

COVID-19 Projections: Afghanistan

Report Date: 07 Oct 2020

This report summarizes the COVID-19 model results for Afghanistan, developed by the OCHA Centre for Humanitarian Data in partnership with the Johns Hopkins University Applied Physics Laboratory. These projections are based on COVID-19 cases and deaths data up to 07 October 2020. The data is sourced from World Health Organization (WHO) and the country's Ministry of Public Health (MOPH). For dynamic updates to this data and more, see the [HDX COVID-19 Map Explorer](#). For additional information, please contact Leonardo Milano at: leonardo.milano@un.org.

1. Key Messages¹²

Current Situation (as of 07 Oct 2020)

- A total of 39,486 cases and 1,467 deaths have been reported by the WHO.
- The current number of severe cases requiring healthcare support is estimated at 91 - 147.
- Progress towards containment is insufficient in multiple regions. Regions vary in the intensity of control effort needed to achieve containment (see section 2).
- Cases had a first peak in early June and deaths had a first peak in early July.
- The data from the WHO and the Ministry of Public health concord well.

National Projections (in the next 4 weeks or by 04 Nov 2020)

- In the next 4 weeks, the total number of cases is projected to reach 40,194 - 40,432 and the total number of deaths is projected to reach 1,506 - 1,520 if current NPIs are maintained.
- Lifting of NPIs would lead to a larger increase in cases and deaths (up to 942 more cases and up to 29 more deaths; see sections 2 and 3 for details).
- The number of severe cases requiring healthcare is projected to increase, and to increase by least twice as much if NPIs are lifted (see section 3).

Subnational Projections (in the next 2 weeks or by 21 Oct 2020)

- Assuming all current NPIs are maintained, fewer regions are expected to be at a Tipping Point in 2 weeks however many regions will still be battling community spread (see section 4).
- Assuming all current NPIs are maintained, the ratio of active cases per 100,000 people is expected to increase the most in Ghor, Badghis, Ghazni and to decrease the most in Hirat, Daykundi, Farah. Note that the 3 regions with the sharpest declines in cases are still projected to be in a red state (=highest risk level) (see section 4).

¹**Reported cases** refers to the number of infections expected to be reported. It takes into account the **case reporting rate** which corresponds to the estimated number of COVID-19 infections that are actually tested, confirmed and reported. The case reporting rate is calculated based on the reported number of deaths and cases in the last 30 days.

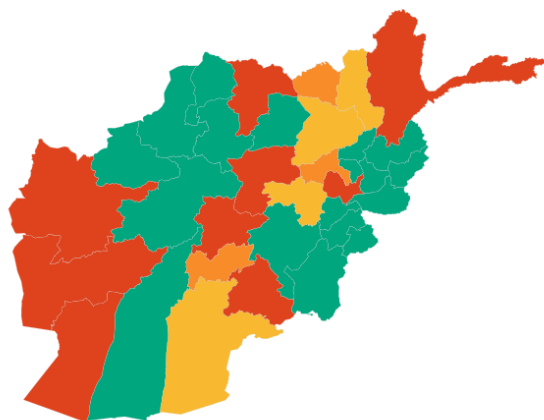
²**Severe cases** refers to the number of people which will have severe symptoms and may require healthcare support. It is calculated as a proportion of the reported cases, and is based on planning parameters for case severity and the vulnerability of a given region.

2. Current Situation (as of 07 Oct 2020)

Containment Progress

The key performance indicators below can be used to evaluate how effective the response has been in containing the spread of the virus. The map on the left illustrates risk levels to help decision-makers and community members know where they are. The levels communicate whether a region is on track for containment and what intensity of effort is needed to control COVID at varying levels of community spread. The map on the right represents the current need for healthcare support.

Current Estimated Daily New Cases Per 100,000 People



Risk Level	Case Incidence*	Intensity of Control Effort Needed
Red	25+	Stay-at-home orders necessary
Orange	10-25	Strategic choices must be made about which package of non-pharmaceutical interventions to use for control. Stay-at-home orders are advised, unless viral testing and contact tracing capacity are implementable at levels meeting surge indicator standards.
Yellow	1-10	Strategic choices must be made about which package of non-pharmaceutical interventions to use for control
Green	<1	On track for containment, conditional on continuing use of viral testing and contact tracing for surveillance and to contain spikes and outbreaks.

*Daily new cases per 100,000 people as reported by WHO

See [Key Metrics for COVID Suppression](#) for additional guidance on control effort needed.

Key Figures: Cumulative Cases and Deaths

	Cumulative Cases	Cumulative Deaths
Based on WHO reports	39,486	1,467
Based on MOPH data	39,548	1,469

Case Fatality Rate: 3.7%

Most recent data from MOPH dated: 2020-10-07

Key Figures: Current Severe Cases

	Current Hospitalizations
Estimate	91 - 147

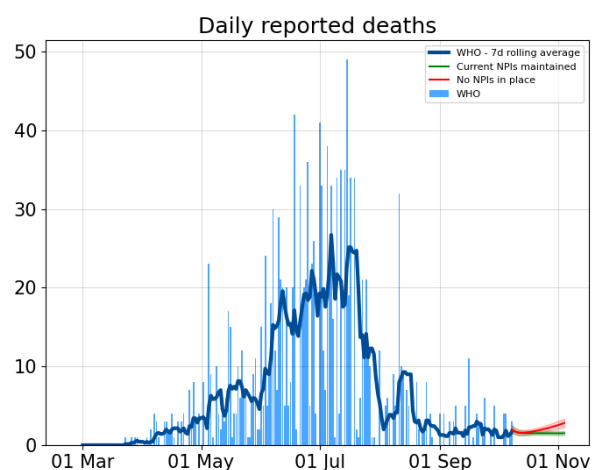
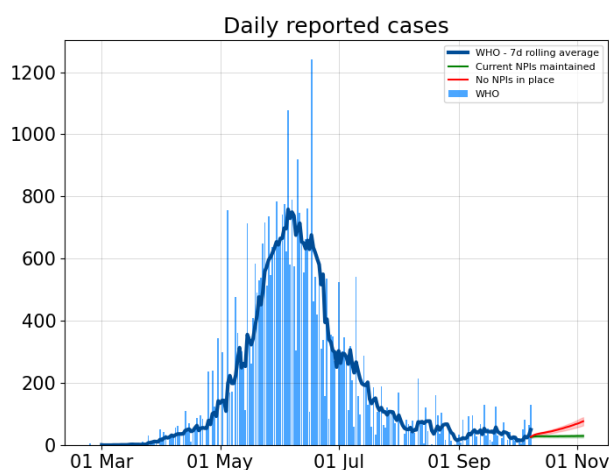
3. National Projections (for the next 4 weeks or by 04 Nov 2020)

The regional data provided by the Ministry of Public Health was used to generate projections at the subnational level, which were then aggregated to the national level.

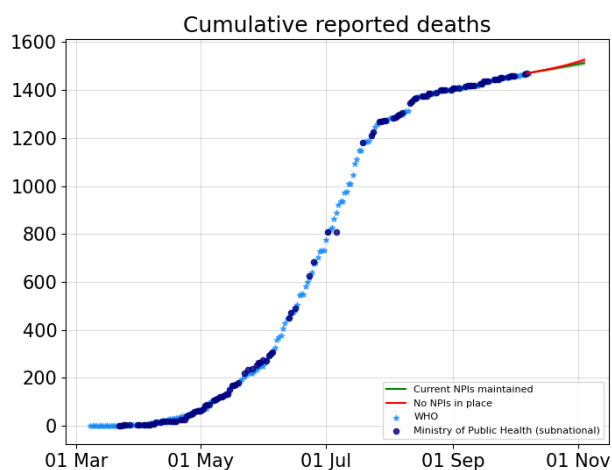
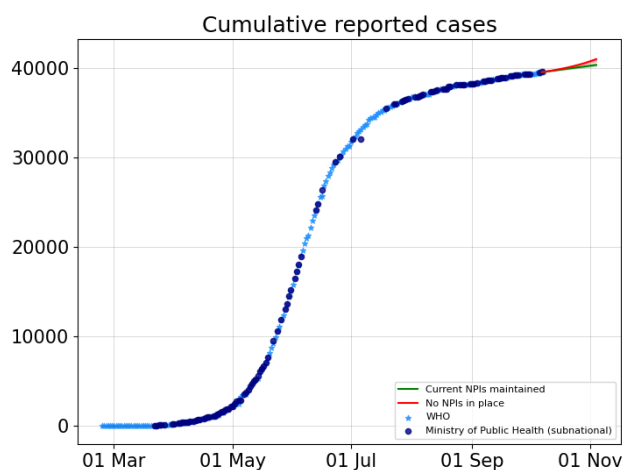
Projected Cases and Deaths

	Projected Cases	Projected Deaths
With current NPIs maintained	40,194 - 40,432	1,506 - 1,520
With no NPIs	40,710 - 41,136	1,517 - 1,535

The figures below present the historical data on daily counts of cases and deaths, and their projected trends. Trends are represented by a green line for the “Current NPIs maintained” scenario and a red line for the “No NPIs in place” scenario. Note that deaths typically lag reported cases by 2-8 weeks.

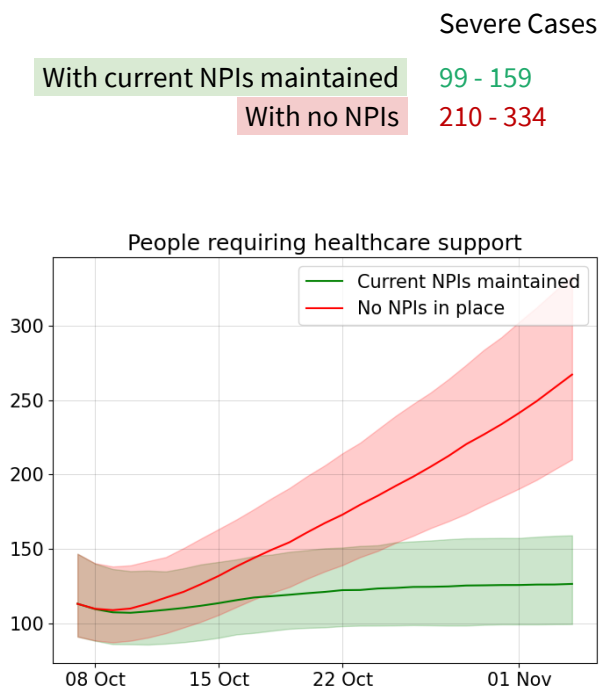


The figures below furthermore show the comparison between the reported data from two different sources: national level data from WHO in light blue and subnational data from the Ministry of Public Health in dark blue.



Projected Severe Cases

The figures below show the projected trends for severe cases requiring hospitalizations. In green are the projections under the “Current NPIs maintained” scenario while in red are the projections under “No NPIs in place” scenario.

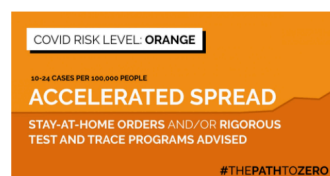
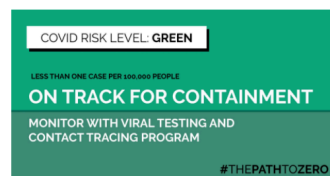
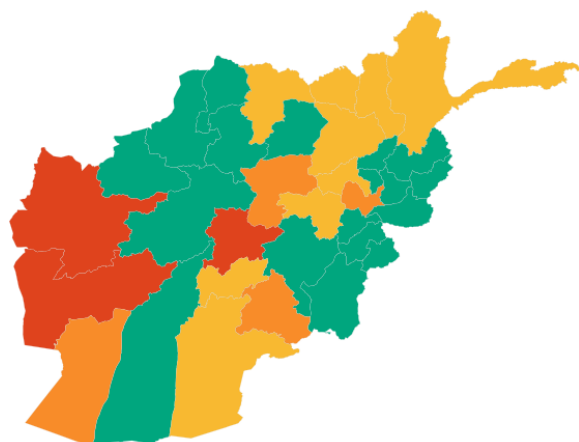


4. Subnational Projections (for the next 2 weeks or by 21 Oct 2020)

Projected Incidence

Assuming current NPIs³ are maintained.

Projected Reported Daily New Cases Per 100,000 People



Projected Changes In Incidence

Regions ordered in decreasing order of change magnitude, from largest increase (more concerning) to largest decrease (less concerning). While the magnitude of change may signal how successful mitigation strategies are projected to be, it should be evaluated in conjunction with regional incidence (cases per 100k people) when considering adding or lifting containment measures.

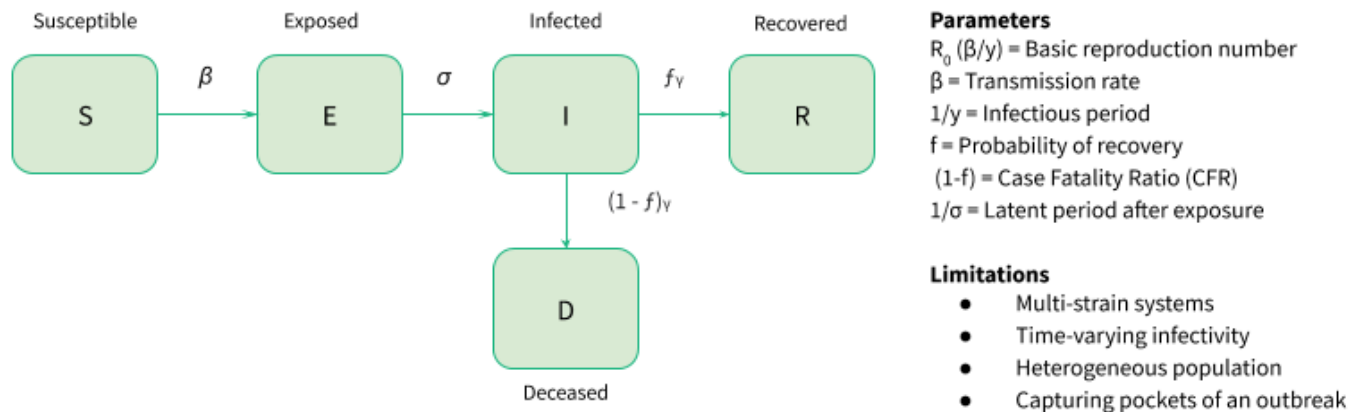
³ **Non-pharmaceutical interventions - NPIs** are all measures implemented by different actors with the aim of reducing the spread and the impact of COVID-19. The NPIs currently in place in Afghanistan are extracted from the [ACAPS database](#) and complemented with additional contextual information provided by our partners in the country.

Region	Change (%)	Projected Cases per 100k People
Increasing or Stable		
Ghor	0.13	0.131
Badghis	0.08	0.076
Ghazni	0.04	0.042
Kapisa	0.03	0.034
Logar	0.03	0.035
Samangan	0.03	0.025
Jawzjan	0.02	0.024
Panjsher	0.01	0.007
Sar-e-Pul	0.01	0.010
Nangarhar	0.00	0.002
Laghman	0.00	0.005
Paktika	0.00	0.000
Paktya	0.00	0.000
Khost	0.00	0.000
Kunar	0.00	0.000
Nuristan	0.00	0.000
Faryab	0.00	0.000
Decreasing		
Hilmand	-0.14	0.749
Maidan Wardak	-0.47	2.115
Kandahar	-0.52	1.991
Parwan	-0.53	3.942
Baghlan	-0.55	2.183
Takhar	-0.56	2.262
Kunduz	-0.84	3.511
Uruzgan	-0.95	3.780
Balkh	-1.44	5.853
Badakhshan	-1.68	6.299
Zabul	-6.08	17.606
Kabul	-6.96	20.681
Nimroz	-7.17	17.774
Bamyan	-7.86	18.660
Farah	-17.05	38.776
Daykundi	-18.37	63.866
Hirat	-19.72	61.290

Background on Model Methodology

The Centre established a partnership with the Johns Hopkins University Applied Physics Laboratory to develop a COVID-19 model which provides projections and insights related to the **scale** of the crisis, the **duration** of the crisis in a specific location, and how different response **interventions** are expected to impact the epidemic curve.

The team is using an **SEIR (Susceptible, Exposed, Infectious, Recovered)** model of infectious disease dynamics which is considered the simplest and most effective technique used in the literature. The model is based on a progression from susceptible to either recovered or dead. Inputs include the reproduction rate (R_0), case fatality rate (CFR), and estimated probabilities that an individual person may contract COVID-19. The model then simulates an outbreak and provides estimates for cases, hospitalizations, and deaths.



The key features of the model include:

- **Tuning on reported data** The estimation of the main parameters (mainly the reproduction rate R_0 and the case reporting rate) is tuned according to the observed recent trends in reported COVID-19 cases.
- **Subnational** The model provides COVID-19 projections at the subnational level, matching the administrative level at which COVID-19 cases are reported.
- **Spatial spread** The density of roads is used to estimate the expected mobility patterns and to simulate the spread of COVID-19 between administrative units.
- **Population stratification** The model fidelity is increased by taking into consideration:
 - The age structure of the population at the subnational level
 - The expected probability of contact between populations of different age groups, including contacts expected to happen at work, school, home and everywhere else (social mixing)
 - Vulnerability factors such as food insecurity, household air pollution and access to handwashing facilities.
- **Non-pharmaceutical interventions (NPIs)** The model simulates the expected impact of NPIs at the subnational level, and also how the outbreaks is influenced by changing NPIs implemented over time. The NPIs currently implemented can be categorised in three main groups:
 - Mobility based NPIs, which would limit the spread of disease between administrative units (e.g. border closures)
 - Contact based NPIs, which reduce the probability of contact between specific groups (e.g. shielding of the elderly, closing schools)
 - R_0 based NPIs, which reduce the overall reproduction rate (e.g. awareness campaigns, curfews)