

STATUS REPORT OF COVID-19 IN HARYANA

(No. 8 / June 21st 2020)

Dr. Usha Gupta
Director Health Services (IDSP)
Directorate of Health Services, Haryana

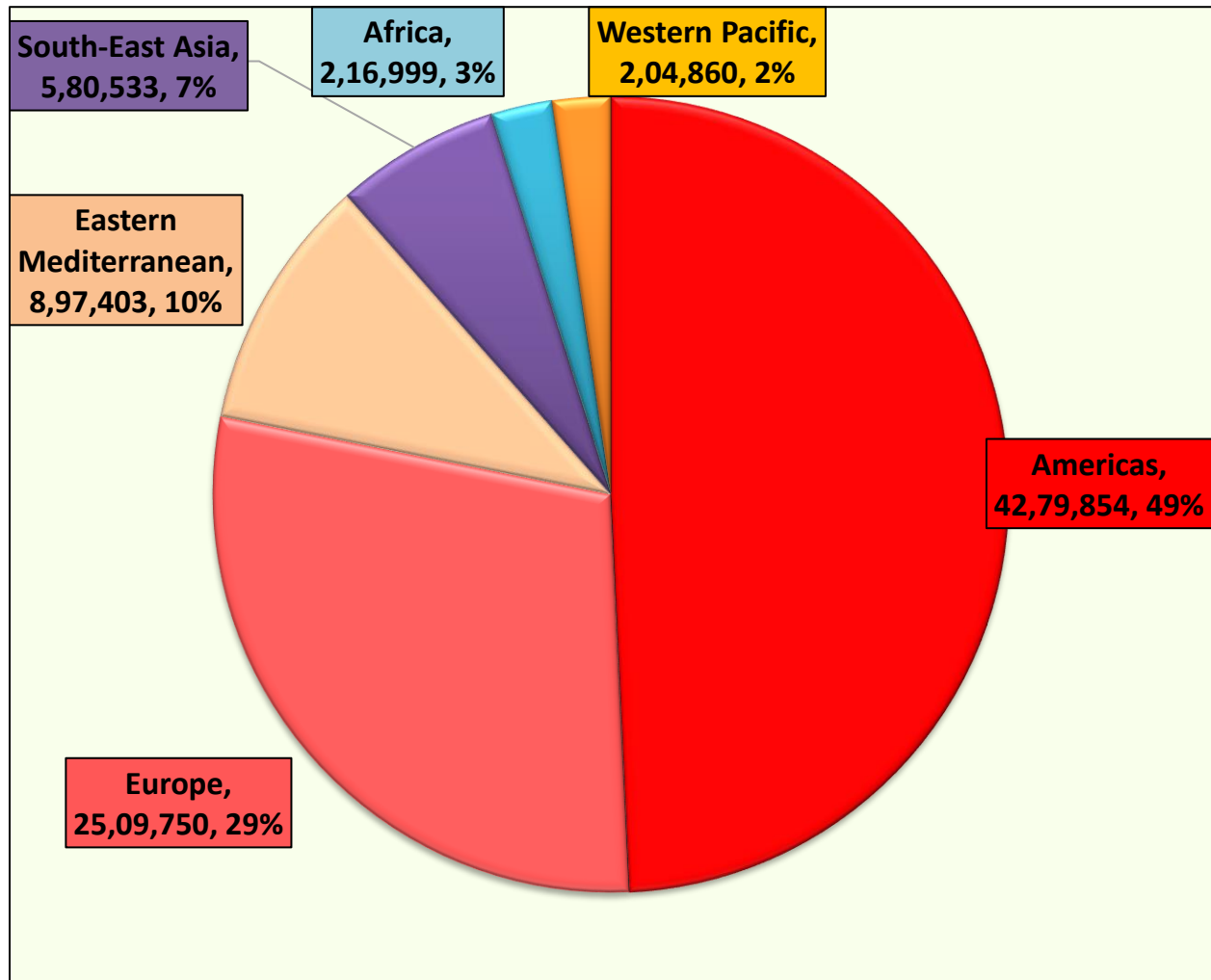
BACKGROUND: - Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus. Its first case was reported in China. On 31st December 2019, the World Health Organization (WHO) China Country Office was informed of cases of pneumonia of unknown etiology (unknown cause) detected in Wuhan City, Hubei Province of China. On 7th January 2020, Chinese authorities identified a new strain of Coronavirus as the causative agent for the disease. The virus has been renamed by WHO as Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) and the disease caused by it as COVID-19. World Health Organization has assessed the risk for spread of this disease and declared the current novel coronavirus outbreak as a Public Health Emergency of International Concern (PHEIC) on 30th January, 2020. Further, on 11th March, 2020, WHO declared COVID-19 as a pandemic.

EPIDEMIOLOGY: - The etiologic agent responsible for current outbreak of SARSCoV-2 is a novel coronavirus is closely related to SARS-Coronavirus. This disease is an infectious disease, which mainly spreads by the viral load present in the respiratory droplets of infected persons. Current estimates of the incubation period of COVID range from 2-14 days. Most common symptoms include fever, fatigue, dry cough and breathing difficulty. Diagnosis is by demonstration of the virus in respiratory secretions by special molecular tests. The deaths reported are mainly among elderly population particularly those with co-morbidities. The case fatality rate is estimated to range from 2 to 3%. The disease is rapidly spreading from its origin in Wuhan City of Hubei Province of China to the rest of the World.

GLOBAL STATUS OF COVID-19 CASES

According to WHO, on 21.06.2020, worldwide, a total 8,690,140 cases of this disease have been reported. The distribution of COVID-19 cases in WHO Regions, represent that Americas Region is having highest share followed by Europe Region, Eastern Mediterranean Region, South-East Asia Region, Africa Region and Western Pacific Region (Figure No.1). On analyzing the Region wise trend of COVID-19 spread, it is estimated that the burden of this disease has been shifted to Americas and Europe Regions from South-East Asia Region. Further, the worldwide cumulative trends show that the number of patients of this disease are increasing day by day.

Figure No. 1: WHO Region Wise distribution of COVID-19 Patients (as on 21.06.2020)



Source – World Health Organisation (WHO)

Out of the 216 affected countries / areas / territories, the mostly affected countries were United States of America, Brazil, Russian Federation, **India**, The United Kingdom, Peru, Spain, Italy, Chile, Iran, Germany, Turkey, etc.

COVID-19 is also causing deaths worldwide. Since its inception, till 21.06.2020, total 461,274 deaths were reported by WHO. According to WHO, till 21.06.2020, highest deaths of COVID-19 patients occurred in United States of America followed by Brazil, The United Kingdom, Italy, France, Spain, Mexico, **India**, Belgium, Iran, Germany, Canada, etc.

On global scenario, India is having 4th ranking in overall case load of COVID-19. However, on the basis of COVID-19 related mortality indicator, India internationally stands at 8th position.

STATUS OF COVID-19 CASES IN INDIA

India reported the first confirmed case of the coronavirus infection on 30.01.2020 in the state of Kerala. The affected had a travel history from Wuhan, China. No significant rise in cases was seen in the rest of February. On 04.03.2020, 22 new cases came to light, including those of an Italian tourist group with 14 infected members. The transmission escalated during March month, after several cases were reported all over the country, most of which were linked to people with a travel history to affected countries. Further, on 31.03.2020, a Tablighi Jamaat religious congregation event that took place in Delhi in early March month emerged as a new virus hotspot after numerous cases across the country were traced back to the event.

On 21.06.2020, total 410,461 cases were confirmed in India. As a consequence of this disease, deaths have been reported in India. The first death was reported on 12th March, 2020, a 76-year-old man who had returned from Saudi Arabia, became the first victim of the virus in the country. As on 21.06.2020, the death toll crossed to 13,254. However, on comparing the mortality percentage with International statistics, Indian scenario was observed comparatively better as represented in Table No. 1.

Table No. 1: Comparison of COVID-19 Cases and Deaths (as on 21.06.2020)

Variables	World*	India#
Total Cases	8,690,140	410,461
Total Deaths	461,274	13,254
Mortality (%)	5.31%	3.23%

Source – *World Health Organisation (WHO)&#Ministry of Health and Family Welfare (MOHFW)

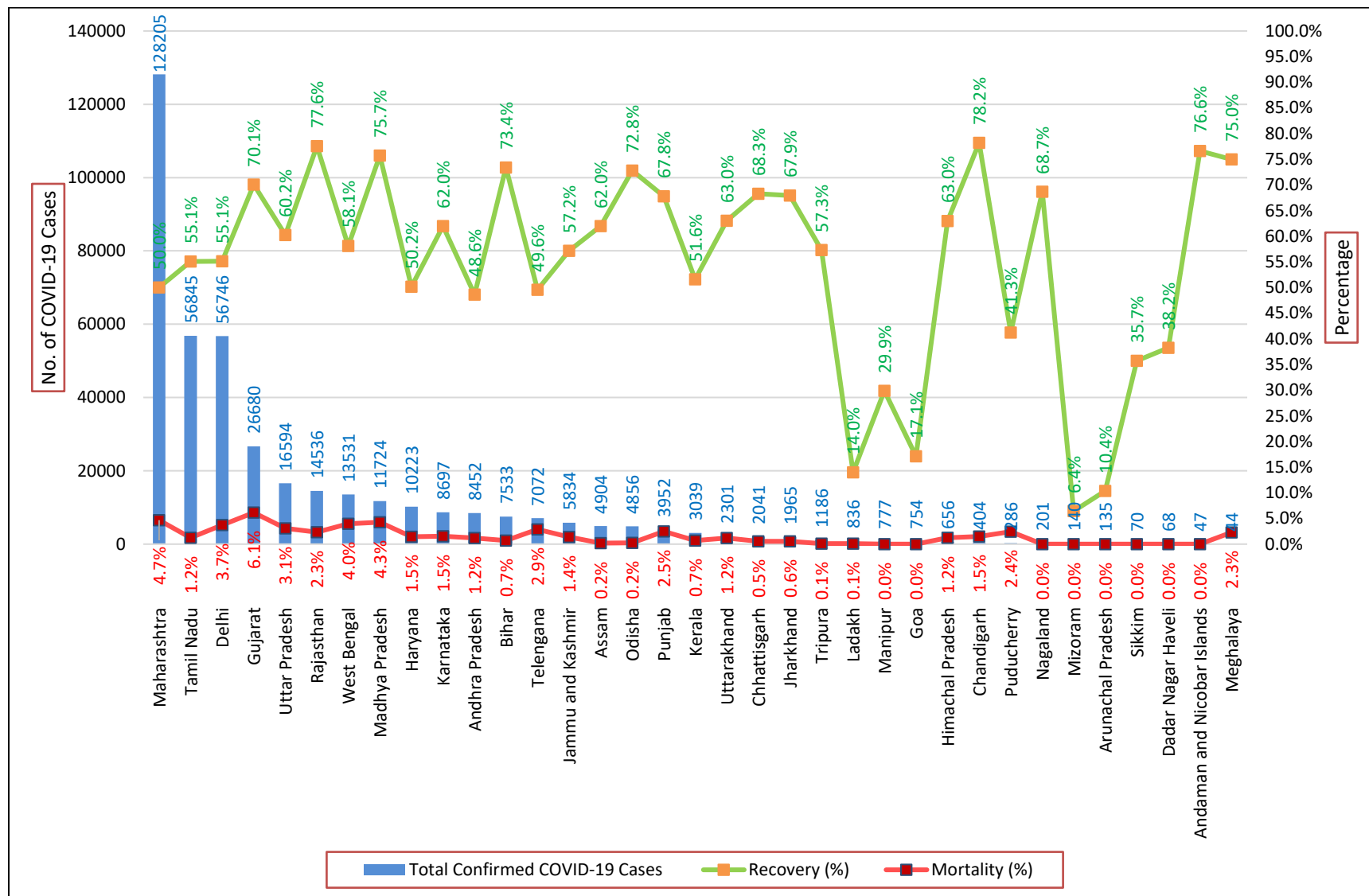
The number of COVID-19 cases are increasing continuously since the inception of first case. On dated 21.06.2020, Maharashtra, Tamil Nadu, Delhi, Gujrat, Uttar Pradesh, Rajasthan, West Bengal, Madhya Pradesh, etc. were emerged as most affected states in India according to the MOHFW. COVID-19 cases related mortality pattern of Indian states shows that the states like Maharashtra, Delhi, Gujrat, Tamil Nadu, West Bengal, Uttar Pradesh, Madhya Pradesh, Rajasthan, etc. had a large portion of deaths in India (Table No. 2).

Table No. 2: State Wise Distribution of COVID-19 Cases & Death in India (as on 21.06.2020)

Name of State / UT	Population (Census 2011)	Total Confirmed COVID-19 Cases	Cured / Discharged / Migrated	Deaths	Active Cases	Recovery (%)	Mortality (%)	Total Case Per Million Population	Active Case Load Per Million Population
Andaman & Nicobar Islands	380,581	47	36	0	11	76.6%	0.0%	123	29
Andhra Pradesh	49,670,000	8452	4111	101	4240	48.6%	1.2%	170	85
Arunachal Pradesh	1,383,727	135	14	0	121	10.4%	0.0%	98	87
Assam	31,205,576	4904	3039	9	1856	62.0%	0.2%	157	59
Bihar	104,099,452	7533	5529	52	1952	73.4%	0.7%	72	19
Chandigarh	1,055,450	404	316	6	82	78.2%	1.5%	383	78
Chhattisgarh	25,545,198	2041	1394	11	636	68.3%	0.5%	80	25
Dadar Nagar Haveli	343,709	68	26	0	42	38.2%	0.0%	198	122
Delhi	16,787,941	56746	31294	2112	23340	55.1%	3.7%	3380	1390
Goa	1,458,545	754	129	0	625	17.1%	0.0%	517	429
Gujarat	60,439,692	26680	18694	1638	6348	70.1%	6.1%	441	105
Haryana	25,351,462	10223	5128	149	4946	50.2%	1.5%	403	195
Himachal Pradesh	6,864,602	656	413	8	235	63.0%	1.2%	96	34
Jammu and Kashmir	12,407,815	5834	3336	81	2417	57.2%	1.4%	470	195
Jharkhand	32,988,134	1965	1335	11	619	67.9%	0.6%	60	19
Karnataka	61,095,297	8697	5391	132	3174	62.0%	1.5%	142	52
Kerala	33,406,061	3039	1568	21	1450	51.6%	0.7%	91	43
Ladakh	133,487	836	117	1	718	14.0%	0.1%	6263	5379
Madhya Pradesh	72,626,809	11724	8880	501	2343	75.7%	4.3%	161	32
Maharashtra	112,374,333	128205	64153	5984	58068	50.0%	4.7%	1141	517
Manipur	2,855,794	777	232	0	545	29.9%	0.0%	272	191
Meghalaya	2,966,889	44	33	1	10	75.0%	2.3%	15	3
Mizoram	1,097,206	140	9	0	131	6.4%	0.0%	128	119
Nagaland	1,978,502	201	138	0	63	68.7%	0.0%	102	32
Odisha	41,974,218	4856	3534	12	1310	72.8%	0.2%	116	31
Puducherry	1,247,953	286	118	7	161	41.3%	2.4%	229	129
Punjab	27,743,338	3952	2678	98	1176	67.8%	2.5%	142	42
Rajasthan	68,548,437	14536	11274	337	2925	77.6%	2.3%	212	43
Sikkim	610,577	70	25	0	45	35.7%	0.0%	115	74
Tamil Nadu	72,147,030	56845	31316	704	24825	55.1%	1.2%	788	344
Telangana	35,004,000	7072	3506	203	3363	49.6%	2.9%	202	96
Tripura	3,673,917	1186	680	1	505	57.3%	0.1%	323	137
Uttarakhand	10,086,292	2301	1450	27	824	63.0%	1.2%	228	82
Uttar Pradesh	199,812,341	16594	9995	507	6092	60.2%	3.1%	83	30
West Bengal	91,276,115	13531	7865	540	5126	58.1%	4.0%	148	56
Cases Being Reassigned to States	NA	9127	0	0	9127	0.0%	0.0%	NA	NA
India	1,210,640,480	410,461	227,756	13,254	169,451	55.5%	3.2%	339	140

Source-MOHFW Link - <https://www.mohfw.gov.in/> (Retrieved on 21.06.2020 at 3:20 PM)

Figure No. 2: State Wise Trend of Total COVID-19 Cases, Mortality (%) and Recovery (%) in India (as on 21.06.2020)



Source – MOHFW Link - <https://www.mohfw.gov.in/> (Retrieved on 21.06.2020 at 5:30 PM)

STATUS OF COVID-19 CASES IN HARYANA

First case of COVID-19 was reported in Haryana on 17.03.2020. From the date of inception of COVID-19 case in Haryana, the numbers have been increased to 10635 on 21.06.2020. Out of these cases, 5557 have cured and 160 deaths were reported till 21.06.2020.

Table No. 3: District Wise Distribution of COVID-19 Cases in Haryana (as on 21.06.2020)

District	Population (Census 2011 & Website)	Total Positive Cases	Discharged / Cured	Total Deaths with Comorbidity (A)	Total Deaths Without Comorbidity (B)	Total Deaths (A+B)	Total Active Cases	Active Case Per Lakh Population	Mortality (%)	Recovery (%)	Positive Cases Per Lakh Population
Ambala	11,28,350	273	155	3	0	3	115	10	1.1%	56.8%	24
Bhiwani	11,98,085	225	81	1	2	3	141	12	1.3%	36.0%	19
Ch. Dadri	5,02,276	60	43	0	1	1	16	3	1.7%	71.7%	12
Faridabad	18,09,733	2237	918	37	19	56	1263	70	2.5%	41.0%	124
Fatehabad	9,42,011	93	57	0	0	0	36	4	0.0%	61.3%	10
Gurugram	15,14,432	4441	2539	36	28	64	1838	121	1.4%	57.2%	293
Hisar	17,43,931	201	94	0	1	1	106	6	0.5%	46.8%	12
Jhajjar	9,58,405	185	129	2	0	2	54	6	1.1%	69.7%	19
Jind	13,34,152	87	36	3	0	3	48	4	3.4%	41.4%	7
Kaithal	10,74,304	68	52	0	0	0	16	1	0.0%	76.5%	6
Karnal	15,05,324	218	107	1	2	3	108	7	1.4%	49.1%	14
Kurukshetra	9,64,655	104	62	0	0	0	42	4	0.0%	59.6%	11
Mahendergarh	9,22,088	193	116	0	0	0	77	8	0.0%	60.1%	21
Nuh	10,89,263	139	113	0	0	0	26	2	0.0%	81.3%	13
Palwal	10,42,708	263	155	2	0	2	106	10	0.8%	58.9%	25
Panchkula	5,61,293	87	40	0	0	0	47	8	0.0%	46.0%	15
Panipat	12,05,437	134	89	5	1	6	39	3	4.5%	66.4%	11
Rewari	9,00,332	148	12	0	0	0	136	15	0.0%	8.1%	16
Rohtak	10,61,204	427	199	3	3	6	222	21	1.4%	46.6%	40
Sirsa	12,95,189	83	65	0	0	0	18	1	0.0%	78.3%	6
Sonepat	14,50,001	866	456	4	6	10	400	28	1.2%	52.7%	60
Yamunanagar	12,14,205	82	34	0	0	0	48	4	0.0%	41.5%	7
Foreign (USA) Returnee Haryana Citizens	NA	21	5	0	0	0	16	NA	0.0%	23.8%	NA
Haryana	2,54,17,378	10635	5557	97	63	160	4918	19	1.5%	52.3%	42

On date 21.06.2020, districts Gurugram, Faridabad, Sonapat, Rohtak, Ambala, Palwal, Bhiwani, Karnal, Hisar, Mahendergarh, Jhajjar, Rewari and Nuh were sharing the major part of total COVID-19 cases in Haryana. The influence of Jamat related cases was the also contributing as major triggering factor in overall number of COVID-19 patients in some districts.

Figure No. 3: Distribution of Total COVID-19 Cases in the Districts of Haryana (as on 21.06.2020)

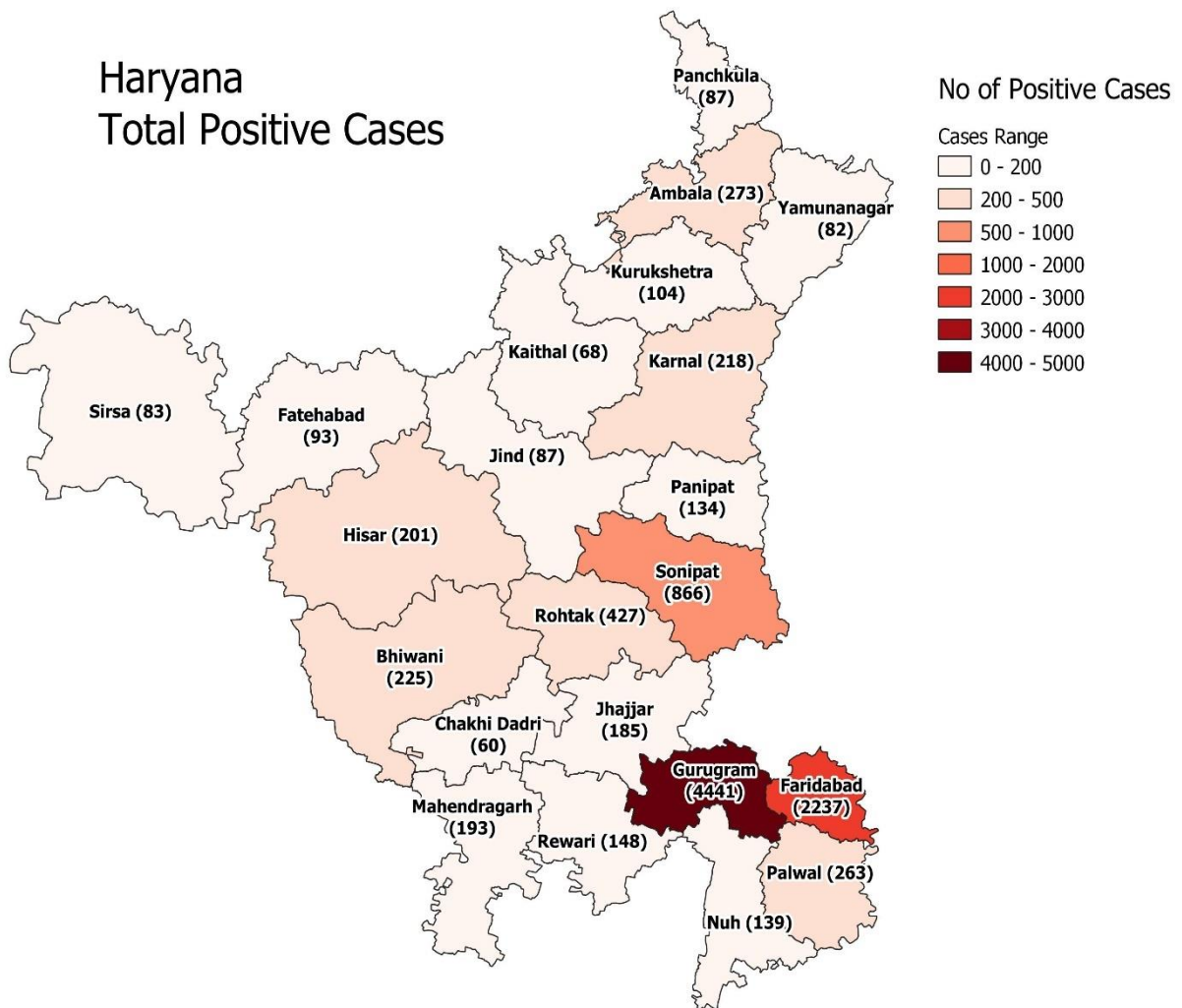


Figure No. 4: Distribution of Total Active COVID-19 Cases in the Districts of Haryana (as on 21.06.2020)

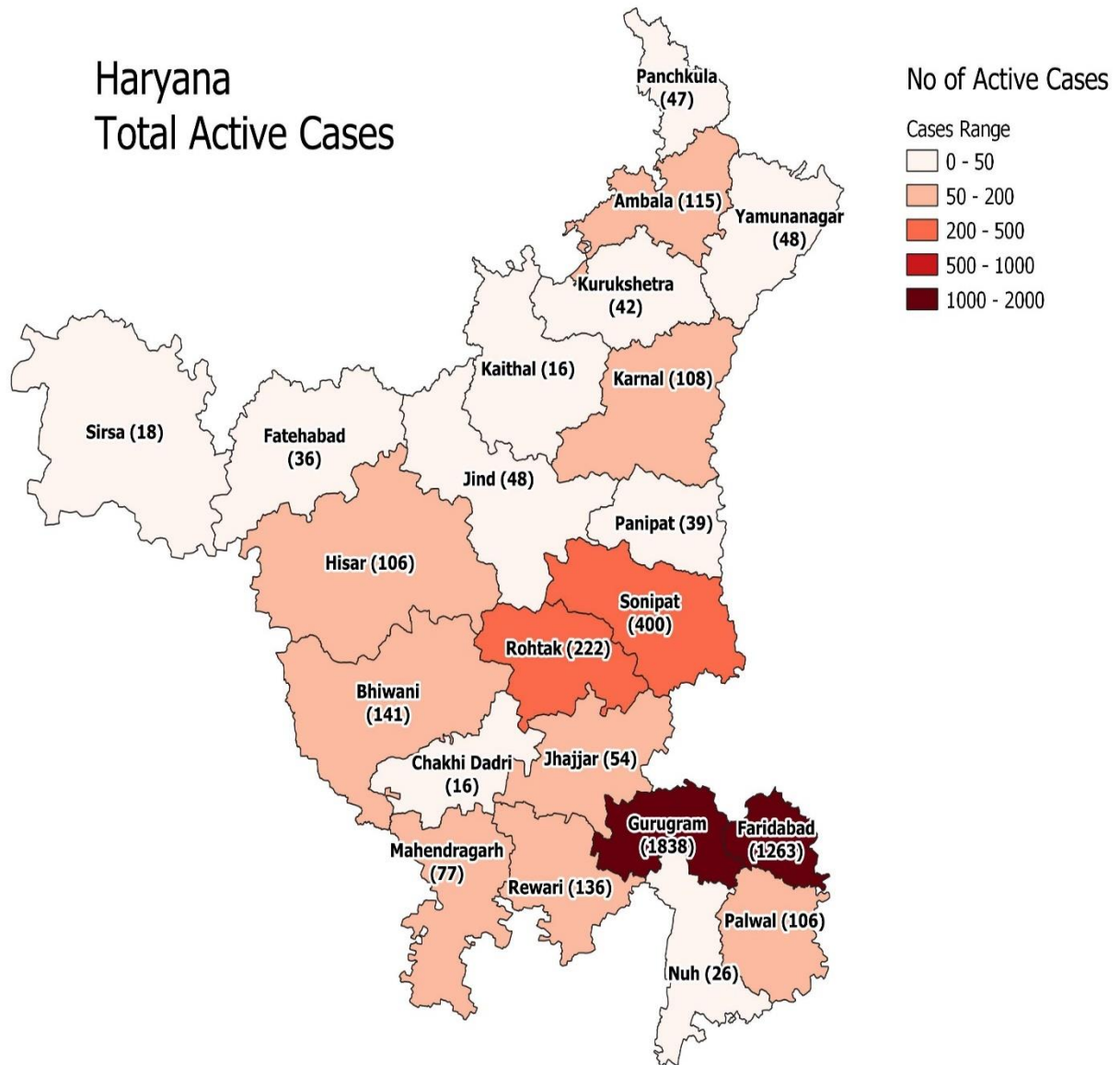


Figure No. 5: District Wise Distribution of COVID-19 Cases in Haryana (as on 21.06.2020)

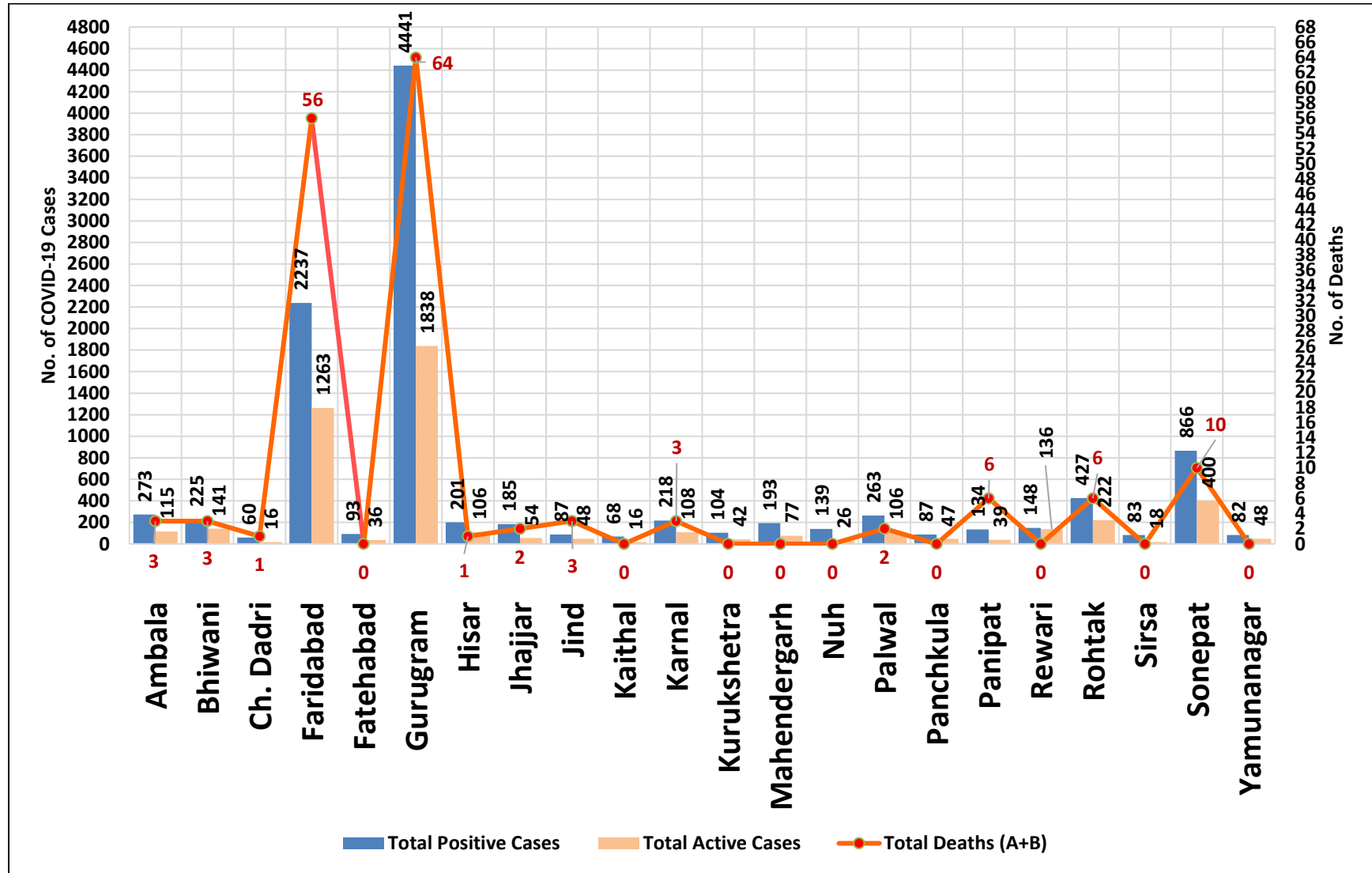
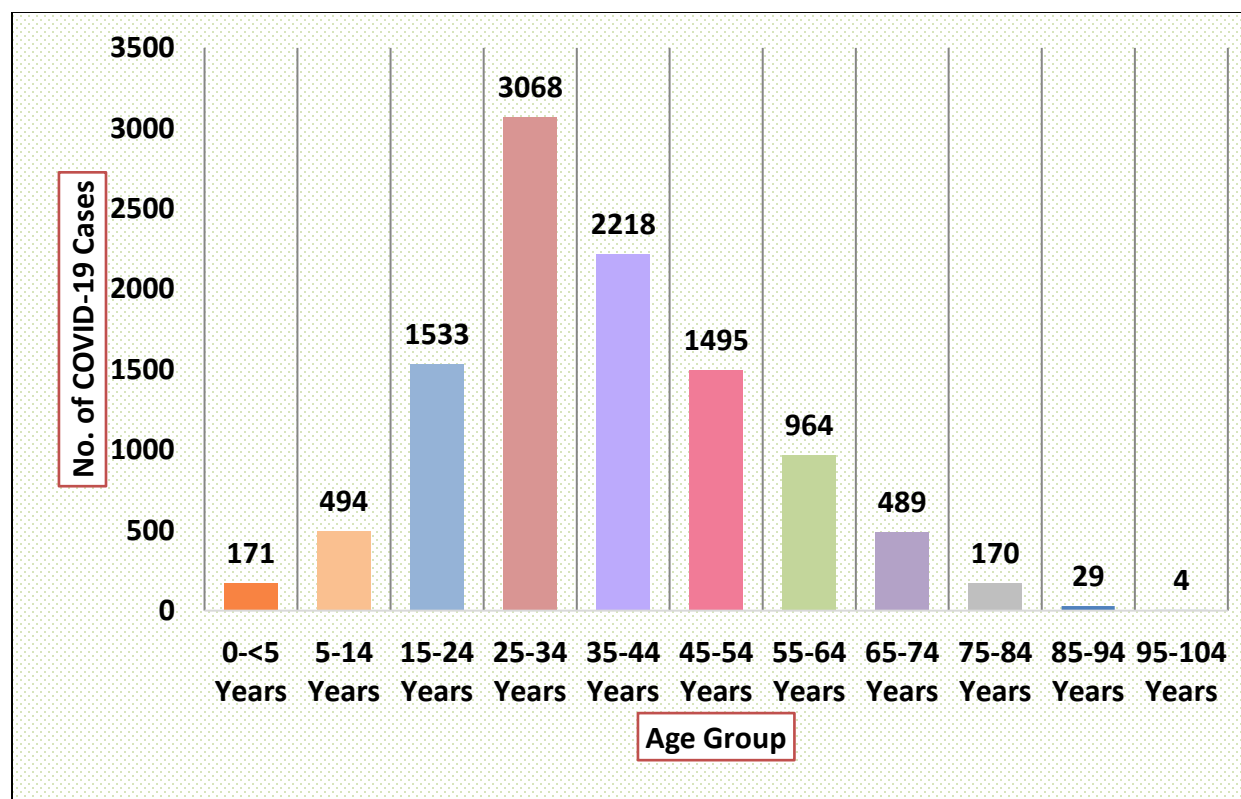


Table No. 4: Age Wise Distribution of COVID-19 Cases and Deaths in Haryana (as on 21.06.2020)

Age Group	No. of Cases	No. of Deaths	Mortality (%)
0-<5 Years	171	0	0.0%
5-14 Years	494	0	0.0%
15-24 Years	1533	5	0.3%
25-34 Years	3068	8	0.3%
35-44 Years	2218	32	1.4%
45-54 Years	1495	32	2.1%
55-64 Years	964	24	2.5%
65-74 Years	489	36	7.4%
75-84 Years	170	19	11.2%
85-94 Years	29	4	13.8%
95-104 Years	4	0	0.0%
Total	10635	160	1.5%

Figure No. 6: Age Wise Distribution of COVID-19 Cases in Haryana (N=10635) (as on 21.06.2020)



The age wise distribution of COVID-19 Cases in Haryana is representing that the highest number of cases reported in Haryana belongs to age group 25-34 years followed by age groups 35-44 years, 15-24 years, 45-54 years, 55-64 years, 5-14 years, 65-74 years, 0-<5 years, 75-84 years, 85-94 years and 95-104 years.

Figure No. 7: Age Wise Distribution of COVID-19 Deaths in Haryana (N=160) (as on 21.06.2020)

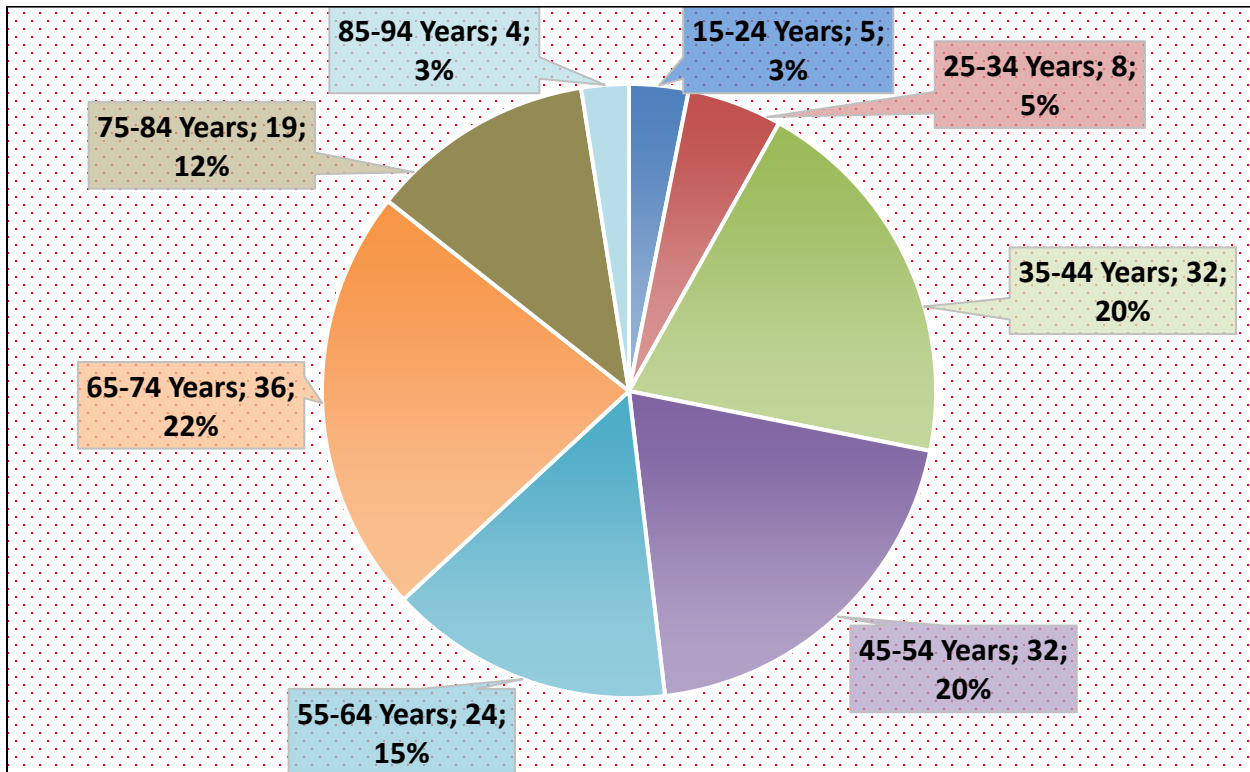


Figure No. 8: Gender Wise Distribution of COVID-19 Cumulative Cases in Haryana (N=10635)

(as on 21.06.2020)

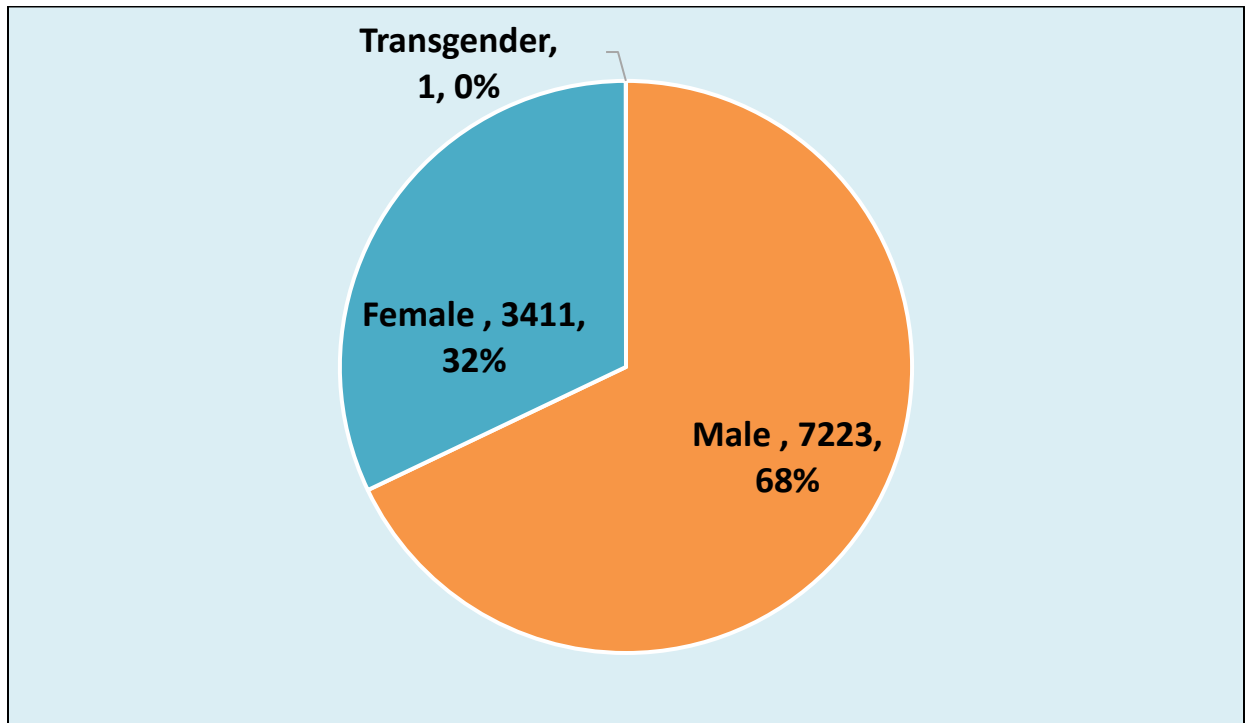


Figure No. 9: Gender Wise Distribution of COVID-19 Deaths in Haryana (N=160) (as on 21.06.2020)

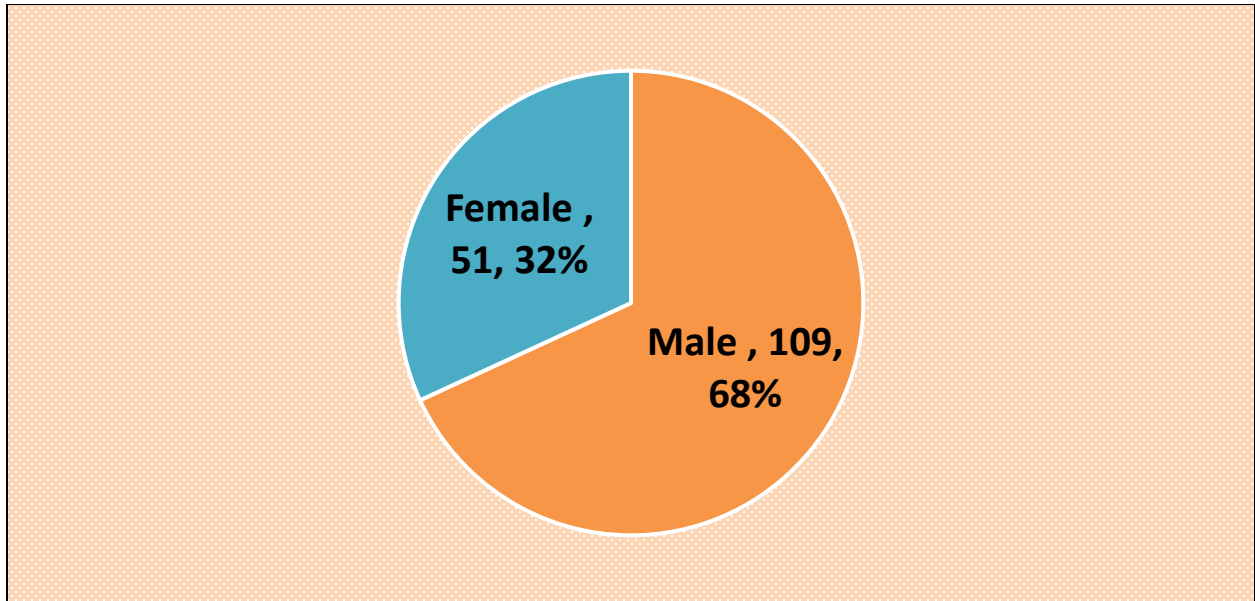


Figure No. 10: Occupation Wise Distribution of COVID-19 Cases in Haryana (N=10635) (as on 21.06.2020)

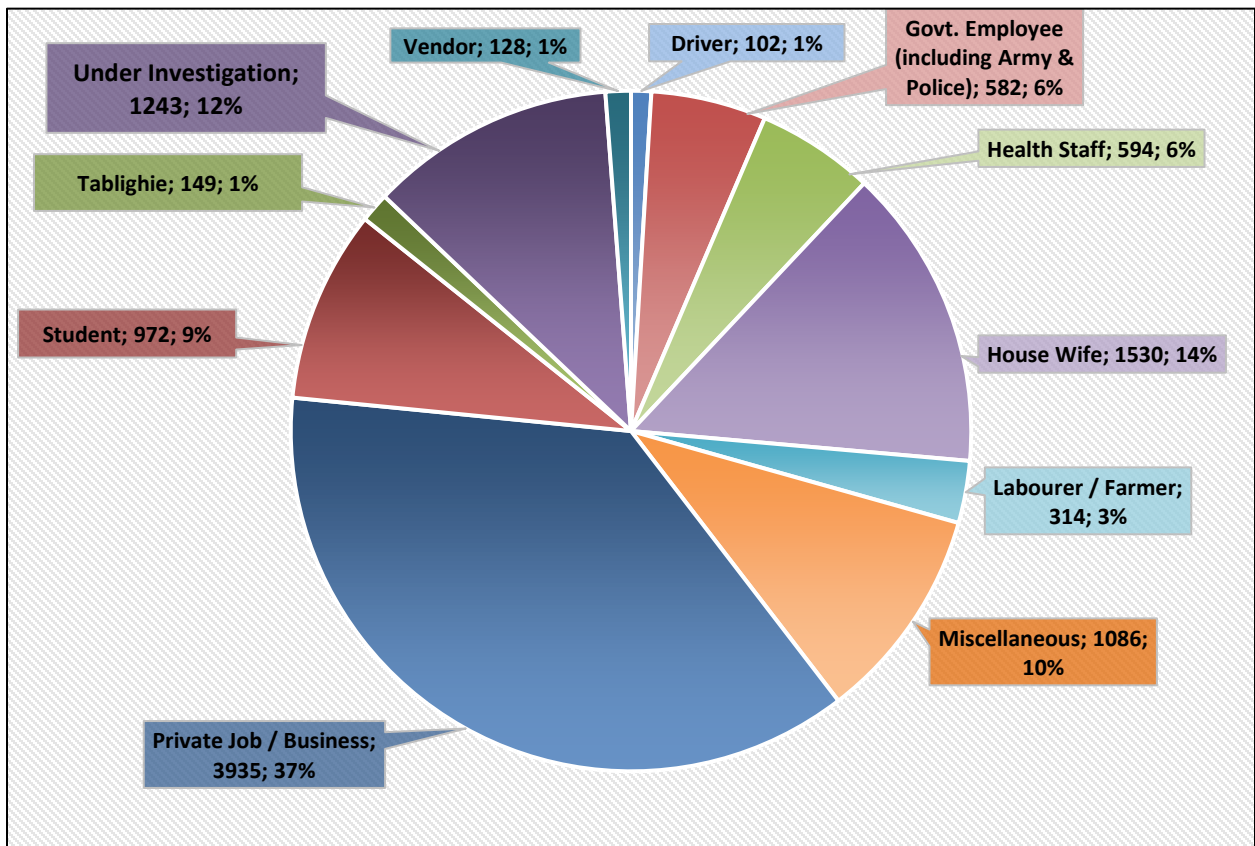


Figure No. 11: Date and Day Wise Trend of Cumulative Cases of COVID-19 and Moving Average (7 Days) in Haryana since the Inception of First Case on 17.03.2020 (as on 21.06.2020)

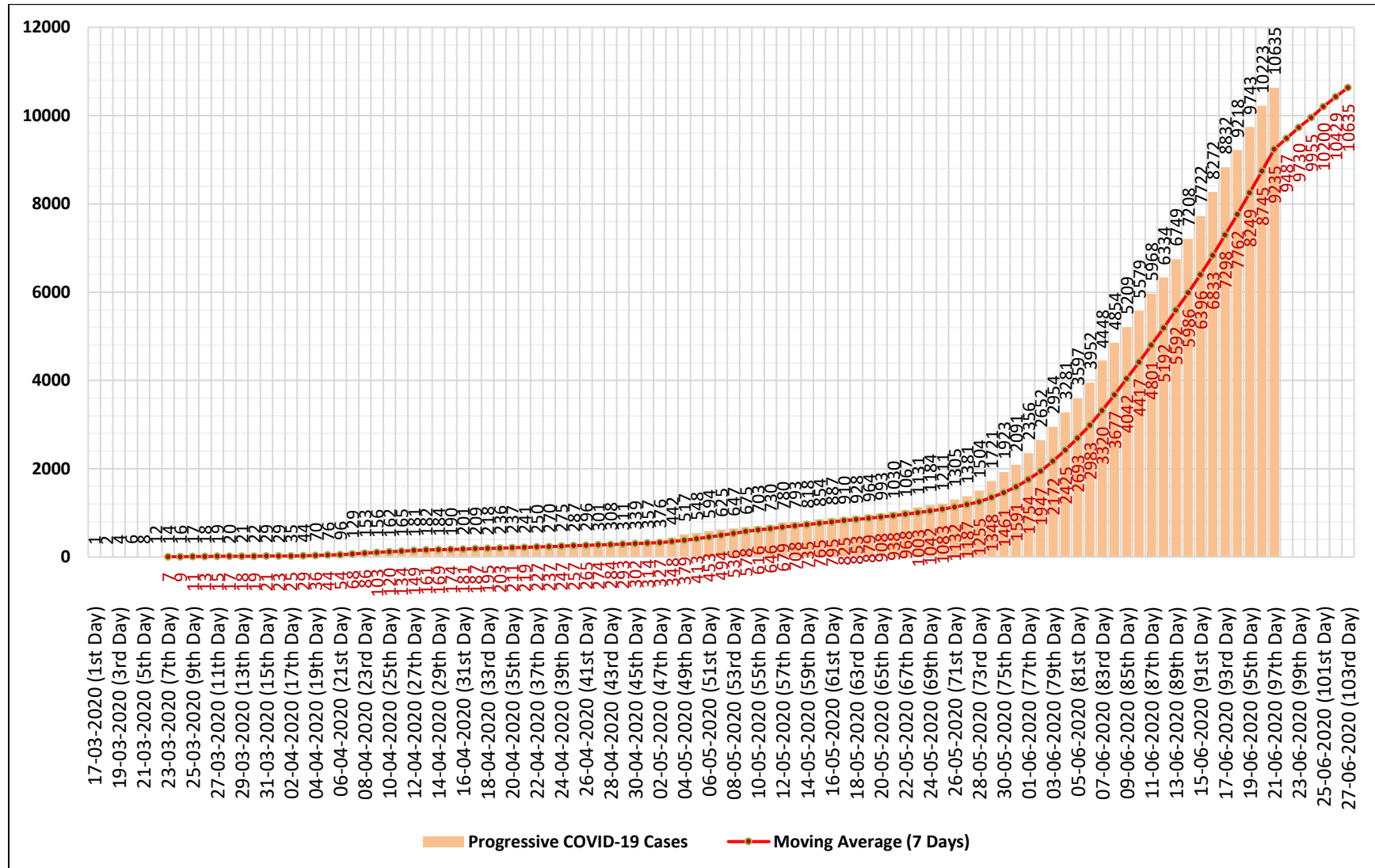


Figure No. 12: Weekly Trend of COVID-19 Cumulative and New Cases in Haryana (as on 21.06.2020)

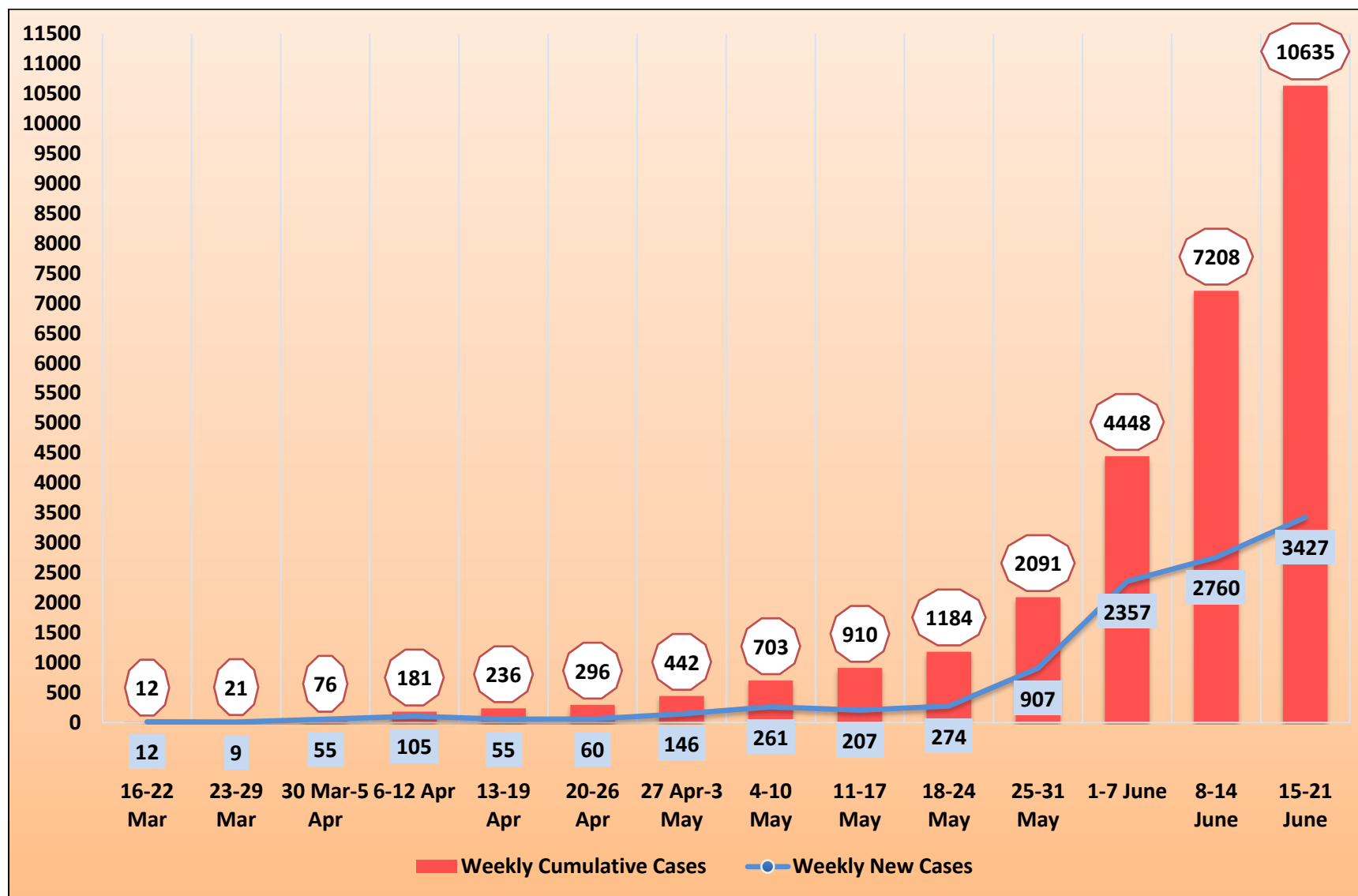


Figure No. 13: Date and Day Wise Distribution of COVID-19 New Cases and Moving Average (7 Days) in Haryana (as on 21.06.2020)

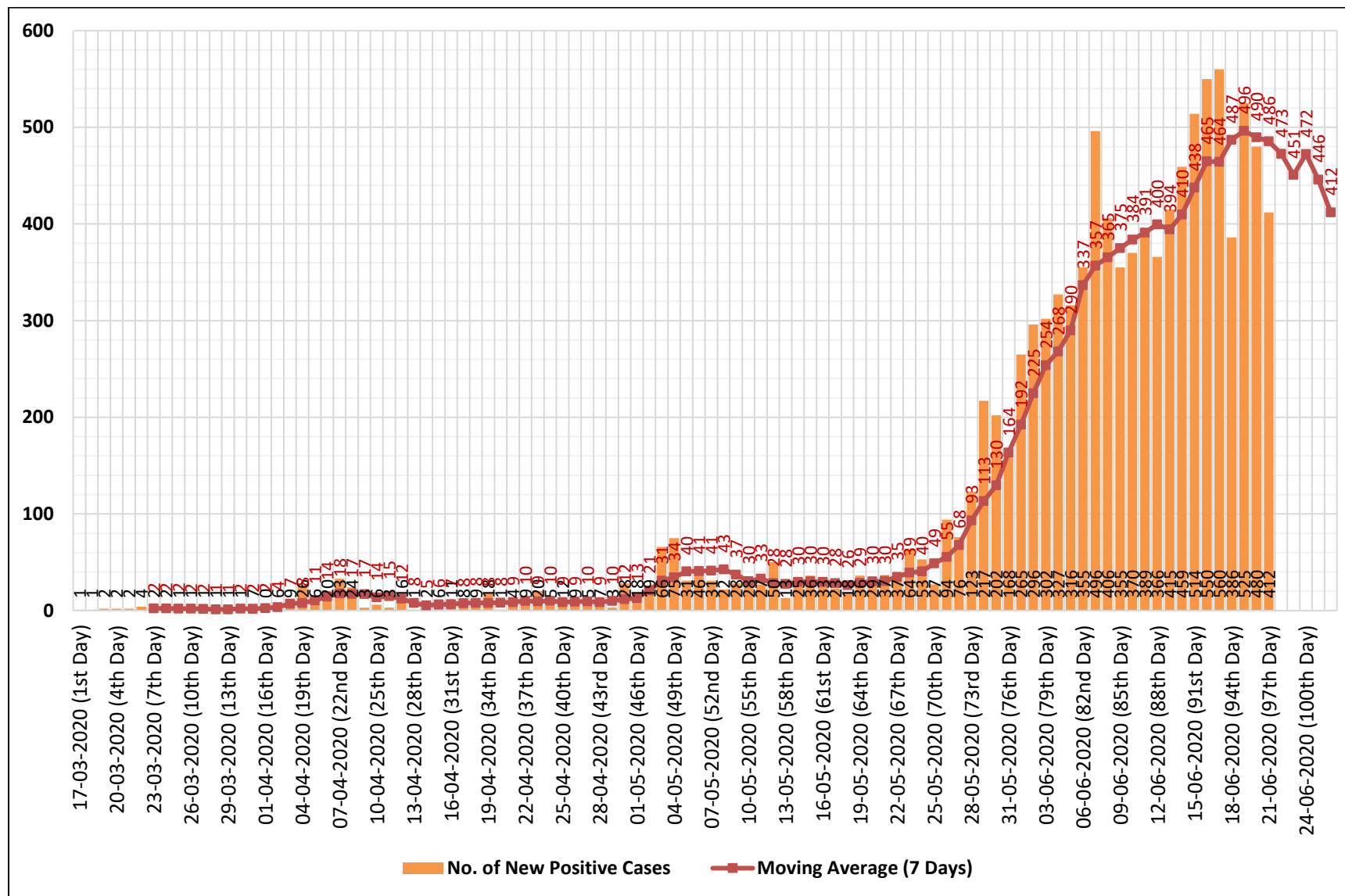


Table No. 5: COVID-19 Testing Status in Haryana (as on 21.06.2020)

District	Total Samples Collected	Positive Samples	Negative Samples	Awaited Samples	Total Samples Tested	Positivity Rate (%)	Samples Collected Per Lakh Population	Samples Tested Per Lakh Population
Ambala	11922	273	11306	343	11579	2.4	1057	1026
Bhiwani	5775	225	5267	283	5492	4.1	482	458
Charkhi Dadri	4261	60	4069	132	4129	1.5	848	822
Faridabad	19731	2237	17271	223	19508	11.5	1090	1078
Fatehabad	5902	93	5615	194	5708	1.6	627	606
Gurugram	32483	4441	27806	236	32247	13.8	2145	2129
Hisar	11967	201	11525	241	11726	1.7	686	672
Jhajjar	5509	185	5121	203	5306	3.5	575	554
Jind	8179	87	7881	211	7968	1.1	613	597
Kaithal	6901	68	6481	352	6549	1.0	642	610
Karnal	14127	218	13634	275	13852	1.6	938	920
Kurukshetra	9275	104	8955	216	9059	1.1	961	939
Mahendergarh	5490	193	5091	206	5284	3.7	595	573
Nuh	7007	139	6775	93	6914	2.0	643	635
Palwal	8110	263	7630	217	7893	3.3	778	757
Panchkula	7619	108	7260	251	7368	1.5	1357	1313
Panipat	6858	134	6456	268	6590	2.0	569	547
Rewari	4181	148	3815	218	3963	3.7	464	440
Rohtak	16012	427	15308	277	15735	2.7	1509	1483
Sirsa	5341	83	5039	219	5122	1.6	412	395
Sonepat	15412	866	14284	262	15150	5.7	1063	1045
Yamunanagar	5735	82	5395	258	5477	1.5	472	451
Haryana	217797	10635	201984	5178	212619	5.0	857	837

Figure No. 14: Date Wise Trend of Positivity Rate and Sample Tested in Haryana (as on 21.06.2020)

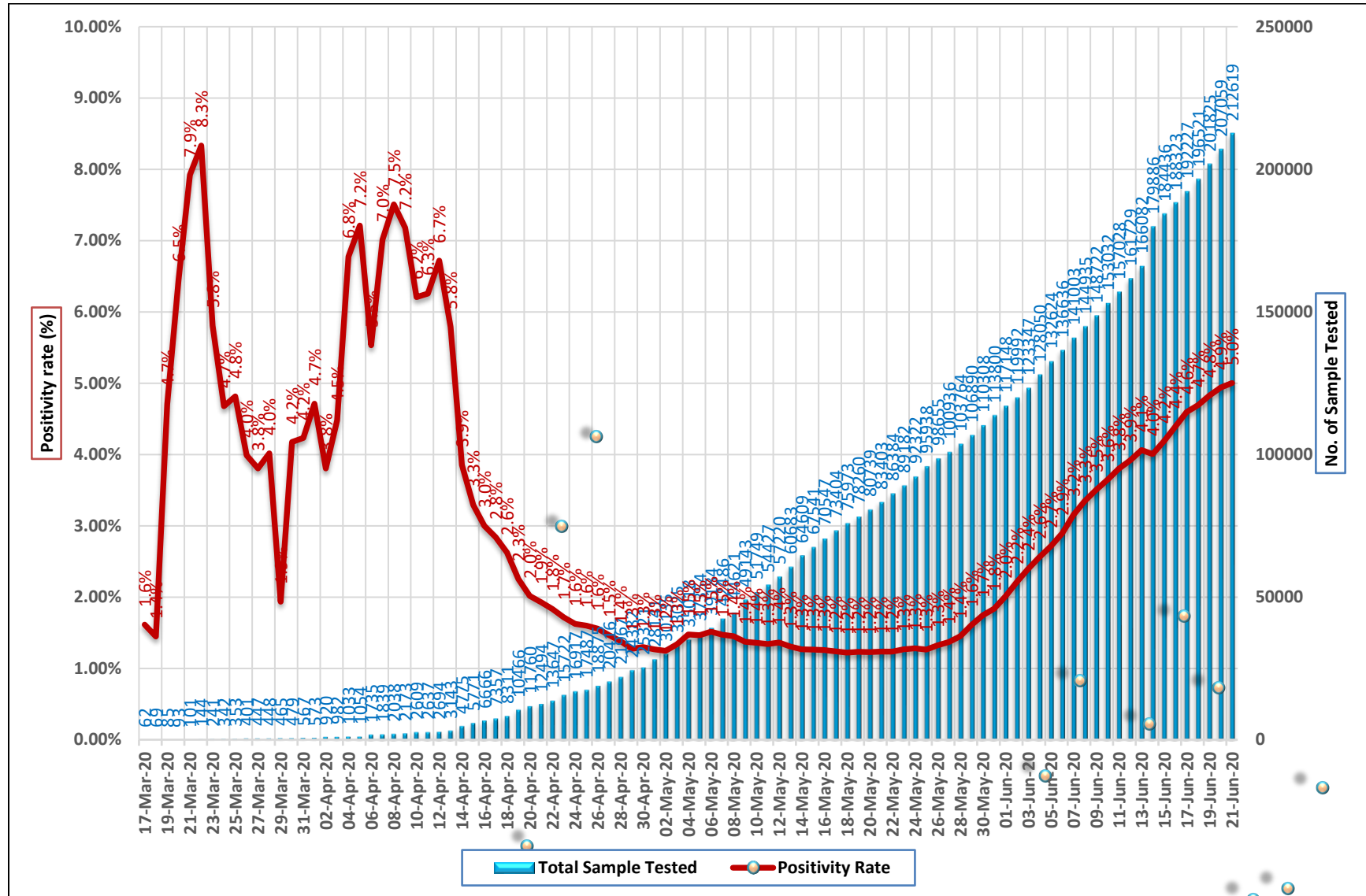


Figure No. 15: District Wise Comparison of Positivity Rate (%) and Samples Tested Per Lakh Population as per the Census 2011 & Official Website of New Districts (as on 21.06.2020)

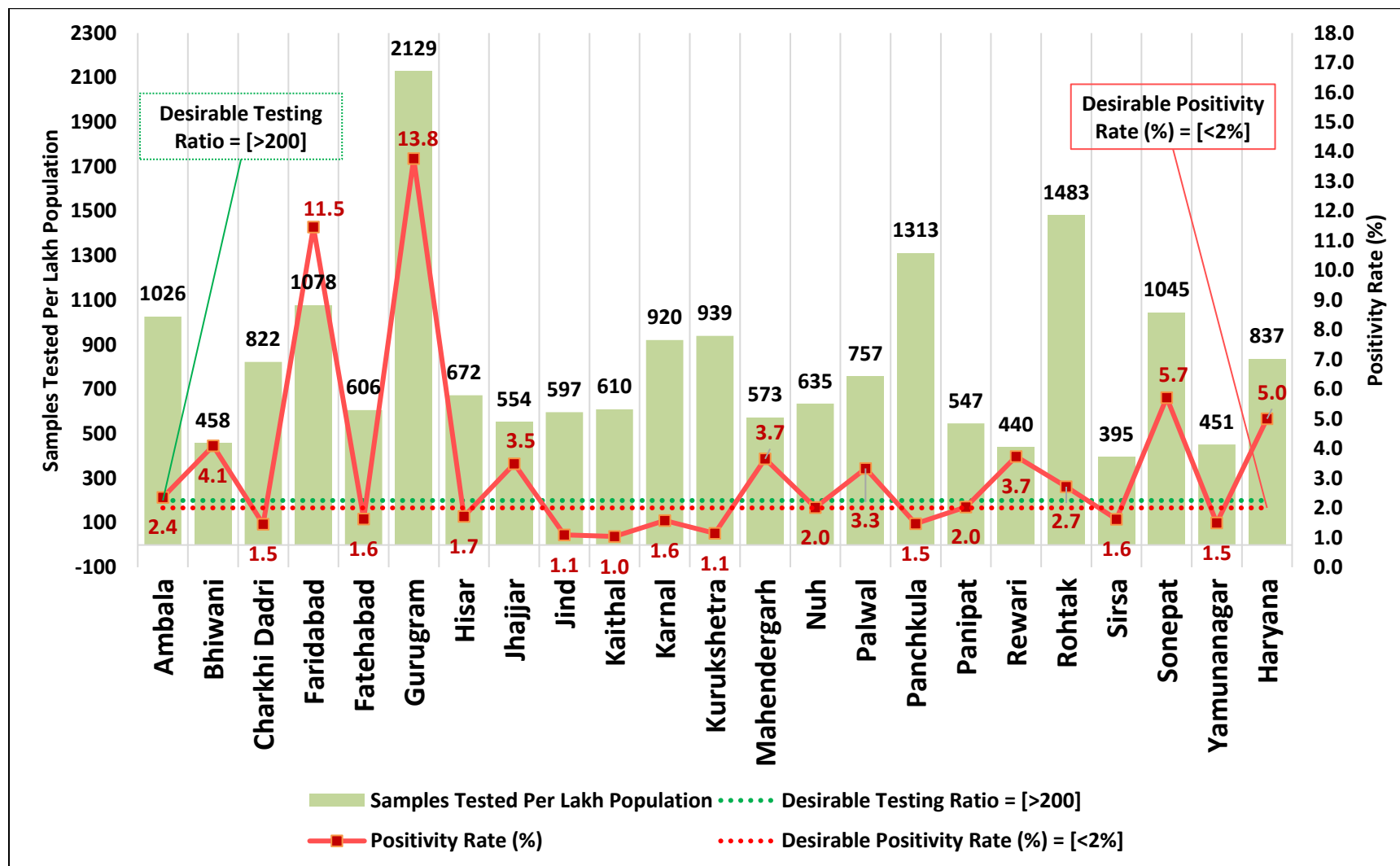


Figure No. 16: District Wise Distribution of Containment Zones and Person Found Symptomatic ILI / SARI in Haryana (as on 21.06.2020)

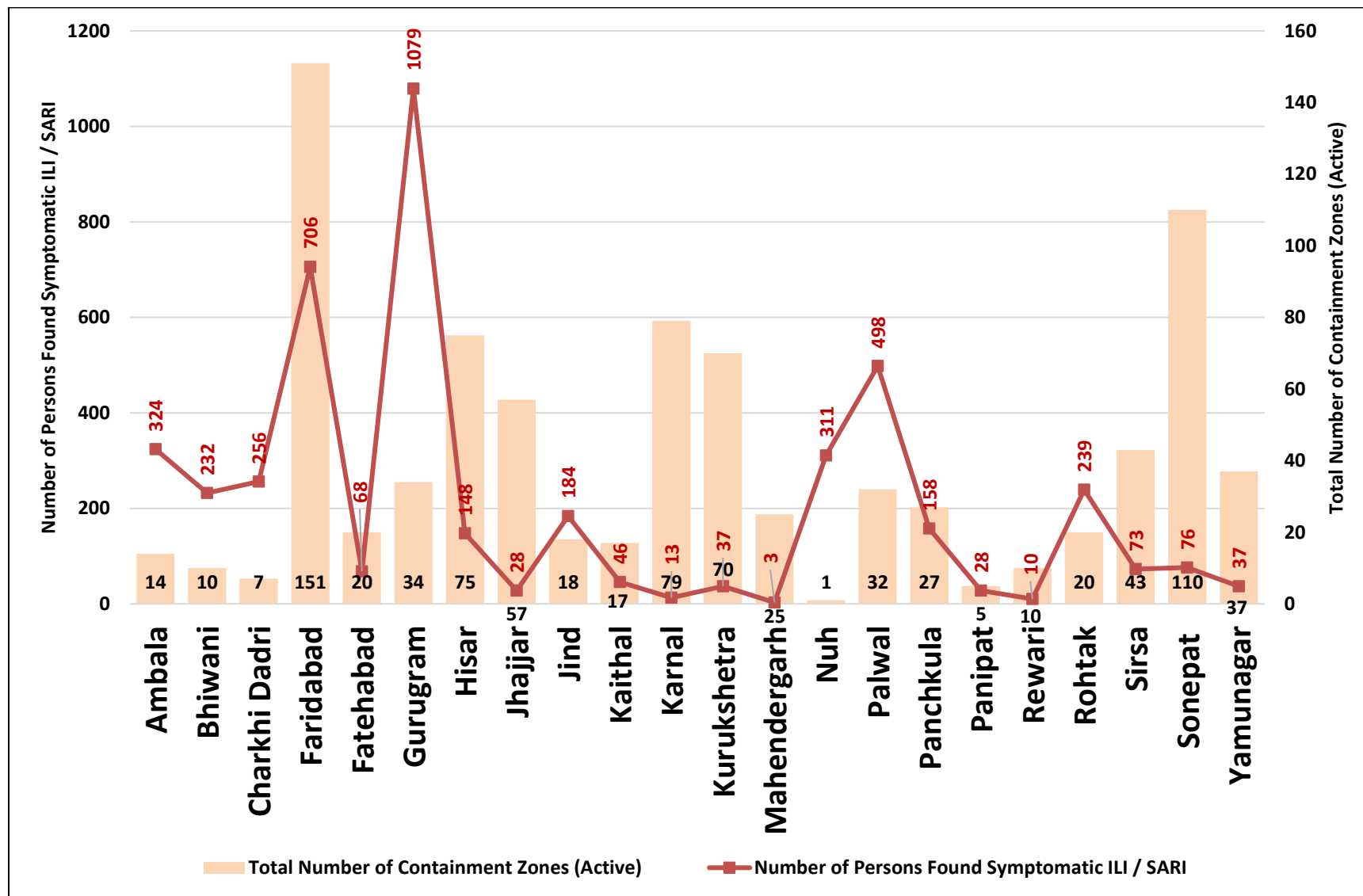


Table No. 6: District Wise Distribution of Containment Zones in Haryana (as on 21.06.2020)

Districts	Total Number of Containment Zones (Active)	Total Households in Containment Zone	Total Population in Containment Zone	Number of Persons Found Symptomatic ILI / SARI
Ambala	14	4342	22756	324
Bhiwani	10	12213	62696	232
Charkhi Dadri	7	6913	39941	256
Faridabad	151	68279	307255	706
Fatehabad	20	1182	6117	68
Gurugram	34	46141	207603	1079
Hisar	75	6527	33206	148
Jhajjar	57	13768	63268	28
Jind	18	13726	73848	184
Kaithal	17	1100	5295	46
Karnal	79	8319	39625	13
Kurukshetra	70	3351	18133	37
Mahendergarh	25	2532	12870	3
Nuh	1	854	4419	311
Palwal	32	24904	170304	498
Panchkula	27	4064	19608	158
Panipat	5	7406	34760	28
Rewari	10	15783	75791	10
Rohtak	20	6723	40744	239
Sirsa	43	2099	10221	73
Sonepat	110	101769	484339	76
Yamunanagar	37	3869	20041	37
Total	862	355864	1752840	4554

Table No. 7: Health Facility Wise Distribution of Critical COVID-19 Patients in Haryana (as on 21.06.2020)

Sr. No.	Health Facility/ Medical College	No. of Patients on Oxygen Support	No. of Patients on Ventilator	Total
1	Pt. BD Sharma PGIMS, Rohtak	9	4	13
2	BPSGMC, Khanpur Kalan, Sonapat	5	0	5
3	SHKMGMCMC, Nalhar, Nuh	1	0	1
4	MAMC, Agroha, Hisar	1	0	1
5	SGT Medical College & Hospital & Research Institute, Budhera, Gurugram	6	1	7
6	ESIC Medical College and Hospital, Faridabad	21	6	27
7	Al-Falah Medical College, Faridabad	3	0	3
8	Mederor Hospital, Manesar, Gurugram	0	3	3
9	Fortis Hospital, Gurugram	0	3	3
10	Medanta Hospital, Gurugram	0	4	4
	Total	46	21	67

Table No. 8: Category Wise Distribution of COVID-19 Facilities in Haryana (as on 21.06.2020)

Category	No of Facilities	Total Isolation Beds	Beds for Confirmed Cases	Beds for Suspected Cases	O2 Supported Beds	Total ICU Beds	No of Ventilators	O2 Manifold Available	Available PPEs	Available N95	Compatible to B.W.M. System
Cat. I - Dedicated COVID Hospitals / DCH	42	3684	2119	1565	2361	548	285	40	21549	77899	42
Cat. II - Dedicated COVID Health Center / DCHC	194	5479	2503	2976	2761	1537	773	122	32904	71748	193
Cat. III - Dedicated COVID Center / DCCC	441	39431	10855	28576	NA	NA	NA	NA	5034	7055	423
Total	677	48594	15477	33117	5122	2085	1058	162	59487	156702	658

Table No. 9: Status of Districts of Haryana According to Zoning Parameters Recommended by MOHFW (as on 21.06.2020)

District	Population (Census 2011 & Website)	Total Cases	Total Active Cases	Active Case Per Lakh Population	Case Fatality Rate (%)	Testing Ratio (No. of Sample Tested Per Lakh Population)	Confirmation Rate (%) / Positivity Rate (%)	Doubling Rate (7 days) = 7/Log 2 (N7/N1)
Ambala	1128350	273	115	10	1.1%	1026	2.4	12.8
Bhiwani	1198085	225	141	12	1.3%	458	4.1	8.5
Ch. Dadri	502276	60	16	3	1.7%	822	1.5	19.7
Faridabad	1809733	2237	1263	70	2.5%	1078	11.5	10.5
Fatehabad	942011	93	36	4	0.0%	606	1.6	22.6
Gurugram	1514432	4441	1838	121	1.4%	2129	13.8	20.3
Hisar	1743931	201	106	6	0.5%	672	1.7	11.8
Jhajjar	958405	185	54	6	1.1%	554	3.5	18.0
Jind	1334152	87	48	4	3.4%	597	1.1	27.9
Kaithal	1074304	68	16	1	0.0%	610	1.0	46.5
Karnal	1505324	218	108	7	1.4%	920	1.6	12.2
Kurukshetra	964655	104	42	4	0.0%	939	1.1	18.5
Mahendergarh	922088	193	77	8	0.0%	573	3.7	13.6
Nuh	1089263	139	26	2	0.0%	635	2.0	26.6
Palwal	1042708	263	106	10	0.8%	757	3.3	17.0
Panchkula	561293	87	47	8	0.0%	1313	1.5	10.6
Panipat	1205437	134	39	3	4.5%	547	2.0	15.1
Rewari	900332	148	136	15	0.0%	440	3.7	10.8
Rohtak	1061204	427	222	21	1.4%	1483	2.7	17.0
Sirsa	1295189	83	18	1	0.0%	395	1.6	46.5
Sonepat	1450001	866	400	28	1.2%	1045	5.7	13.1
Yamunanagar	1214205	82	48	4	0.0%	451	1.5	8.1
Foreign (USA) Returnee Haryana Citizens	NA	21	16	NA	0.0%	NA	NA	NA
Haryana	25417378	10635	4918	19	1.5%	837	5.0	15.1

Glossary of Formula Used: -

- ❖ **Active Case Load Per Lakh Population** = (No. of Active Cases / Total Population) *100000
- ❖ **Doubling Rate (7 days)** = $7 / \log_2 (N_7/N_1)$
- ❖ **Growth Rate** = $\{(Current\ Value - Previous\ Value) / Current\ Value\} * 100$
- ❖ **Mortality (%)** = (No. of Deaths / Total Confirmed Cases) *100
- ❖ **Moving Average** = Average (No. of Cumulative Cases on N1: No. of Cumulative Cases on N7)
- ❖ **Positivity Rate (%)** = (No. of Positive Cases / Total Sample Tested) *100
- ❖ **Positive Cases Per Lakh Population** = (No. of Positive Cases / Total Population) *100000
- ❖ **Recovery (%)** = (No. of Cured Cases / Total Confirmed Cases) *100
- ❖ **Sample Collected Per Lakh Population** = (Total Sample Collected / Total Population) *100000
- ❖ **Total Sample Tested** = Sum (No. of Positive Cases + No. of Negative Cases)
- ❖ **Testing Ratio / Sample Tested Per Lakh Population** = (Total Sample Collected / Total Population) *100000

Bibliography: -

- Adhikari, S. P., Meng, S., Wu, Y. J., Mao, Y. P., Ye, R. X., Wang, Q. Z., . . . Zhou, H. (2020, March). Epidemiology, causes, clinical manifestation and diagnosis, prevention and control of coronavirus disease (COVID-19) during the early outbreak period: a scoping review. *Infectious Diseases of Poverty*, 9(29). doi:<https://doi.org/10.1186/s40249-020-00646-x>
- Coronavirus (COVID-19)*. (2020, June 21). Retrieved June 21, 2020, from World Health Organization: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>
- Coronavirus (COVID-19)*. (2020, June 21). Retrieved June 21, 2020, from www.covid19.who.int: <https://covid19.who.int/>
- COVID-19 INDIA*. (2020, June 21). Retrieved June 21, 2020, from www.mohfw.gov.in: <https://www.mohfw.gov.in/>
- Guo, Y. R., Cao, Q. D., Hong, Z. S., Tan, Y. Y., Chen, S. D., Jin, H. J., . . . Yan, Y. (2020, March). The origin, transmission and clinical therapies on coronavirus disease 2019 (COVID-19) outbreak – an update on the status. *Military Medical Research*, 7(11). doi:<https://doi.org/10.1186/s40779-020-00240-0>
- Prasad, R., Perappadan, B. S., Shelar, J., & Koshy, J. (2020). *The Pandemic Notebook - A handy guide from The Hindu on understanding the coronavirus*. (P. J. George, Ed.) Retrieved April 28, 2020, from www.creatives.thehindu.com: https://creatives.thehindu.com/covid_19_ebook.pdf
- Singhal, T. (2020, March). A Review of Coronavirus Disease-2019 (COVID-19). *Indian Journal of Pediatrics*, 27(4), 281-286. Retrieved April 28, 2020, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7090728/>
- Wikipedia contributors. (2020, April 28). *2020 Coronavirus Pandemic in India*. (Wikipedia, The Free Encyclopedia) Retrieved April 28, 2020, from en.wikipedia.org: https://en.wikipedia.org/wiki/2020_coronavirus_pandemic_in_India#cite_note-mohfw-5