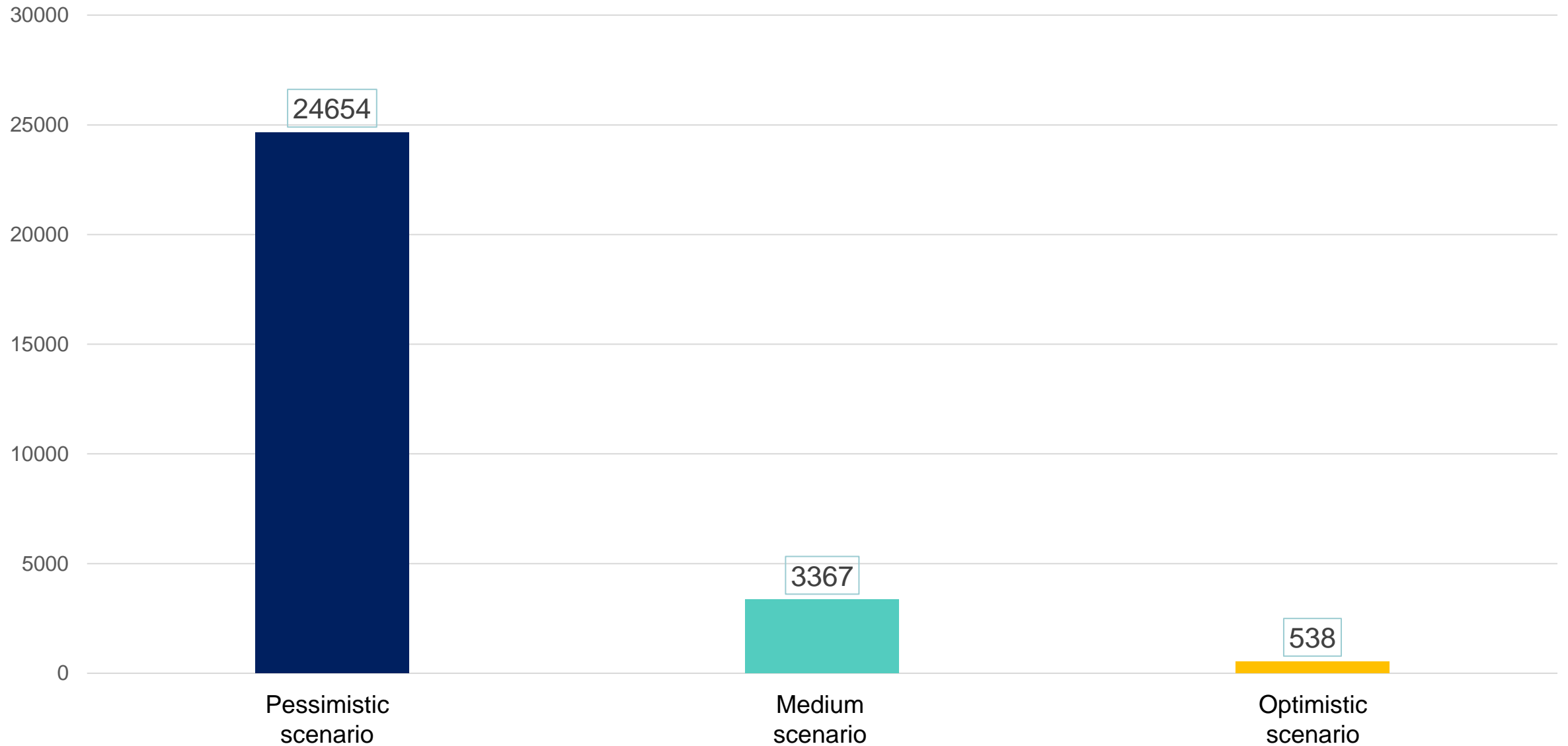
538

30 April

we are expected to reach no casualties if the government continues to implement its plan to investigate and track the cases of those infected, and to continue to implement measures to reduce the spread of the virus, with a radical change in individual behavior, this is the best defense line to reduce the epidemic.

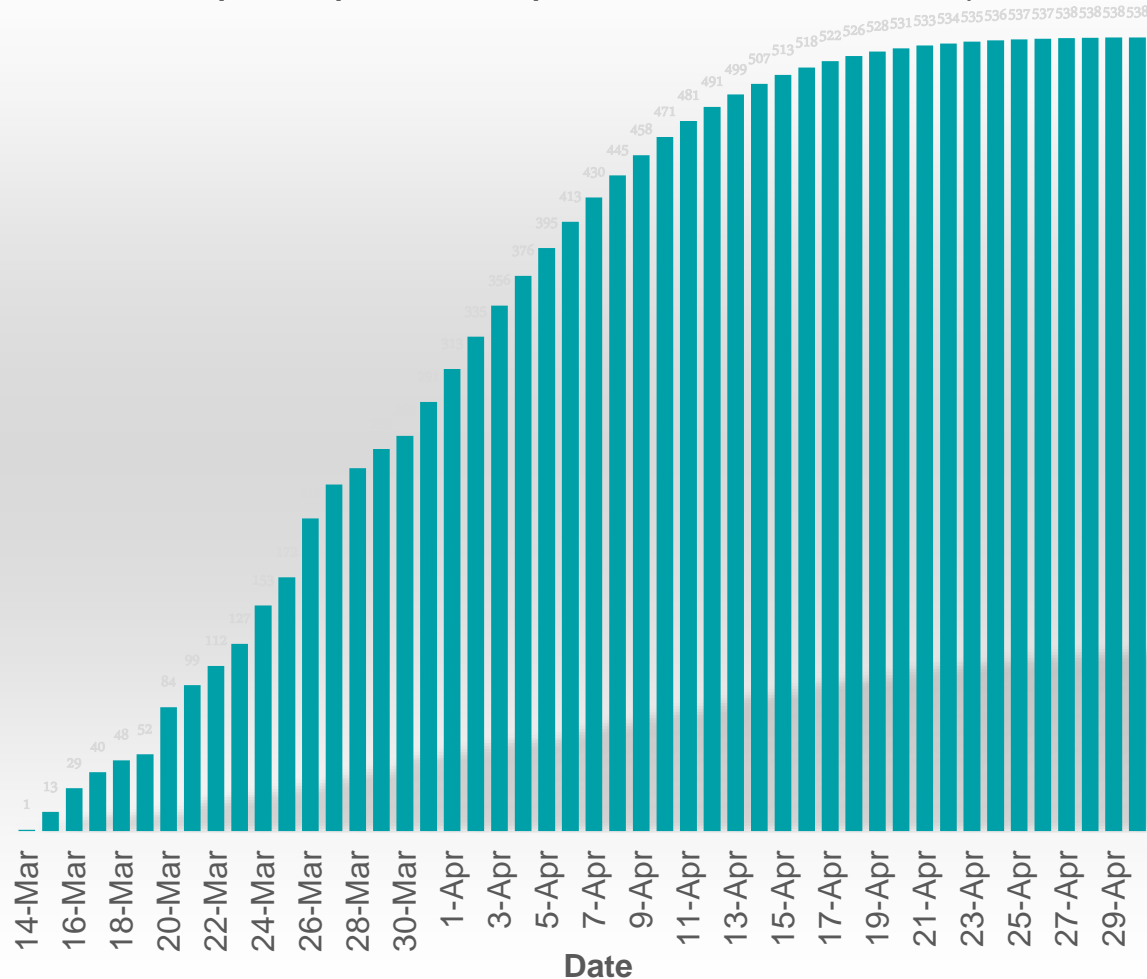
# The number of potential casualties according to the three scenarios during the period 2

## March-15 May, 2020



# Optimistic scenario: The spread of the disease has been stopped with strict government policies and preventive measures + changing community behavior

Best scenario (rigorous social distancing and adequate personal protection measures)



The scenario is based on the rate of reproduction reached by the Jordanian Public Health Forum for the best possible scenario. The  $R_0$  baseline number (for the 'covid-19' disease) is the average number of new cases per person infected with the disease.

The rate of gradual decline was used, the highest rate of reproduction was 1.074, recorded on March 14, and gradually decreased to 0.839 on April 30.

This scenario shows the chart of the occurrence of cases, If the social spacing policy has been firmly applied, with the population committed to applying the personal prevention policy and continuing government measures to reduce the spread of the disease.

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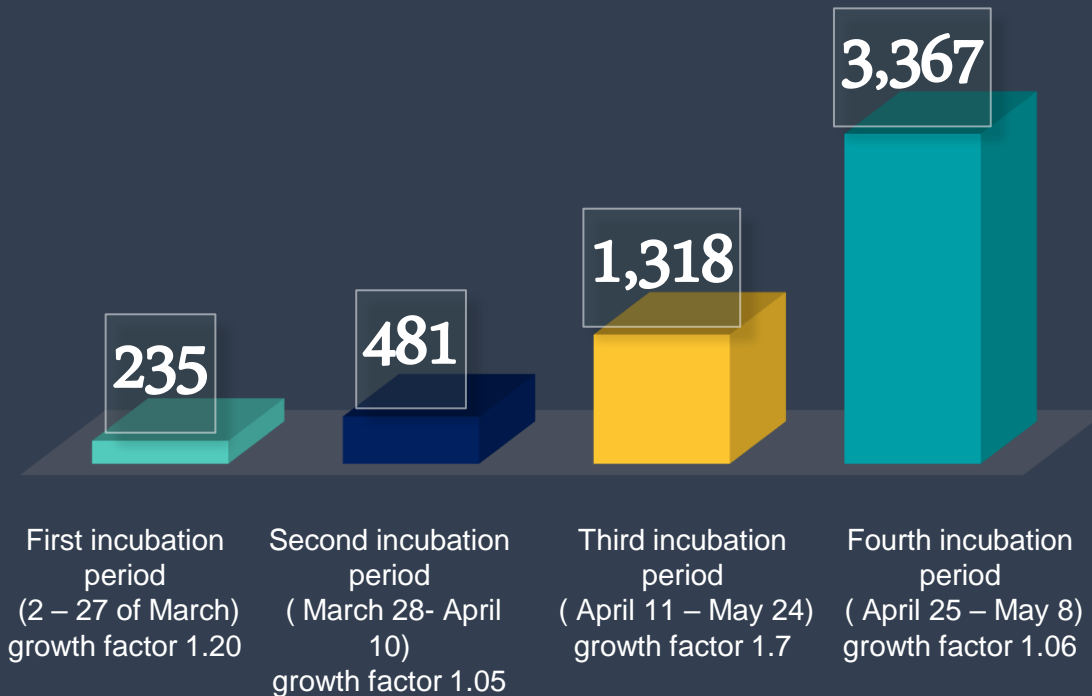
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3

538 cases

# Medium scenario: Reducing the strict of preventive actions and without a radical change in individual behavior

## MEDIUM SCENARIO



1 The scenario is based on the calculation of the growth factor for infections from the date of the first infection (March 2ed) and May 8, by calculating the average cumulative total infection rate for each incubation period (each 14-day period).

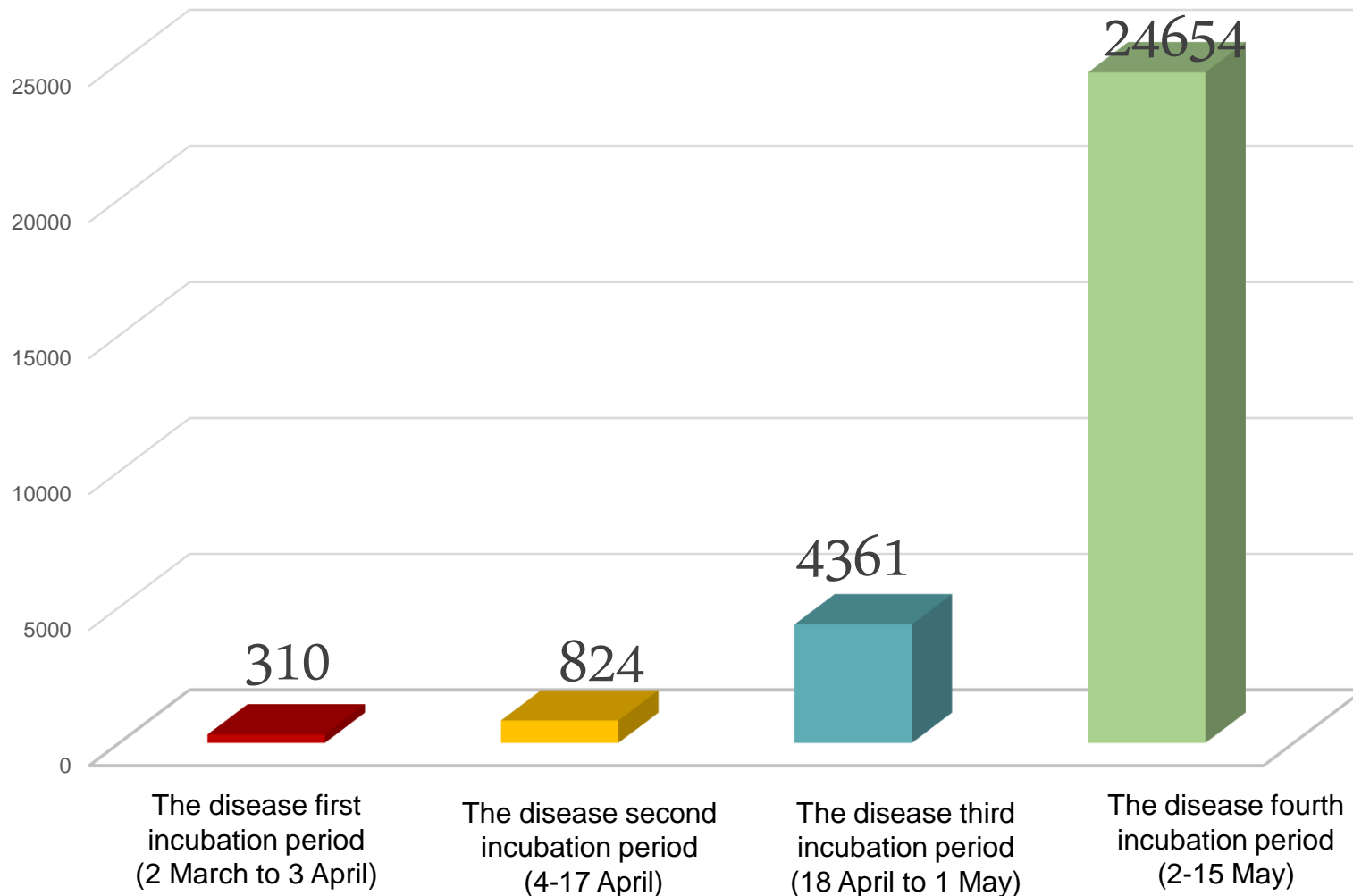
2 The growth factor is the average number of new cases that each casualty has

3 The growth factor in the first incubation period (March 2-27) was 1.205, with 235 cases. In the second incubation period, the number of daily infections started to gradually decrease and the growth factor reached 1.074, but the number of cases started to increase gradually due to a lack of full compliance with the isolation procedures.

Cases 3,367

# The Pessimistic Scenario

Cases according to the pessimistic scenario



The scenario was based on the calculation of the growth factor starting from the number of cases reached on April 3 (310 cases) and covered the first incubation period (March 2-27) in addition to the second half of the incubation period (March 28-3). This is to reflect the impact of the implementation of government measures to reduce the spread of the disease with greater commitment to preventive action by the population.

The growth factor rate in this scenario was 1.14, meaning that everyone can transmit the disease to another person.

In this scenario, the risk of a rise in the number of infections is represented if the government does not continue to apply the strict measures to prevent the spread of infection and the population does not abide by the prevention measures.



Government decisions on curfews are governed by three criteria



**Society**

Repercussions of the population inability to abide by the curfew are limited in material means and social habits



**Economy**

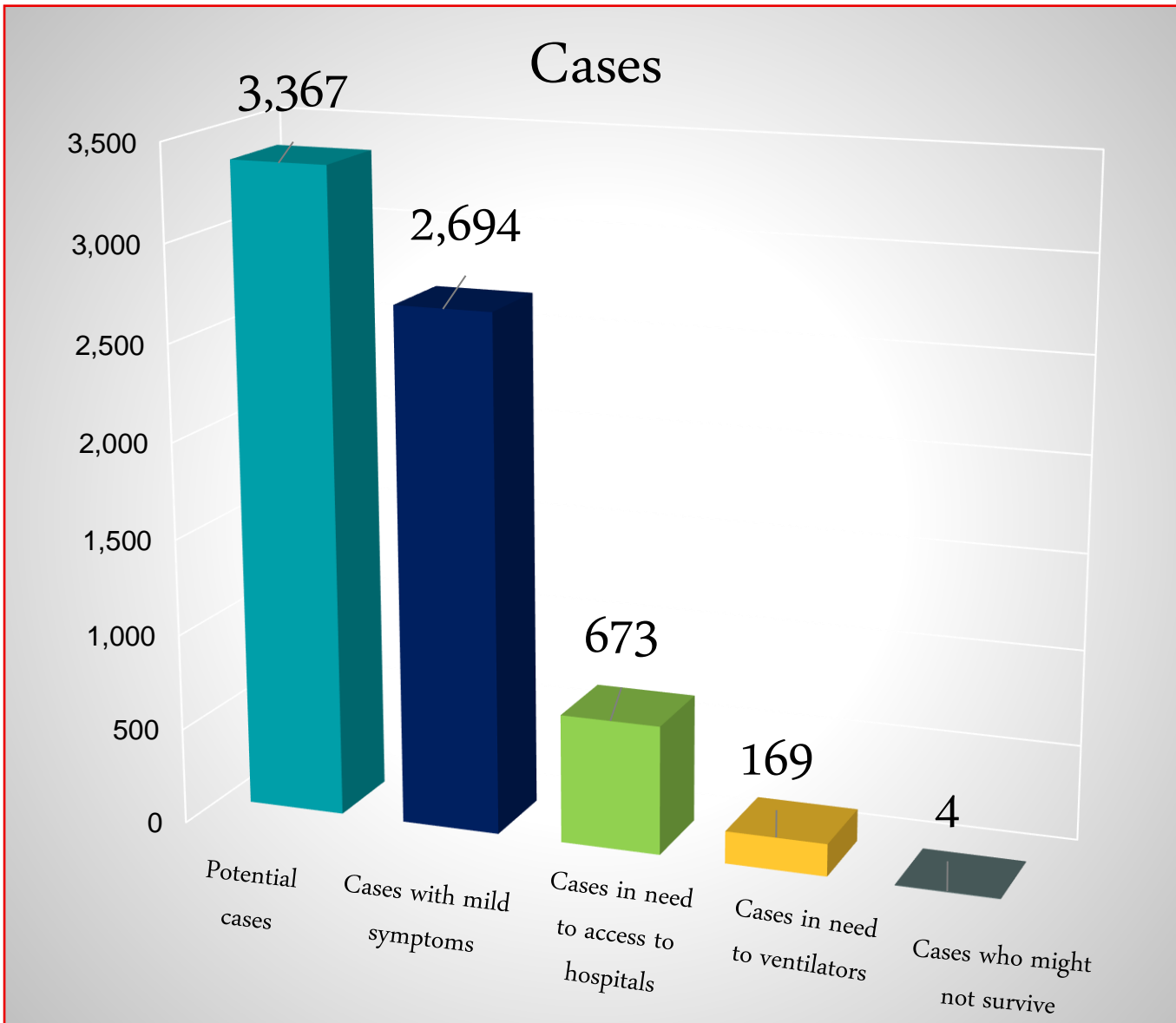
Economic implications



**Health**

Outbreak of cases and the inability of the health system to absorb infections

# The health system capacity to respond to cases according to the optimistic scenario



The objectives of government actions represented by no registration of any new cases within the nature of the disease, reducing the spread of the disease is a reduction in number to give the health system time to prepare for responding to cases and to give a period to discover a treatment drug internationally

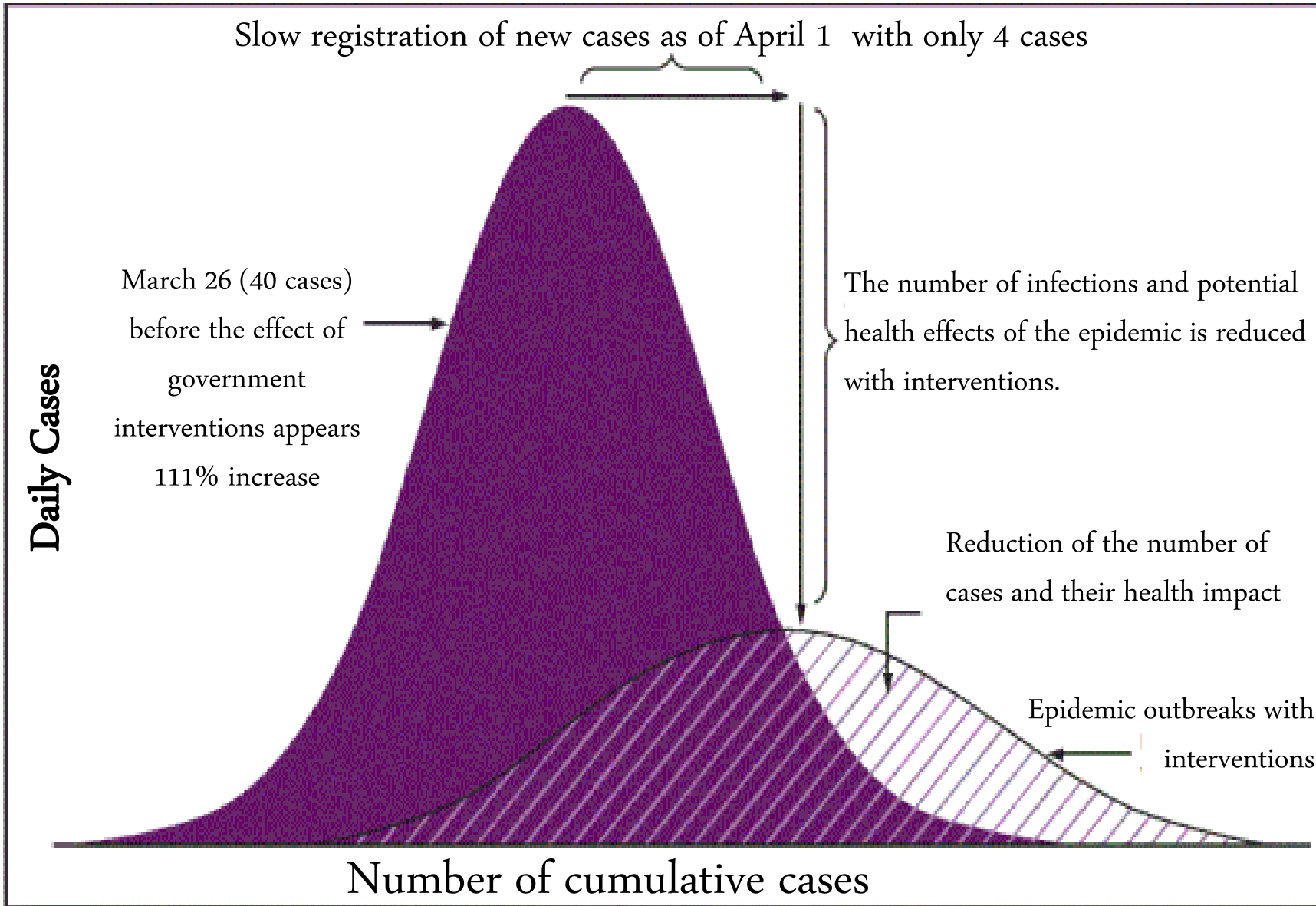
80% are likely to have disease that may not show symptoms or have mild symptoms = 2,964.

20% are likely to get infected and need access to hospitals = 673.

5% of those who need access to hospitals may be in critical condition and need ventilators= 169.

2% of those whose condition is critical and in need of ventilators may not survive the disease = 4.

# “Flattening the Curve” an entry to slow down the spread of the Corona virus



We have presented a range of scenarios based on a range of assumptions showing that the needs of ICU have been shown to be reduced by the impact of health measures by flexing this curve – as well as preparing for a higher curve if the course and ongoing government planning that balances meeting potential infections needs and reducing the risk of unintended consequences for others has changed.

Once government action is reduced, infection starts to rise again, resulting in an expected epidemic peak later.

We show that the intermittent social distancing, caused by trends in disease surveillance - may allow interventions to be temporarily mitigated at relatively short periods of time, but measures will need to be re-introduced if or when case numbers increase.

# Population groups that need to be enhanced to combat the spread of Covid19

Cases of close contacts within the family

310,000 aged 65 or older are more likely to be infected and must be protected

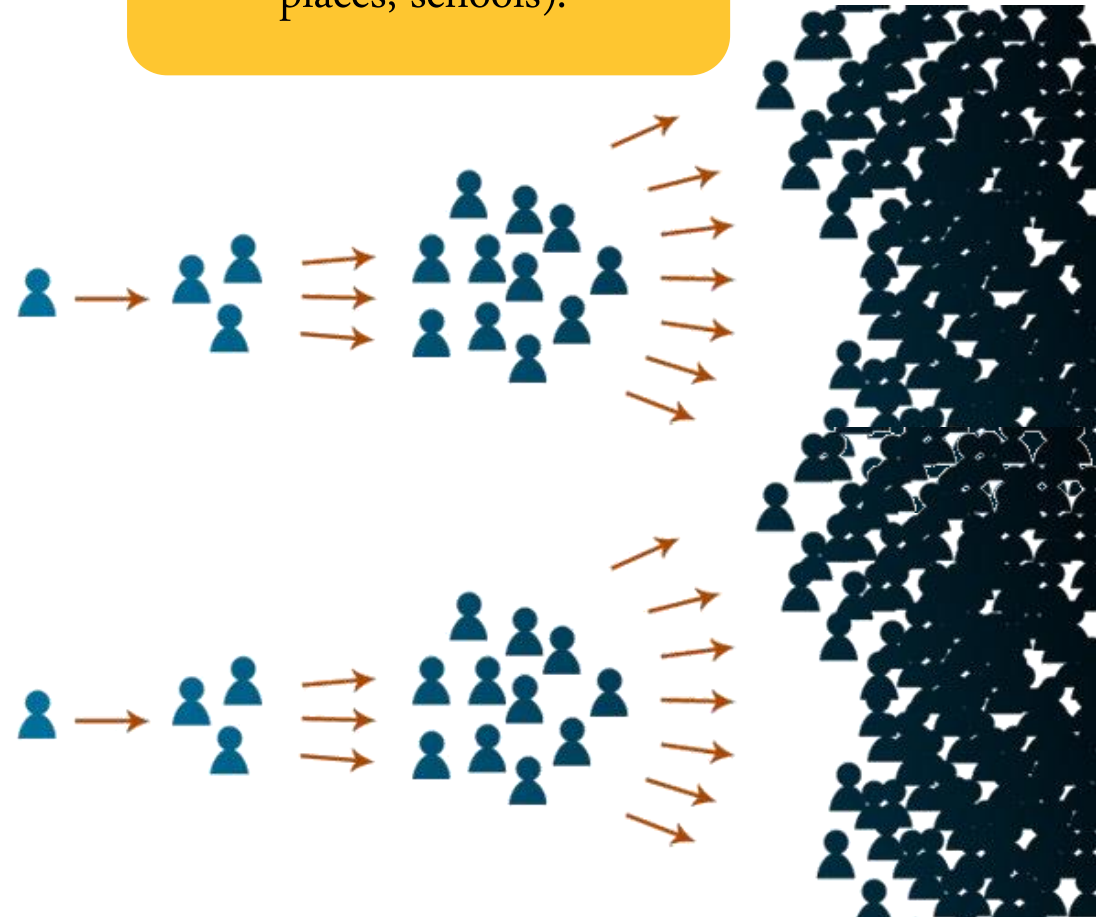
Chronic diseases - the proportion of families with an individual with chronic illness is 34.4%

Security forces and exploration teams

Journalists and news correspondents

Community infection: for health workers in a health-care environment where there has been a confirmed case

Close contact cases in general population or it can be restricted to indoor locations (e.g. families, health care places, schools).





You have the remedy and the solution

# Stay Home

In general, our findings suggest that the social distancing applied to population as a whole in Jordan will have the greatest impact; in conjunction with other interventions - particularly cases of domestic isolation and closure of schools and universities - can prevent contagion to reduce infection rates.



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