Epidemiological update on COVID-19 situation in Nepal -- based on epidemiological update on 26 June 2020 07:00 hours

Top line summary

This detailed epidemiological update is based on 11159 cases (26 deaths) of COVID-19 confirmed through RT-PCR. Core epidemiological variables for a few confirmed cases are under process currently. So far, more nearly 200,000 samples have been tested for COVID-19 through polymerase chain reaction (PCR).

Transmission pattern

For the past few weeks migrant workers returning across the open southern border have been the driving force for current COVID-19 transmission in Nepal. An increasing pattern of clustered cases is seen in provinces 1, 2, 5 and in Karnali and Sudur Paschim. The total count of cases has been increasing rapidly, but the doubling time has now lengthened from three days in mid-May to 10 days in mid-June.

There are some cases without a clear travel history or contact with persons with a travel history and some evidence of community transmission is emerging although it is still in a few clusters. In this week's update we have included some analysis of cumulative incidence rates by province and districts and proportion of PCR positive and pending results by province.

So far, aggressive testing albeit with significant scope for strategic improvement, has helped identify and confine the transmission among returnees but testing capacity as well as isolation and quarantine facilities and contact tracing mechanisms are being stretched to the limit. Maintaining infection prevention and control protocols in all quarantine and isolation centres and at home would be paramount importance in the weeks ahead.

Deaths

Twenty-six persons (four female) who tested positive for COVID-19 have died. Of these, 15 persons had one or more co-morbid conditions and five persons were above 60 years of age while one was a child of two years.

COVID-19 update

- The COVID-19 pandemic with nearly 10 million cases and nearly 500,000 deaths globally (https://www.worldometers.info/coronavirus/#countries accessed on 27 June 2020) has become an unprecedented public health challenge for all countries.
- As of 26 June 2020, Nepal has confirmed 11163 cases through PCR and 26 deaths. This report is based on 11159 cases for which core data is available.
- All seven provinces and 76 out of 77 districts are now affected. Five provinces are having transmission as clusters of cases.

Summary of laboratory-confirmed COVID-19 cases, deaths and transmission by province

Transmission classification based on WHO definitions

Reporting Province	Total confirmed cumulative cases	Total cumulative deaths	Transmission classification*	District affected (total districts)	Date of most recent case#
Province 1	516	0	Cluster of cases	14 (14)	25-Jun-2020
Province 2	3422	3	Cluster of cases	8 (8)	25-Jun-2020
Bagmati	340	5	Sporadic cases	12 (13)	25-Jun-2020
Gandaki	801	2	Sporadic cases	11 (11)	25-Jun-2020
Province 5	3073	8	Cluster of cases	12 (12)	25-Jun-2020
Karnali	1394	4	Cluster of cases	10 (10)	25-Jun-2020
Sudurpaschhim	1613	4	Cluster of cases	9 (9)	25-Jun-2020
National Total	**11159**	**26**		**76 (77)**	**25-Jun-2020**

- Date of last case is the date of onset or date of sample collection or date of lab report based on information available.
*Case classification is based on WHO transmission classification
No cases- provinces with no cases
Sporadic cases- provinces with one or more cases, imported or locally detected
Cluster of cases- provinces experiencing cases, clustered in time, geographic location and/or by common exposures
Community transmission- experiencing larger outbreaks of local transmission defined through an assessment of factors including, but not limited to:
- Large numbers of cases not linkable to transmission chains
- Large numbers of cases from sentinel lab surveillance
- Multiple unrelated clusters in several areas of the country/territory/area

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- *All data are provisional*
- *Data updated till 26 Jun 2020 Time 07:00:00*

Table 1: Nepal COVID-19 cases by province and districts affected with date of last case

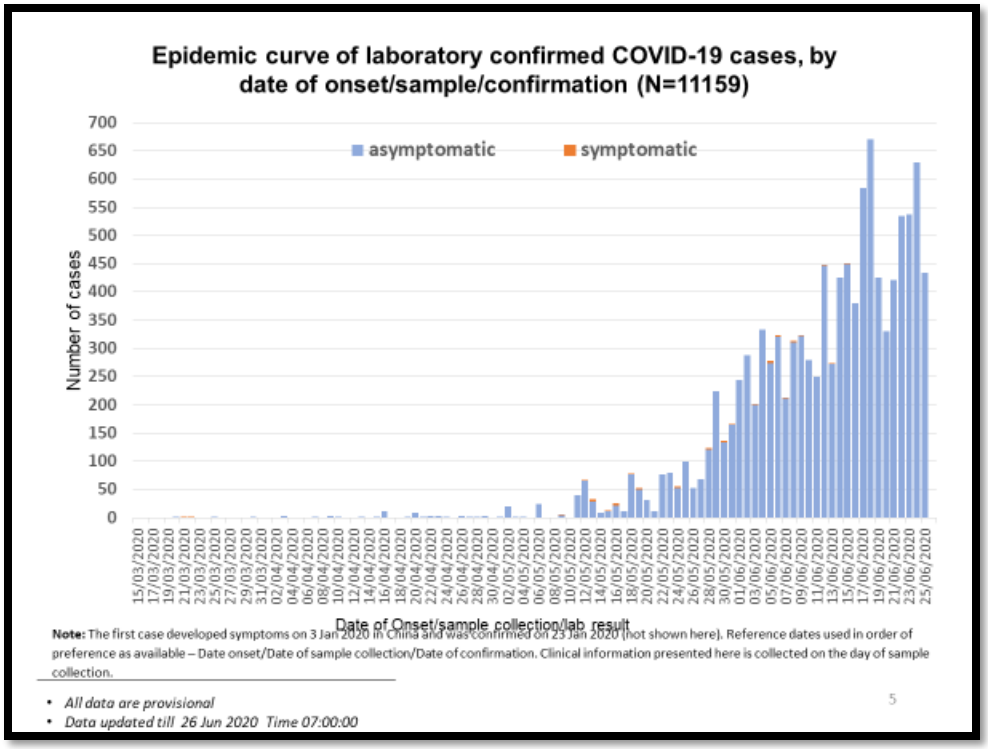


Figure 1: COVID-19 daily incident cases by symptom at presentation

- The national daily incident and cumulative cases and the daily incident cases by province are shown in Figure 1, Figure 2, and Figure 3

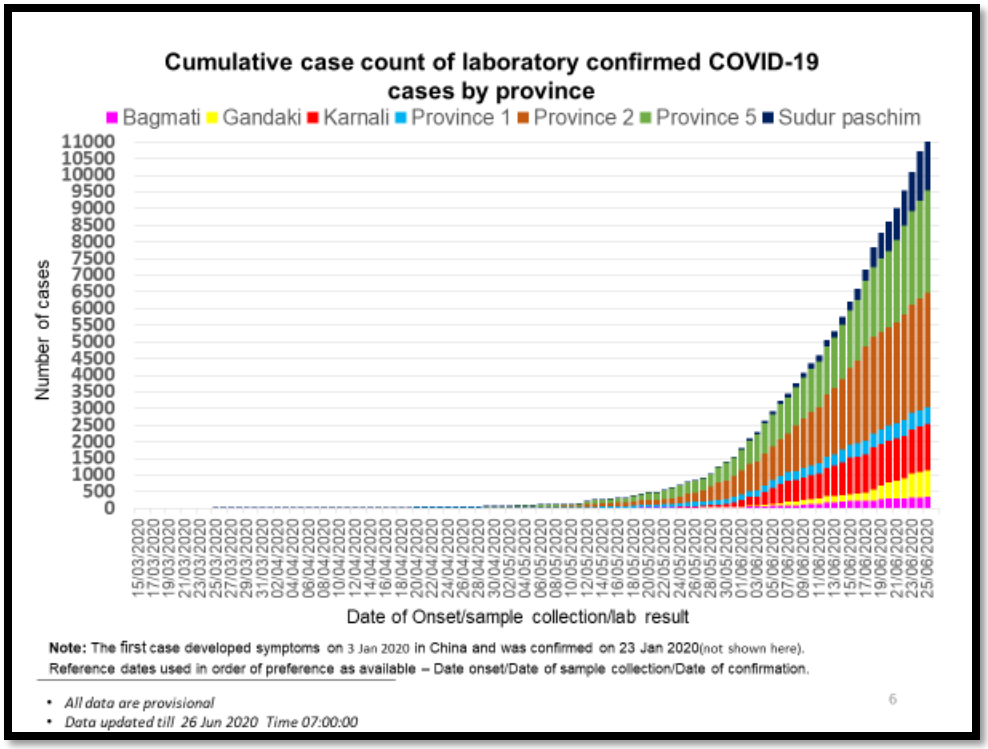


Figure 2: Cumulative incidence of COVID-19 confirmed cases by province

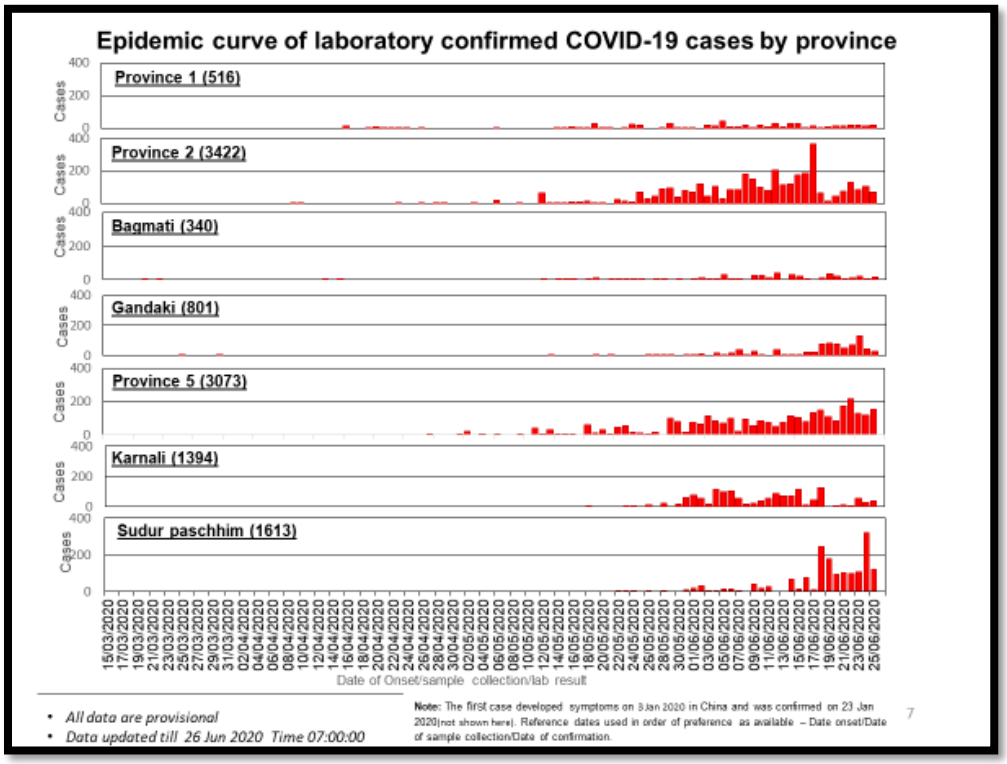


Figure 3: Province wise epi-curve of confirmed COVID-19 cases

- We estimated observed doubling time of cumulative cases from 20 March to 24 June 2020. [Figure 4]
    - In the initial stages of the epidemic when the numbers were small, doubling time varied between 3-11 days. Between 14 May and 9 June, the observed doubling time varied between 4-8 days. However, the doubling time lengthened to 10 days from 9 to 19 June.

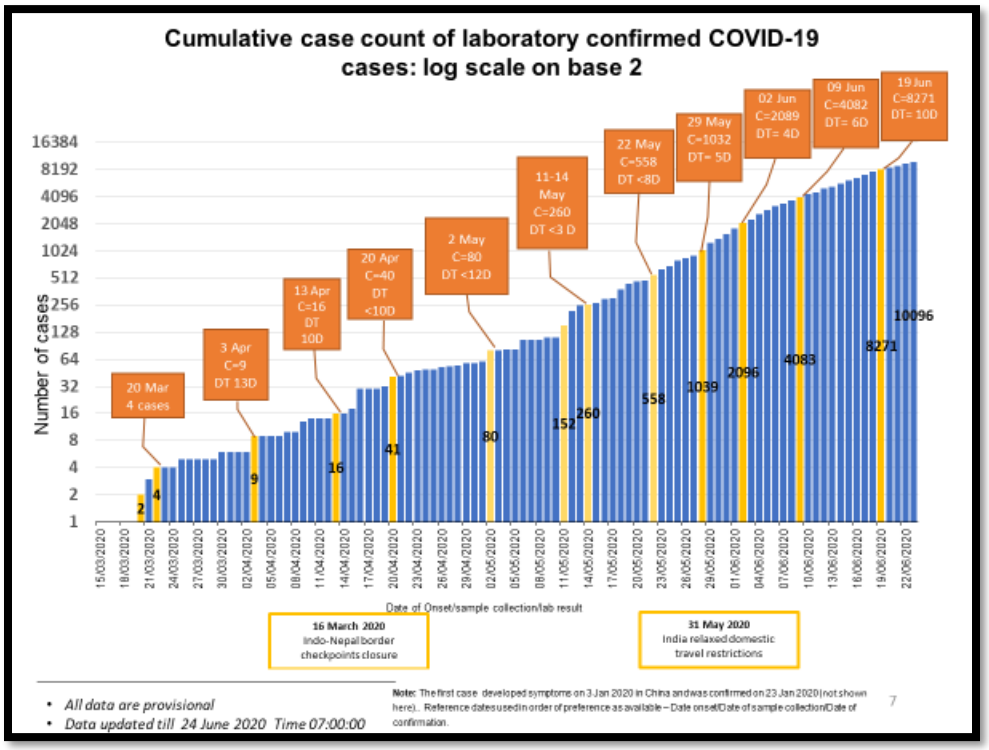
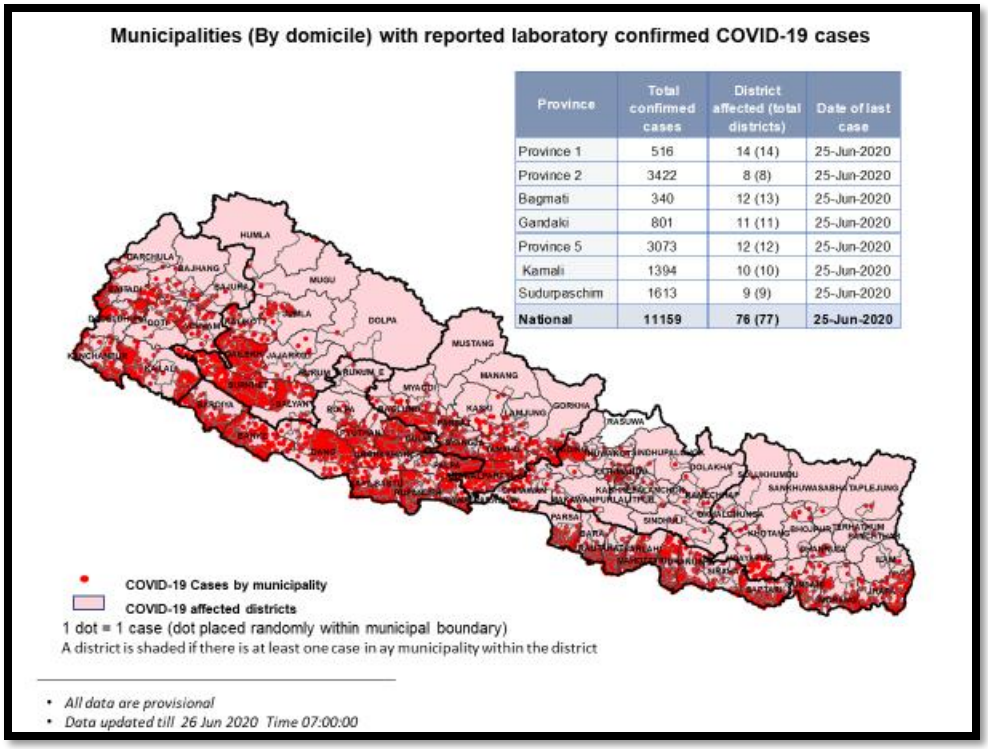


Figure 4: Observed doubling time of cumulative cases 20 March to 17 June 2020

- Aggressive testing irrespective of symptoms in such high-risk groups and locations has played a part in the prevention of apparent seeding of infection. Nearly 200,000 PCR tests have been conducted. [https://covid19.mohp.gov.np/#/ accessed on 26 June 2020 0800]
- The geographic distribution shown below demonstrates clustering within some municipalities. [Figure 5]
    - In the map each dot representing a confirmed case is placed randomly within municipal boundaries where the case was identified.
    - A district is shaded whenever at least one confirmed case is reported from any one municipality within the district.
- The spatial distribution of cases is therefore still clustered within a few municipalities, rather than being widespread across the districts.
- If proper infection prevention and control protocols are not followed in the quarantine or isolation centres there is a real risk of spread of infection to health care workers and community through these infective persons who are now spread across the country.



Province	Total confirmed cases	District affected (total districts)	Date of last case
Province 1	516	14 (14)	25-Jun-2020
Province 2	3422	8 (8)	25-Jun-2020
Bagmati	340	12 (13)	25-Jun-2020
Gandaki	801	11 (11)	25-Jun-2020
Province 5	3073	12 (12)	25-Jun-2020
Karnali	1394	10 (10)	25-Jun-2020
Sudurpaschim	1613	9 (9)	25-Jun-2020
National	**11159**	**76 (77)**	**25-Jun-2020**

Figure 5: Geographic distribution of cases by place of confirmation or residence

- As per data available until 24 June 2020, cumulative incidence rate (attack rate) per 100,000 population is 33.87 at national level and by province it ranged between 5.04 (Bagmati) to 73.85 in Karnali with a mean of 33.87. [Figure 6]
- District specific cumulative incidence rates per 100,000 varies widely across provinces, with five districts (Dadeldhura, Dailekh, Kapilbastu, Arghakanchi and Rautahat) having cumulative incidence greater than 100 per 100,000 persons. [Figure 7]
- Across districts, the attack rate ranged from as low as 0.64 (some districts of Province-1) to as high as 252.24 in Dailekh (Karnali).

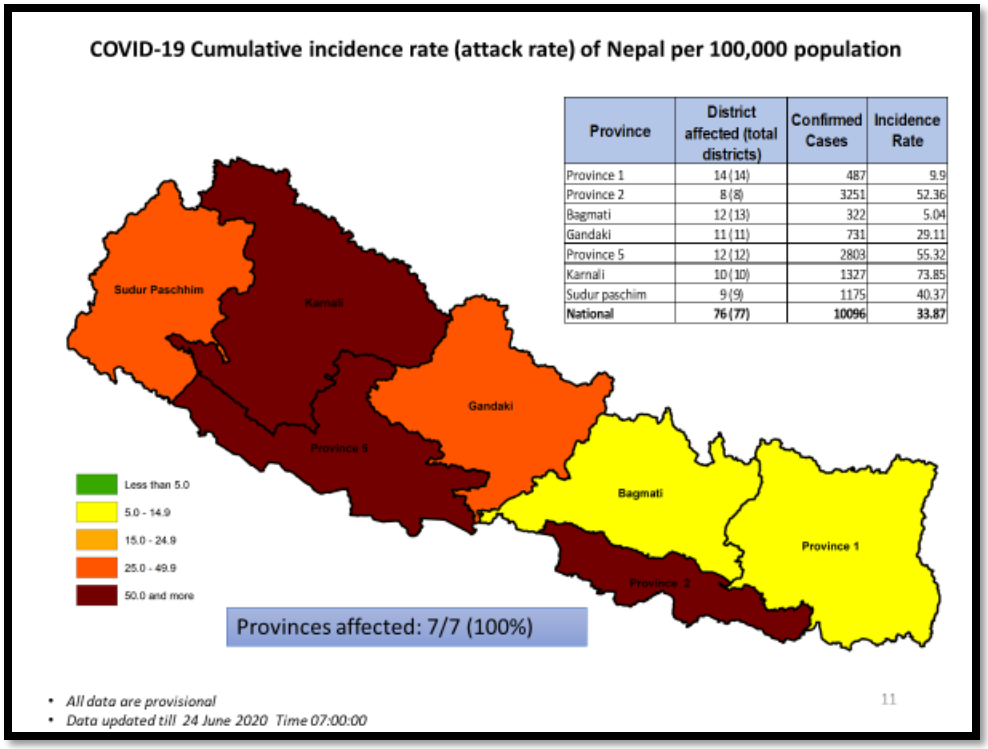


Figure 6: Cumulative incidence rate (attack rate) per 100,000 population by province

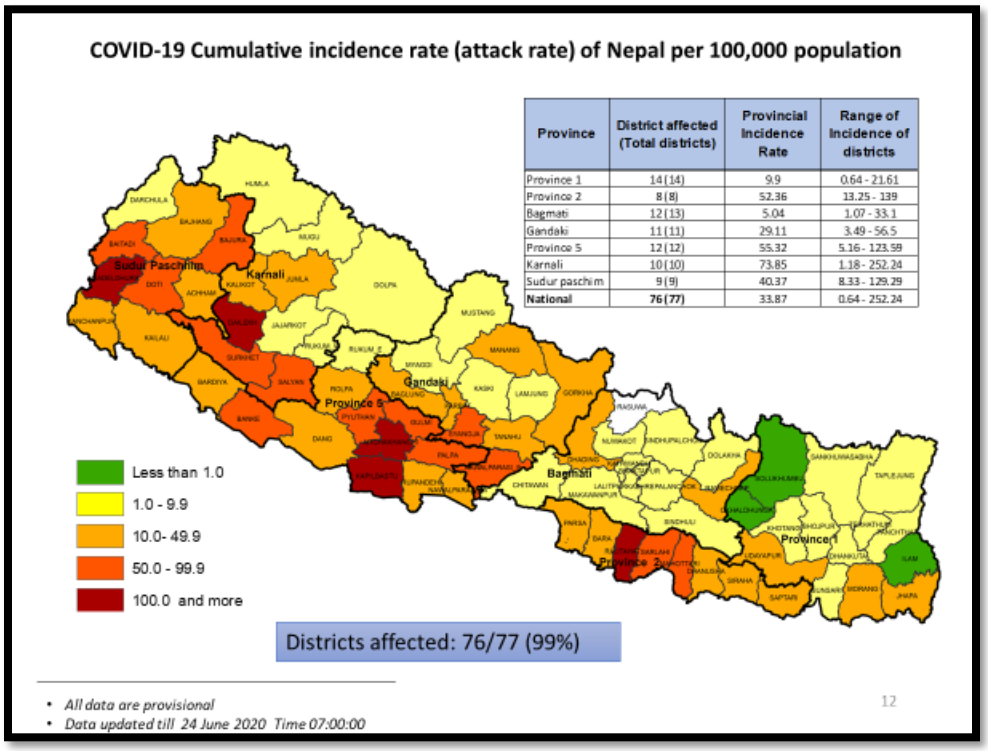


Figure 7: Cumulative incidence rate (attack rate) per 100,000 population by district

Age sex distribution

- The age sex distribution is highly skewed towards males, who constitute 90% of the confirmed cases. Of the males, 93% are in 15-54-year age group, indicating that these large increases in confirmed cases are occurring because of large groups of infected migrant workers (who are predominantly males in economically productive age group) returning to Nepal. [Figure 8 and Table 2]

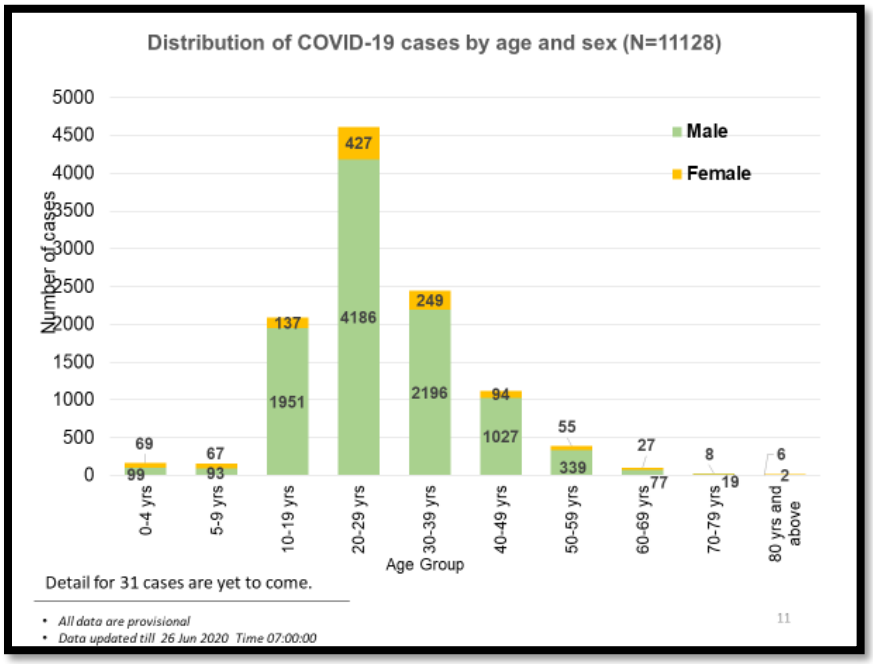


Figure 8: Age-sex distribution of confirmed COVID-19 cases

Distribution of COVID-19 cases by age and sex by province (N=11159)

Percentage of male among total confirmed cases: 90% (10019/11159)

Percentage of male in 15-54 year among confirmed male cases: 93% (9360/10019)

Province	Sex	Age Group											Total
		0-4 yrs	5-9 yrs	10-19 yrs	20-29 yrs	30-39 yrs	40-49 yrs	50-59 yrs	60-69 yrs	70-79 yrs	80+ yrs	Unknown	
Province 1	Female	3	4	2	18	20	8	6	1	0	0	0	62
	Male	2	3	105	187	91	43	14	8	0	0	1	454
	Total	5	7	107	205	111	51	20	9	0	0	1	516
Province 2	Female	16	17	38	50	44	12	5	4	0	1	3	190
	Male	18	39	811	1252	691	307	78	20	6	2	8	3232
	Total	34	56	849	1302	735	319	83	24	6	3	11	3422
Bagmati	Female	1	1	3	44	29	9	2	3	1	1	0	94
	Male	0	3	28	105	53	35	17	3	2	0	0	246
	Total	1	4	31	149	82	44	19	6	3	1	0	340
Gandaki	Female	1	5	7	28	19	11	8	4	2	0	1	86
	Male	10	6	103	311	149	94	28	9	2	2	1	715
	Total	11	11	110	339	168	105	36	13	4	2	2	801
Province 5	Female	19	21	47	116	52	27	16	6	3	0	0	307
	Male	24	16	473	1154	634	324	111	13	5	1	11	2768
	Total	43	37	520	1270	686	351	127	19	8	1	11	3073
Karnali	Female	6	5	14	54	24	7	8	3	1	0	0	122
	Male	21	8	249	549	277	114	43	10	0	1	0	1272
	Total	27	13	263	603	301	121	51	13	1	1	0	1394
Sudurpaschim	Female	23	14	26	117	61	20	10	6	1	0	1	279
	Male	24	18	182	628	301	110	48	14	4	0	5	1334
	Total	47	32	208	745	362	130	58	20	5	0	6	1613
National	Female	69	67	137	427	249	94	55	27	8	2	5	1140
	Male	99	93	1951	4186	2196	1027	339	77	19	6	26	10019
	Total	168	160	2088	4613	2445	1121	394	104	27	8	31	11159

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Table 2: Age-sex distribution of confirmed COVID-19 cases by province

Laboratory results (based on data available at EDCD)

EDCD shared some laboratory data available with EDCD. While the data set was incomplete with key information missing from Gandaki and Sudur Paschim provinces. Nevertheless, some key data points are worth noting.

- Excluding the above two provinces, 11% of specimens are pending testing at the laboratories with as many as 24% in Province-5 and 20% in Province-2.
- Excluding the above two provinces, the proportion of positives is 7% nationally with a high of 10% and 11% in Prv-5 and Prv-2 and allow of 2% in Bagmati.
- We also looked at population based cumulative swabbing rates for PCR based on this data. [Table 4]
    - Nationally it is at nearly 5000 per million persons, with a high of 12590 in Karnali and a low of 2140 in Gandaki. We did not have data for Gandaki to perform this analysis.
- A couple of concerning issues emerge from this analysis.
    - **The data systems are extremely fragmented and may well misinform decision making. This should be addressed at MOHP or HEOC level urgently and data systems streamlined within existing systems rather than setting up parallel data collection systems at different federal departments and divisions.**
    - **The labs should be supported to immediately test the pending specimens and monitored on an ongoing basis to ensure a lab turnaround time of 24-48 hours.**

Province / Country	PCR Swabs Collected	PCR tests positive	PCR tests negative	Results pending at lab (where all three data points available)	Per cent pending (where three data points available)	Per cent positive (where positive and negative results available)
	A	B	C	D = A-(B+C)	E = D/A%	F = B / (B+C)%
(1) Province 1	18,604	487	17,061	1,056	5.68%	3%
(2) Province 2	37,818	3,244	27,173	7,401	19.57%	11%
(3) Bagmati	13,656	322	13,283	51	0.37%	2%
(4) Gandaki	No data	732	No data	No data		
(5) Province 5	35,800	2,809	24,342	8,649	24.16%	10%
(6) Karnali	22,624	1,330	20,965	329	1.45%	6%
(7) Sudur Paschim	16,946	1,175	No data	No data		
(8) Nepal	**145,448**	**10,099**	**102,824**	**17,486**	**11%**	7%

Table 3: Laboratory results, percent positivity and percent pending by province where complete data was made available by EDCD

Province / Country	PCR Swabs Collected	Population	Cumulative PCR swabbing per 1,000,000 persons
(1) Province 1	18,604	4,921,498	3780
(2) Province 2	37,818	6,209,507	6090
(3) Bagmati	13,656	6,387,632	2140
(4) Gandaki		2,511,136	-
(5) Province 5	35,800	5,066,640	7070
(6) Karnali	22,624	1,796,822	12590
(7) Sudur Paschim	16,946	2,910,497	5820
(8) Nepal	**145,448**	**29,803,732**	**4880**

Table 4: Cumulative PCR swabbing rate per 100,000 persons

Recovery and death

- 1645 persons have "recovered" / discharged. [Figure 9]
- Twenty-six persons (four female) who tested positive for COVID-19 have died. Of these, 15 persons had one or more co-morbid conditions and five persons were above 65 years of age while one was a child of two years. [Figure 10]

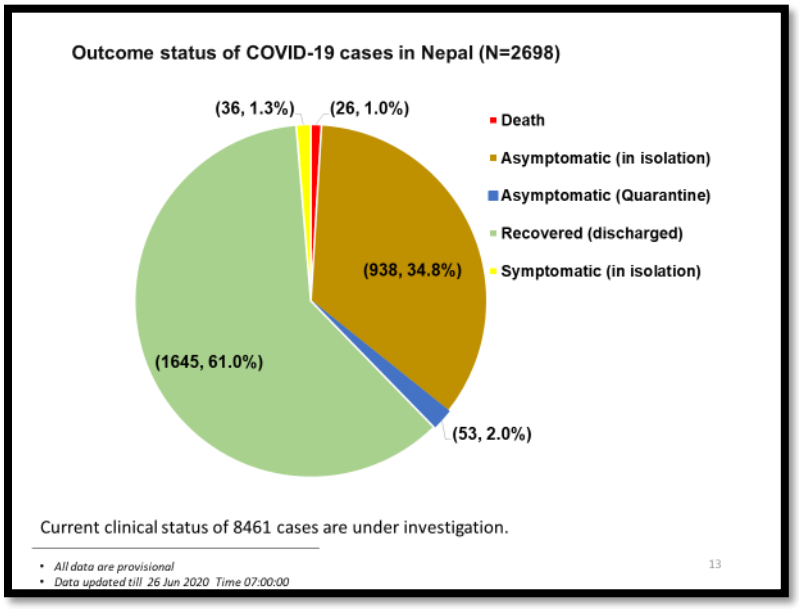

Figure 9: outcome status of confirmed COVID-19 cases

Age-specific case fatality ratio and comorbidity of deaths* in COVID-19 confirmed cases (N=11159)

Age Group	Total confirmed cases	Death (male)	Death (female)	Deaths with any known comorbid condition	Age specific case fatality ratio (%)
0-4 yrs	168	0	1	0	0.6
5-9 yrs	160	1	0	0	0.63
10-19 yrs	2088	1	0	1	0.05
20-29 yrs	4613	2	1	1	0.07
30-39 yrs	2445	3	0	1	0.12
40-49 yrs	1121	4	2	3	0.54
50-59 yrs	394	6	0	4	1.52
60-69 yrs	104	3	0	3	2.88
70-79 yrs	27	2	0	2	7.41
80+ yrs	8	0	0	0	0
Unknown	31	0	0	0	0
Grand Total	**11159**	**22**	**4**	**15**	**0.23**

COVID-19 positive lab result is temporally associated with death; causal association under investigation.
** Source:* https://covid19.mohp.gov.np/#/

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Figure 10: Age-specific case fatality ratios in lab confirmed COVID-19 cases

Quarantine centre occupancy

- Data available from Ministry of Home Affairs (https://covid19.ndrrma.gov.np/timeline/) shows there was a sharp increase in number of persons in quarantine from 21 May onwards and has started declining form 9 June, 2020.

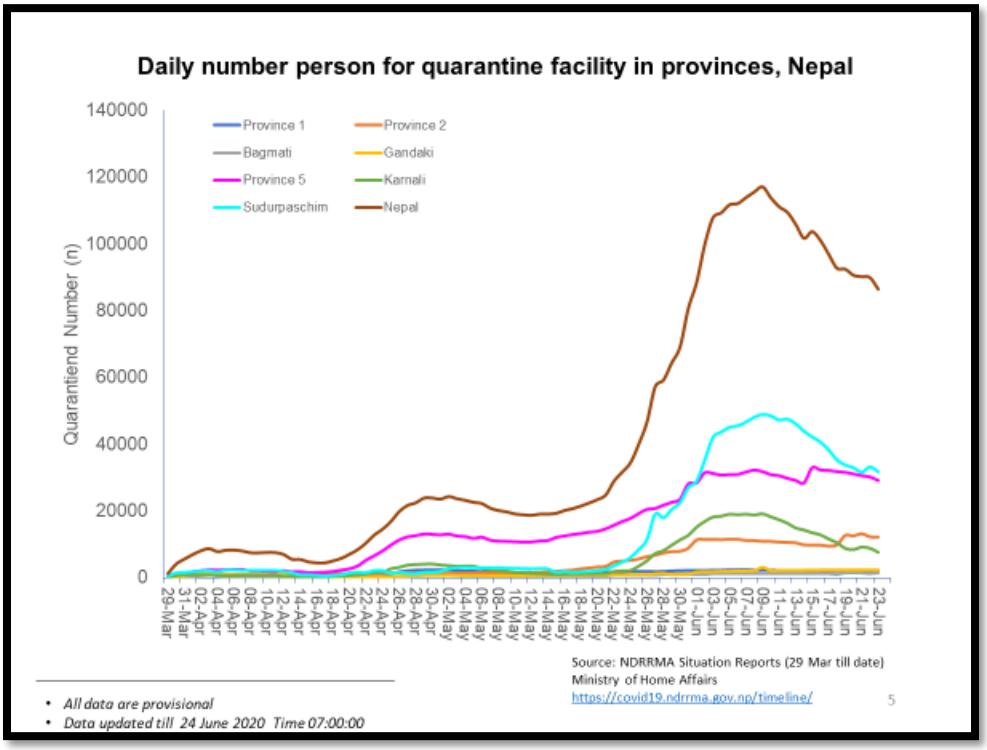

Figure 11: Persons in quarantine facilities