Study on Impacts of COVID-19 Pandemic and Lockdown on Punjab State of India

By

Ramandeep Kaur

Dissertation submitted in partial fulfillment of the requirements of the degree

MBA Hospital and Health Management

Academic year, 2018-2020

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Internship Completion Letter

Dated - 17th June 2020

To Whomsoever It May Concern

The certificate is awarded to **Ms. Ramandeep Kaur** in recognition of having successfully completed her internship in department **Academic Research** and has successfully completed her Project on **COVID-19 Implications and Future Prognosis in the state of Punjab** on **04th May 2020** from **DigiVersal Consultants Pvt. Ltd.**

She comes across as a committed, sincere & diligent person who has a strong drive and zeal for learning. We wish her all the best for future endeavors.

For DigiVersal Consultants Pvt. Ltd.

Director

Abstract

COVID-19 in Punjab was confirmed when a man entered Indian State Punjab on 9 March 2020 and found positive. On date 25 May 2020 Ministry of Health and Family Welfare counted a total of 2342 confirmed cases including 2017 recoveries and 46 deaths in Punjab. On date 3rd June 2020 the index case was found in Amritsar district and the arrival of that person was on 9 March 2020 in India. The objective of the report was to have a discussion on the complications and preparedness arising out of situation due to COVID-19 and its after-effects in and out after the Lockdown period in the State of Punjab by analysing the economic, demographic, health, psychological health, and migration impacts of the Coronavirus (COVID-19) in Punjab. Secondary data analysis is done in the report by taking the reference of authentic websites, articles, journals, and books. The data consideration date that has been followed in the report is March 22, 2020, to May 30, 2020, with detailed information. The results of report presented that the service sectors have been greatly affected because of lockdown in COVID-19. Infected cases in Punjab were risen in the period of lockdown 2 to 1102 from 184. This gradual increase was due to the pilgrims that came to Punjab from Hazur Sahib. Moreover, there were 3000 labourers who came from Rajasthan at Fazilka-Rajasthan border for entry in Punjab. For these people, Punjab government gave strict orders of 21 day quarantine. Although cases in Punjab steeped Punjab government took strict actions and preventive measures to control the spread of infectious disease in the state. The imposition of lockdowns in the state led Punjab to achieve the highest score of 64% in recovery rates. It has been found through the report that success can be achieved through the combination of public health measures in practice, such as rapid identification, follow up and identification of contacts, diagnosis and management of cases, infection prevention and control in healthcare settings, implementation of health measures for travelers, and awareness-raising in the population about risk communication. COVA Punjab is the first mobile application in India that was launched on 9th March 2020 with geofencing and geotagging features.

Acknowledgment

With the deepest respect and appreciation, I would humbly thank the people who have helped me in the completion of my dissertation report. Thanks to my parents for giving me support in every term and completing my higher education from the renowned university that is IIHMR University, Jaipur. The faculty is highly cooperative in guiding their students for the best possible learning.

My organization guide, Dr. Sujata Verma who gave her valuable inputs timely in the completion of my dissertation report and continuous learning. She provided her every service with enthusiasm in underlying the structures with lasting effect. Continuous convincing and support gave me the spirit to do my study with excitement.

Also, thanks to my advisors and supporters for encouraging, pushing, understanding, patience, and giving me the wisdom to explore my learning on the Impacts of Coronavirus disease on health, economy, education, and society.

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List of abbreviations and symbols

COVID-19 – Coronavirus Disease 2019

MERS - Middle East Respiratory Syndrome

SARS - Severe Acute Respiratory Syndrome

ILI - Influenza-Like Illness

MoHFW – Ministry of Health and Family Welfare

CAW - Crimes against Women

List of appendices

Organization Profile

DigiVersal Consultants is a full-service digital marketing corporation determined by its Motto: We Can Do it All! The Services range from creating an impressive website for the business to digitally market their services with the aim of mounting your online presence.

DigiVersal Consultants has an immense knowledge in executing victorious digital marketing campaigns. The working of the company is with clients to set a winning strategy while aligning it with the company objectives. Digital Marketing isn't something you do once. It takes steady effort, alteration and dimension to increase visibility, gain clientele, and improve Rate of Interest. The company believes that the strength or weakness of a company's digital existence can create or smash that business.

Vision of the company

DigiVersal aims to endorse as well as look after academic learning, specialized development and brain excellence while delivering high-quality, genuine and dependable academic content writing services. The vision of company is to maintain status of being the most favored and trusted brand in the industry that excels in client happiness and preservation.

DigiVersal also enthusiastically strives to be socially responsible and motivate breakthroughs by adding value to the existing instruction system and intensification student community's all round development. The company aims to hasten their career escalation by helping them gain knowledge and do extremely well in academia while boosting their self-esteem. It would ultimately enable company to generate high quality employees for extraordinary growth of the country.

Introduction

What is Coronavirus?

Coronavirus is associated with the large family of viruses spread in humans. Coronavirus is known to cause severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). This virus was not known before the outbreak began in Wuhan, China in December 2019.

What are the symptoms of Coronavirus?

The patients of Coronavirus are found with the symptoms of dry cough, fever, and tiredness. Also, the patients are found with diarrhea, aches, pains, runny nose, nasal congestion, and sore throat. In some cases, the symptoms developed from mild and begin gradually. Moreover, some infected cases may also don't developed ant symptoms. Almost 80 percent of people were there who did not require any special attention and recovered by themselves. It was noted that from every six cases who were detected from COVID-19 became seriously ill and developed difficulty in breathing. The majority of the cases that were found to be affected by COVID-19 were old age people and those suffering from medical problems such as heart problems, high blood pressure, or diabetes. A person suffering from cough, fever, and difficulty in breathing should go to the medical institution to seek care.

How does COVID-19 spread?

This is a communicable disease as people who have been affected by COVID-19 can spread the infection through small droplets from nose or mouth. The droplets land on objects or surfaces around the person and whenever the other people touch their eyes, nose, or mouth they get infected. It has been said that around 3 feet that is 1 meter is the distance that is to be maintained from a sick person.

Can the COVID-19 virus transmitted through the air?

According to the studies, COVID-19 is majorly transmitted through the air rather than respiratory droplets.

Can a COVID-19 be caught from a person that has no symptoms?

The main way of spreading the disease is through respiratory droplets especially from the person who is coughing. The person who is not at risk of COVID-19 has no risk of being

caught with this disease. However, it is known that people with COVID-19 experience mild symptoms at the early stages of the disease.

COVID-19 in Global context

Coronavirus is the disease that has been spread at large scale and lost lives because of severe suffering. This pandemic disease has brought third and the greatest financial, economic, and social shock to the 21st century. Strict measures have been followed in the countries to limit the spread of the virus that is thrusting the economy. In many places, the ambitious plans were followed at the early stages to respond effectively.

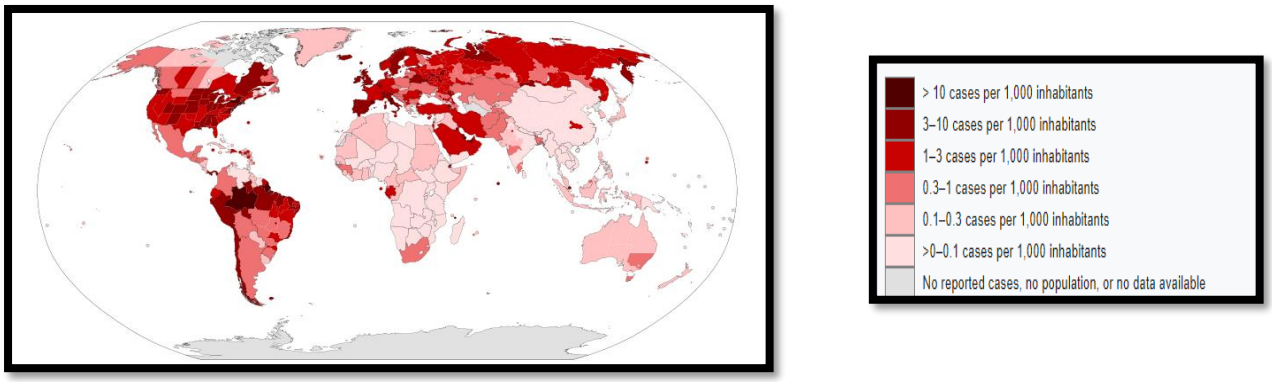


Fig 1. This map has been presented based on the number of infected cases per capita as of 2 June 2020.

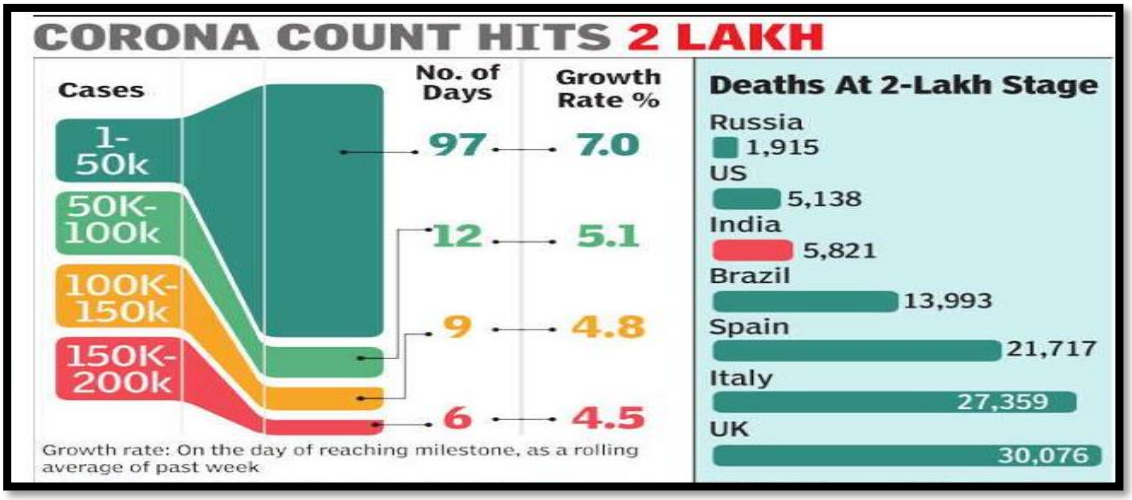


Fig 2. According to the data presented on 3 June 2020.

COVID-19 in Punjab

Punjab state is running under the effective leadership of Captain Amarinder Singh and governance of Shri VP Singh Badnore. The area that is covered by Punjab is 50362 sq km out of which urban area is of around 2097 sq km and a rural area of 48265 sq km. The total population is 277 lacks in the state and the majority of the population of around 132.2 lakhs is part of the rural population.

In Punjab, COVID-19 was confirmed when a man entered Indian State Punjab on 9 March 2020 and found positive. On date 25 May 2020 Ministry of Health and Family Welfare counted a total of 2342 confirmed cases including 2017 recoveries and 46 deaths in Punjab. On date 3rd June 2020 the index case was found in Amritsar district and the arrival of that person was on 9 March 2020. Total there are 22 districts in Punjab namely, Amritsar, Barnala, Bathinda, Faridkot, Fatehgarh Sahib, Fazilka, Firozpur, Gurdaspur, Hoshiarpur, Jalandhar, Kapurthala, Ludhiana, Mansa, Moga, Mohali, Muktsar Sahib, Nawanshahr, Pathankot, Patiala, Rupnagar, Sangrur, and Tarn Taran. The number of confirmed cases is 2342, active cases in are 279 (11.91%), recovered are 2017 (86.12%), and deaths are 46 (1.96%) in Punjab.

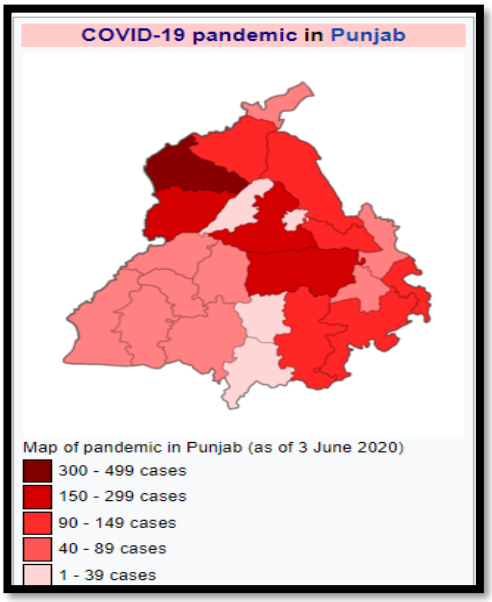


Fig 3. Data presented according to the spread of COVID-19 in Punjab

Aim of the research

Overseeing the complications and preparedness arising out of situation due to COVID-19 and its after-effects in and out after the Lockdown period in the State of Punjab.

Objectives of the research

To analyze the COVID-19 situation by

1. Overseeing and observing the social aspects
2. Health based monitoring and observations
3. Economic aspects and it's results
4. Mental and Psychological effects on people and society.

Using data to know district wise death rate, recovery rate, urban and rural population, migration concerning Lockdown 1.2.3.4, and figure out best practices that the state could follow to tackle this pandemic in Punjab.

Literature review

COVID 19 Case-Loads

India COVID19 Status			
	World	India	Punjab
Total Cases	5,848,294	165,028	2,158
New Cases	*113,430*	*6,942*	*33*
Total Death	359,653	4,695	40
New Death	*5,445*	*161*	*0*
% Case Fatality	*6%*	*3%*	*2%*
Total Recovered	2,537,939	70,556	1,946
% Recovery	*43%*	*43%*	*90%*
Active Cases	2,950,702	89,777	172
% Active	*50%*	*54%*	*8%*
# Cases per Mn pop	731	92	72

Fig 4. As on 28.05.2020; Source www.covid19india.org, www.worldometres.info, Health Dept.GOP

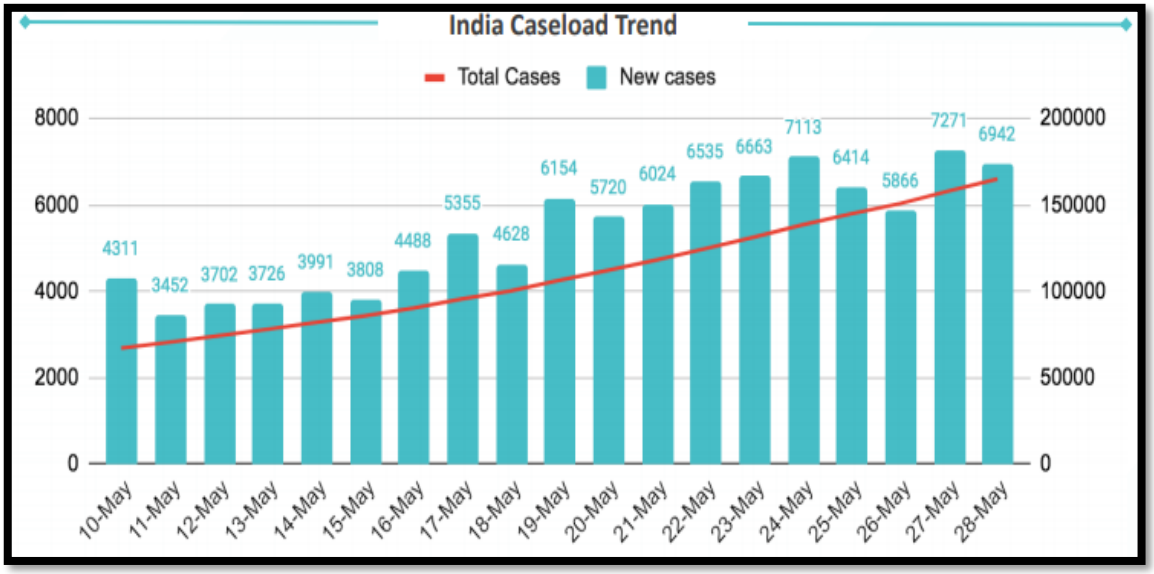


Fig 5. As on 28.05.2020; Source www.covid19india.org, www.worldometres.info, Health Dept.GOP

State	Total	Cured	Death	Active	Recovery Rate	Case Fatality Rate
Maharashtra	59,546	18,616	1,982	38,948	31%	3%
Tamil Nadu	19,372	10,548	148	8,676	54%	1%
Delhi	16,281	7,495	316	8,470	46%	2%
Gujarat	15,572	8,003	960	6,609	51%	6%
Rajasthan	8,067	4,815	179	3,073	60%	2%
Madhya Pradesh	7,453	4,050	321	3,082	54%	4%
Uttar Pradesh	6,991	3,991	182	2,818	57%	3%
West Bengal	4,536	1,668	295	2,573	37%	7%
Andhra Pradesh	3,245	2,133	59	1,053	66%	2%
Bihar	3,090	918	15	2,157	30%	0%
Karnataka	2,531	818	47	1,666	32%	2%
Telangana	2,215	1,345	67	803	61%	3%
Punjab	**2,158**	**1,946**	**40**	**172**	**90%**	**2%**
J&K	2,036	859	27	1,150	42%	1%
Odisha	1,660	887	7	766	53%	0%
Haryana	1,504	881	19	604	59%	1%
Other	8,771	1,583	31	7,157	18%	0%
Total India	**165,028**	**70,556**	**4,695**	**89,777**	**43%**	**3%**

Fig 6. As on 28.05.2020; Source www.covid19india.org, www.worldometres.info, Health Dept.GOP

Amongst the 28 states in India, Punjab was the first state in the country that imposed curfew even before lockdown in the state. Since then, the State government has taken important steps to manage the pandemic and its implications.

Four high-level committees were set up in the state to guide strategy formulation and implementation. They were:

1. COVID Care Centres and Private Sector Participation Committee.
2. Health Sector Response and Procurement Committee.
3. Committee on Augmenting Human Resources and Capacity Building
4. Goods Transport Committee.

Important decisions took by the government were:

1. Punjab is the one amongst the few states that approved Plasma treatment for critical COVID patients in hospitals. ICMR project is covering all the medical colleges of the state.
2. In GMC Amritsar and GMC Patiala trials of the pool, testing was done on 15 April. 2000 samples per day (approximately) can be pooled every day according to current capacity and on 27 May 2020, 11827 samples were pooled in total.
3. A task force was constituted by the government for developing and implementing Strategy on easing restrictions imposed due to lockdown.
4. Sh. Montek Singh Ahluwalia along with a group of experts constituted a team under the Government of Punjab to develop long term and medium term Post-COVID Economic Strategy for the State.

Public Health Strategy by Punjab during COVID-19

5 Pillars

1. Political and Administrative Commitment
2. Preparedness
3. Surveillance (Trace-Test-Treat Principle)
4. Capacity Building
5. Intersectoral Coordination

Regular Surveillance for Early Detection

1. Surveillance of ILI (Influenza Like Illness)

2. Surveillance in Large Outbreaks
3. Surveillance in Cluster Areas

IEC Activities

A State Public Health Advisory Group under the Chairmanship of Dr. K. K. Talwar constituted the State Epidemiologist as the Convener.

Regular Surveillance n Punjab during COVID-19

1. To detect the persons at early stages from flu-like symptoms, Punjab has initiated the surveillance systems in the community.
2. Rapid Response Teams (RRTs) are held responsible for early detection during supervision. The highly suspected cases are screened and tracked during these tests.
3. 22 high priority areas were classified in Punjab and approximately 1.45 lac persons were screened by RRTs and samples of suspected cases were being taken.
4. According to the survey in large outbreak areas, 4 areas in the state were having > 15 cases with large outbreaks. At present, there are no areas with large outbreaks that are 15 or more cases in the area.

Testing Facilities - RT PCR

GMC Patiala and GMC Amritsar were approved in March 2020 to do RT-PCR COVID-19 testing with a capacity of 40 tests in a day. Now, the testing has been increased at a large scale and 6000 tests are done in a day. From 4 tests per million population on March 16th to 2418 tests per million population on May 27th were done.

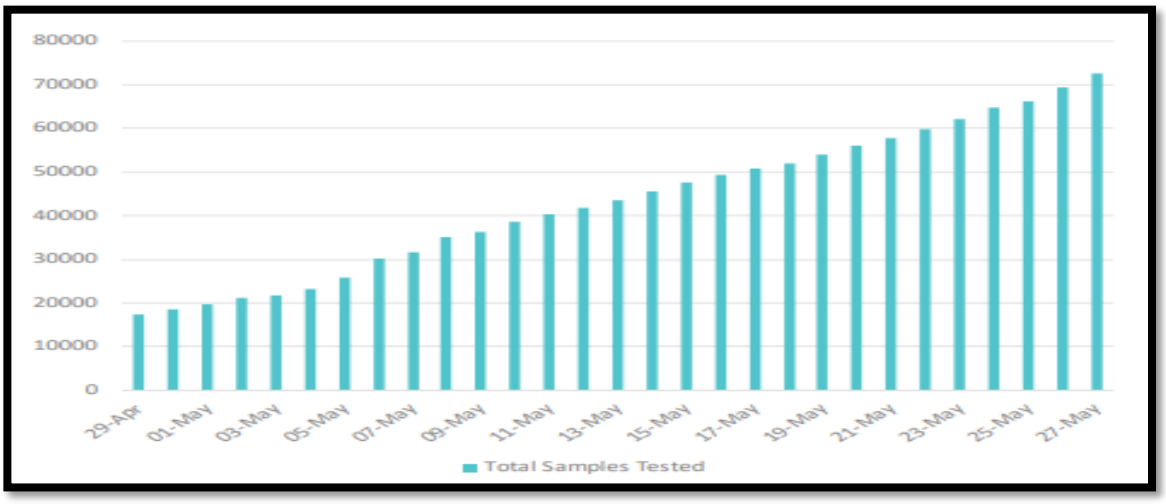


Fig 7, Total number of samples tested as on 30 May 2020

Testing Centres involved are:

5 Government medical institutions

- GMC Amritsar (Capacity-2000)
- GMC Patiala (Capacity-2000)
- BFUHS Faridkot (Capacity-2000)
- PGI Chandigarh (Capacity-60)
- Imtech Chandigarh (Capacity-100)

Private institutions

- DMC Ludhiana (Capacity-150)
- CMC Ludhiana (Capacity-40)
- Core Diagnostics (Capacity-500)

Treatment facilities provided by Government to handle COVID-19

Treatment facilities in Punjab during COVID-19 are provided at three levels such as Level 1- COVID Care Centres, Level 2- COVID Health Centres, and Level 3- COVID Hospitals.

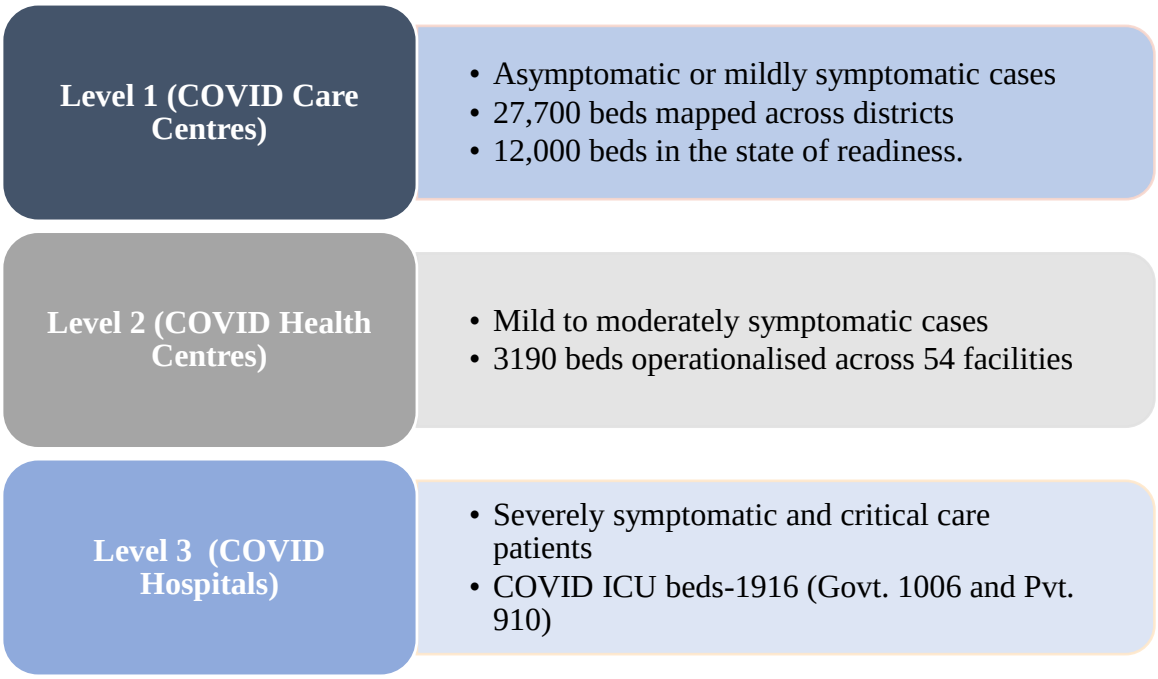


Fig 8, treatment health facilities in Punjab to treat COVID-19 patients

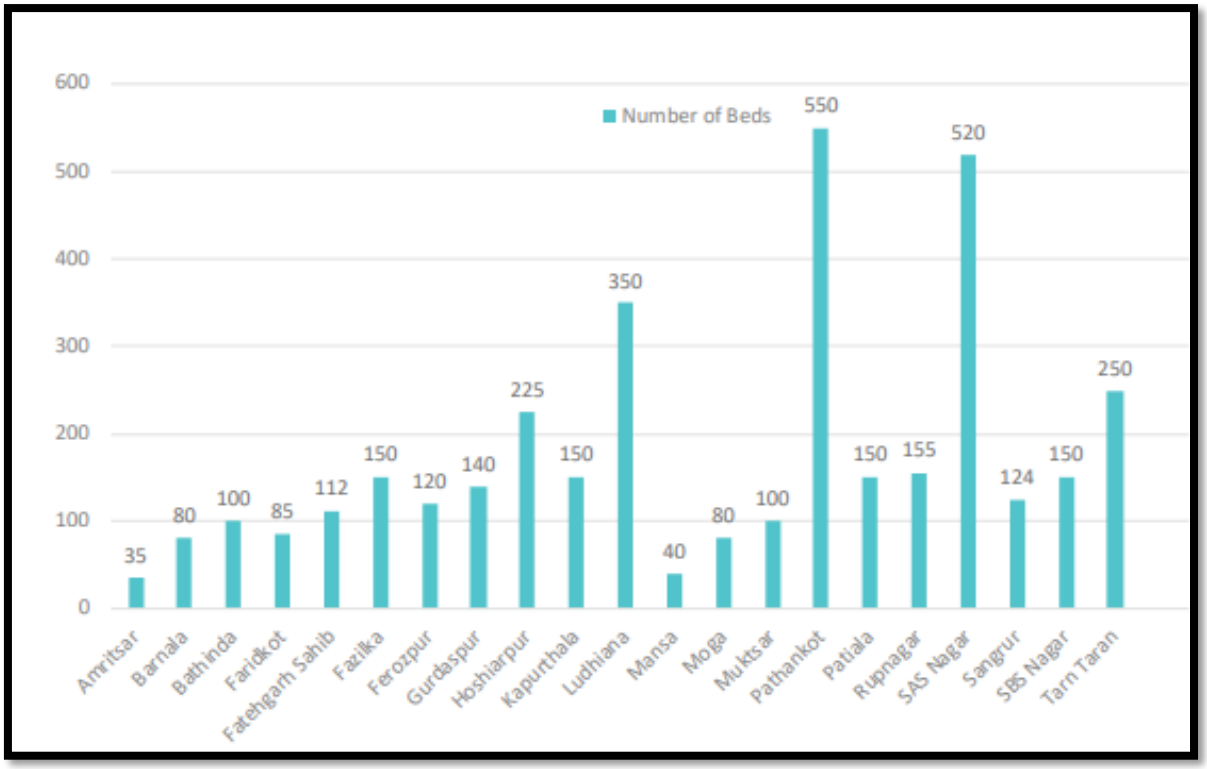


Fig 9, COVID Level-II Health Centres having HOSPITAL BEDS with oxygen supply in Punjab District-wise as for the date 28.05.2020.

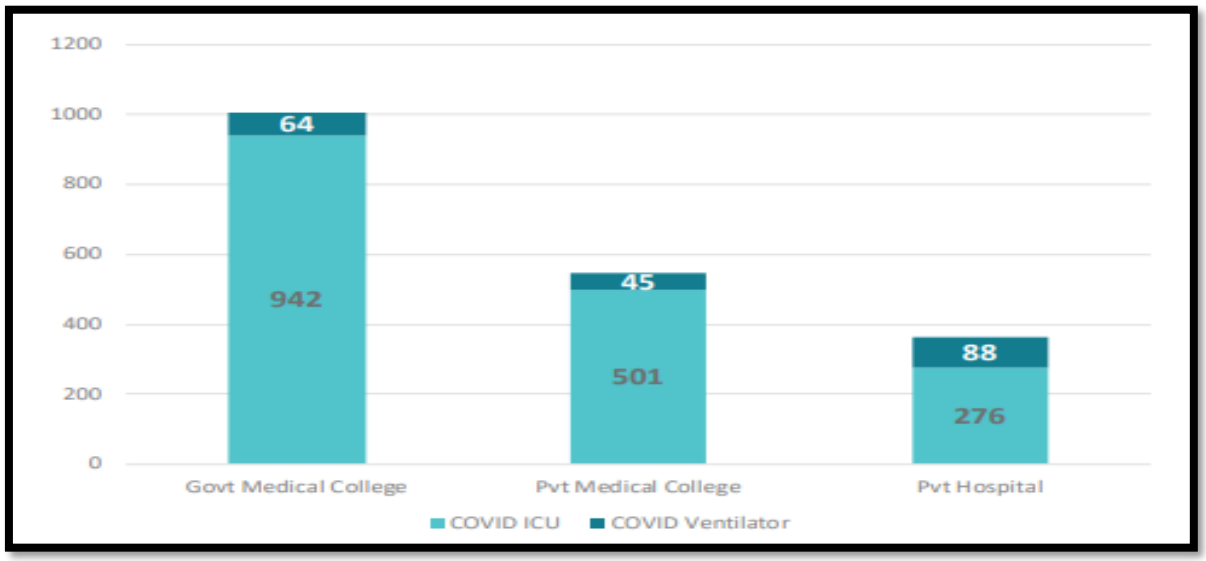


Fig 10, COVID hospitals Government Medical colleges, Private Medical Colleges, and Private hospitals with COVID ICU and COVID Ventilator as of 28.05.2020

At present, the strength of Government Medical Colleges, Private Medical Colleges, and Private hospitals is a total of 1916.

Flu Corners

Flu corners are set up within the hospitals to provide the facility of screening the suspected cases of respiratory tract infections or similar to those of Coronavirus. These such corners serve the patient with the first point of contact to ensure that there is no movement of such cases to prevent the spread of disease. These are run by all the districts of Punjab. In total, Punjab has set up 228 Flu corners (District hospitals with the number of 22, Sub-Divisional hospitals with 42, Public Health Centres 16 in number, Community Health Centres 145, and Government Medical Colleges 3) with sample collection facility in 111 flu corners.

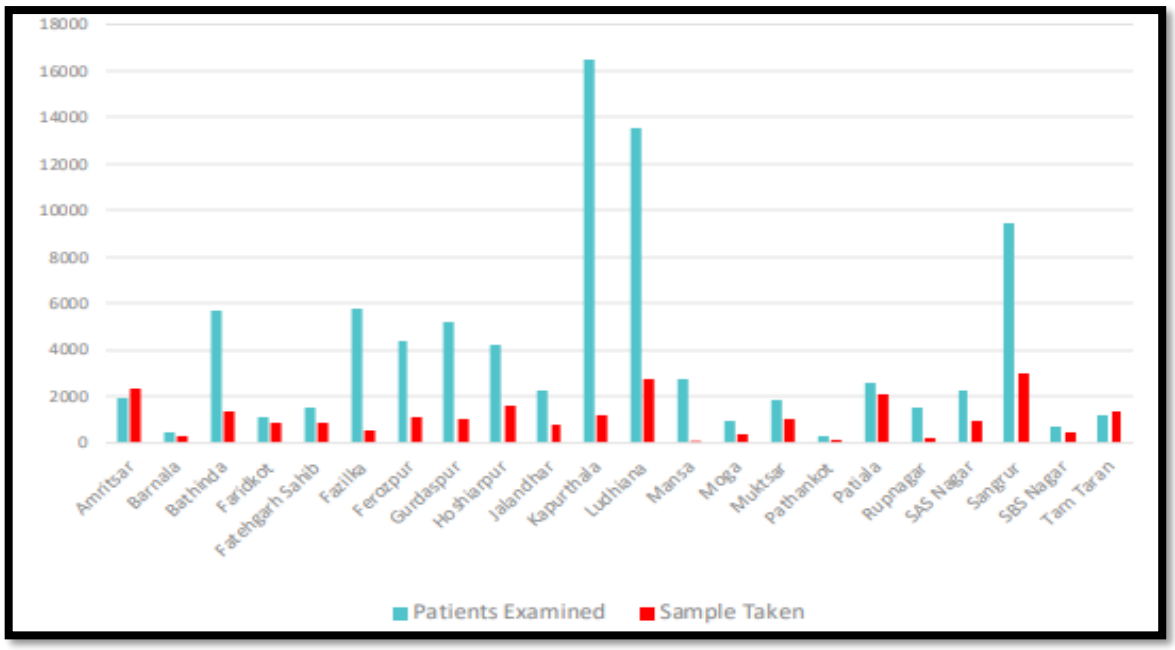


Fig 11, Flu Corner report from 27-04-2020 to 27-05-2020

Helpline Services

1. Three new helpline numbers have been operationalized by the Government of Punjab and individual district has emergency response helpline numbers from which residents of Punjab can get support and services from government.
2. Moreover, two existing helpline numbers are there that are used to support COVID related concerns.
3. Daily the calls are analyzed to know the type of call, resolution provided, geography, and demography of the caller.

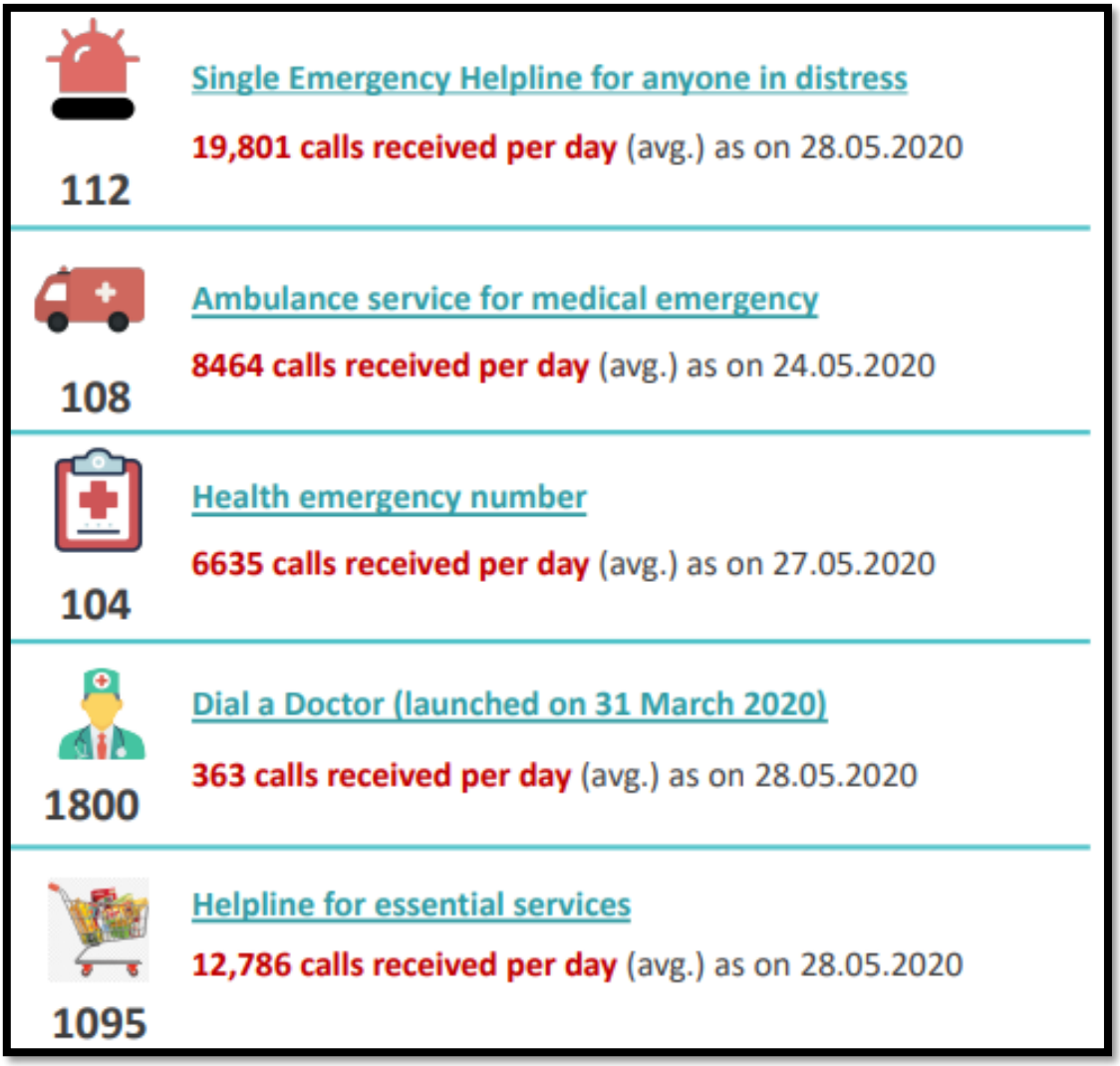


Fig 12, Helpline services provided by Punjab government in COVID-19

Protocols developed to handle COVID situations in Punjab

1. Guidelines and checklists have been made to establish and operate COVID care centers.
2. Guidelines have been set up regarding sanitizations of oxygen cylinders, hospital furniture, ambulances, x-ray machines, and other equipment.
3. Guidelines for infection prevention and control

Advisories issued to the state in COVID-19

1. Advisory for the people involved in frequent Interstate/ Intrastate movement.
2. Advisory on maintaining Hygiene and sanitation of State Transport undertakings.
3. Advisory on maintaining hygiene and sanitization of Sewa Kendras and their staff.

4. Advisory for the special care of elderlies/ senior citizens.
5. Advisory of maintaining and ensuring the safety of food and other essential household items.
6. Advisory on maintaining the hygiene and sanitation of shops.
7. Advisory on the use of air conditioning in residential/ commercial/ hospital settings.
8. Advisory on maintaining hygiene and sanitation of bank spaces and their staff.
9. Advisory on safe farming operations (Procurement and Marketing).
10. Advisory on maintaining hygiene and sanitization of public/private sector industries and staff.
11. Advisory on maintaining hygiene and sanitization while carrying out works under MNREGA.
12. Advisory on maintaining hygiene and sanitization of office spaces and staff.
13. Advisory on maintaining hygiene and sanitization at petrol pumps.
14. Advisory on maintaining hygiene and sanitization of plying goods vehicles and drivers/ workers.

Migrant Labourers

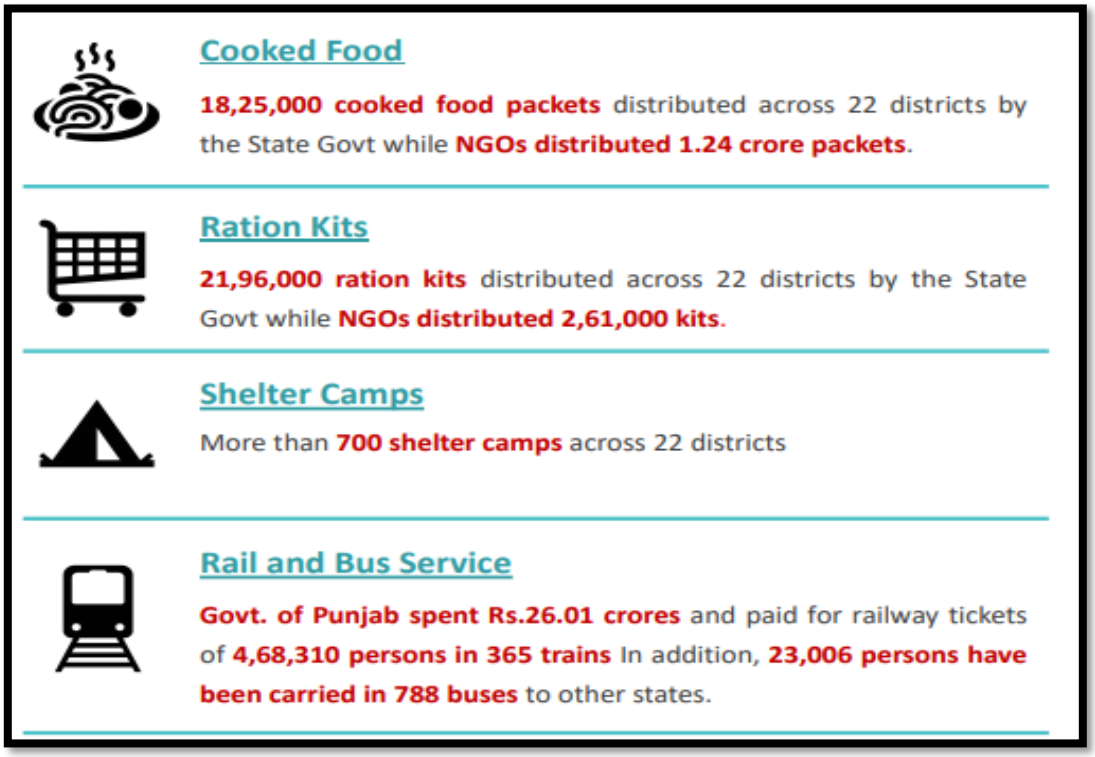


Fig 13, Efforts done by governments for migrant workers

- The government of Punjab has been proactively worked to ensure the needs of migrants in the state with utmost priority.
- From date May 3, 2020, till May 27, 2020 Government of Punjab has facilitated the return of more than 491316 migrant workers to their home states.

COVA Punjab

- COVA Punjab is the first mobile application in India that was launched on 9th March 2020 with geofencing and geotagging features.
- Other states requested Punjab fo access to the application and its features.
- To date 28 May 2020 more than 23 lakhs people downloaded this application on iOS Appstore and Android Playstore.

Initiatives are taken by the Punjab government to handle COVID-19 situation

1. Major operations carried out in Punjab are agricultural, for this government smoothly operated Mandis during procurement weeks. The unique centralized automated system was developed in Punjab for logic-based tech platform to issue e-passes to farmers. This helped in managing movement in mandis through online processes.
2. Corona.punjab.gov.in is the dedicated dashboard developed to analyze the trend and pattern of cases including prediction of future hotspots to take timely decisions.
3. Covidhelp.punjab.gov.in is the platform that is developed for the people who want to go to their home states from Punjab and those who want to return.
4. Telemedicine and Tele counseling initiatives were launched for general patients other than COVID-19 to get a consultation from home with the impaneled doctors/counselors through a video call.
5. UiPath RPA BOT is the deployed path that is used to extract information district wise specific information from emails, coming from more than 20 district authorities. The BOT saves the information in respective in the respective district folder.
6. Mass awareness campaigns have been initiated by the Punjab government to educate and inform its citizens across all the channels such as Radio, Television, Social Media, and Print media about this pandemic.

7. Online OPD system eSanjeevani, a CDAC Mohali's flagship integrated telemedicine solution was implemented across the state with the networking of senior doctors over video conferencing.
8. Work from home is provided to the employed ones along with important webinars by CM and VCs and other administrative staff.

Other actions

1. On March 27, 2020, the first manufacturer of PPE was approved in Punjab. As of May 28, 2020, around 93 PPE kit manufacturers are approved by the Government of India.

Methodology

Research Methodology is the way of using procedures and techniques to identify, select, process, and analyze the information. In this research, the data was collected to critically evaluate the validity and reliability of data by using secondary sources for data collection. These all are the authentic and reliable sources that provide a comprehensive collection of facts and figures relevant to the topic. Two types of data collection methods are there namely primary and secondary. In the primary data collection method, the person himself/ herself collects the data or arrange the third party to gather information. The second one is secondary sources that are used in the report to follow the information presented on government websites.

Secondary research was the method followed to involve the facts and data from already existing data. The existing data was summarized in reports and collated to increase the overall effectiveness of research. It included the material that was published in research reports and similar documents. Public discussions, websites such as MoHFW, Government of Punjab, India, COVID-19 Pandemic, and Department of Health and Family Welfare Punjab were used to obtain the data from already filled surveys. Some of the non-government and government agencies store the data so that it can be used by researchers, retrieving at any time of need.

It helped in making the use of data that was already presented on authentic platforms whereas the primary data was is collected first by the organization or business or third party is assigned to collect the information on their behalf.

The methods used were as follows:

1. Data available on the internet: This is found as the populous way of collecting data because the data is readily available by clicking on just one button. This data collected was free of cost and lots of information was present on organizations' websites and channels. However, authentic and reliable sources were chosen to collect information.
2. Commercial information sources: Television channels, radio, magazines, newspapers, and journals were used to collect the information. They were used in research because COVID-19 is the ongoing pandemic affecting a large number of lives daily. So, these sources provide updated information on the rise of cases, recovery rate, deaths, demographic segmentation, political involvements, healthcare members' efforts, migration, liasioning between governments, international crisis, and many other points were discussed in these sources.

The steps followed to find out the data were:

1. Identification of topic for research
2. Identification of research sources
3. Collection of existing data.
4. Combination and comparing
5. Analysis of data
6. Presentation of data

Keywords

“Punjab COVID-19”, AND “Status of Punjab in COVID-19”, AND “COVID-19”, AND “ COVID-19 Global”, AND “Daily updates of COVID-19”, AND “Countries affected most because of COVID-19”, AND “Recoveries in Punjab”, AND “Role of CM in Punjab during COVID-19”, AND “Actions taken by Punjab government in COVID-19”, AND “COVID-19 Index Case in Punjab”, AND “Migrants in Punjab”, AND “Governmental support in Punjab during COVID-19”.

Lockdown dates in Punjab

Phase 1: 22 March 2020 – 14 April 2020.

Phase 2: 15 April 2020 – 3 May 2020.

Phase 3: 4 May 2020 – 17 May 2020

Phase 4: 18 May 2020 – 31 May 2020

Phase 5: (only for containment zones); 1 June 2020 – ongoing (4 days); scheduled to end on 30 June 2020.

The lockdown restricted people from moving out of their homes. The transport services by rail, road, and air were prohibited with the expectations for transportation of fire, police, goods, and emergency services. Some services like industrial establishments, educational institutions, and hospitality services were blocked during the period. The services like petrol pumps, ATMs, banks, food, and other essential services were exempted differently in all phases. The punishment for the person failing with compliance with government systems has to face up jail for one year.

District-wise deaths scenario of Punjab during COVID

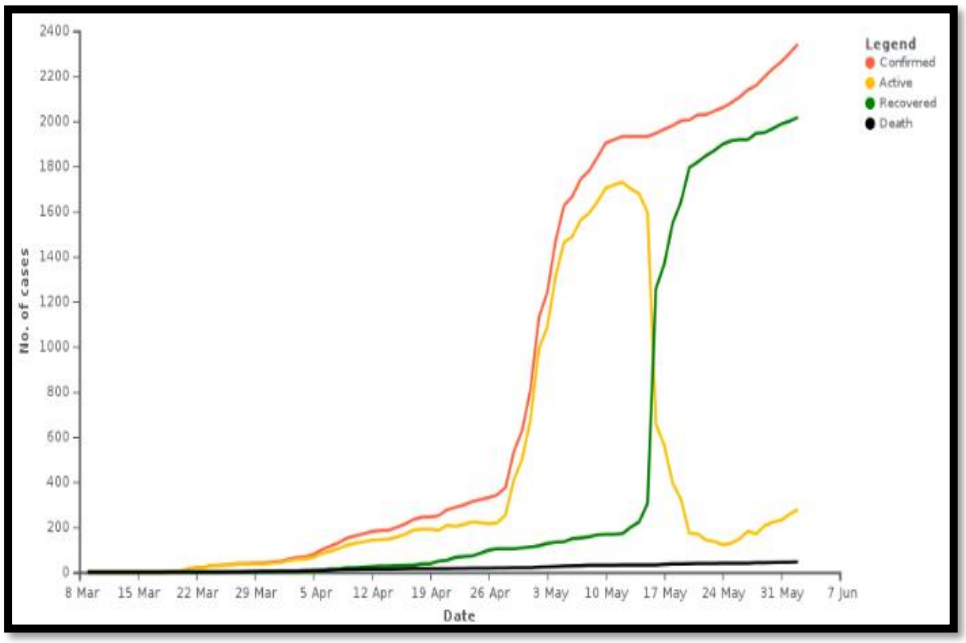


Fig 14, as of June 4, 2020

COVID-19 pandemics in Punjab by Districts

COVID-19 pandemic in Punjab by Districts [hide]				
District	(▲/▼)[a]			
	Active cases	Recovered	Deaths	Total cases
Amritsar	(▲2) 73	310	7	390[b]
Barnala	3	20	1	24
Bathinda	(▲2) 8	43	0	51
Faridkot	(▲3) 5	61	0	66
Fatehgarh Sahib	7	57	0	64[c]
Fazilka	2	44	0	46
Firozpur	0	43	1	44
Gurdaspur	6	131	3	140
Hoshiarpur	13	112	5	130
Jalandhar	39	209	(▲1) 8	256[d]
Kapurthala	2	33	3	38
Ludhiana	40	151	9[e]	200[f]
Mansa	0	32	0	32
Moga	5	59	0	64
Mohali	(▲5) 15	100	3	118
Muktsar Sahib	0	66	0	66
Nawanshahr	3	100	1	104[g]
Pathankot	(▲7) 39	37	3	76
Patiala	15	106	2	123
Rupnagar	10	59	1	70
Sangrur	11	91	0	102
Tarn Taran	4	153	0	157[h]
Total	(▲19) 297	2017	(▲1) 47	2361[i]

Fig 15, as of June 4, 2020

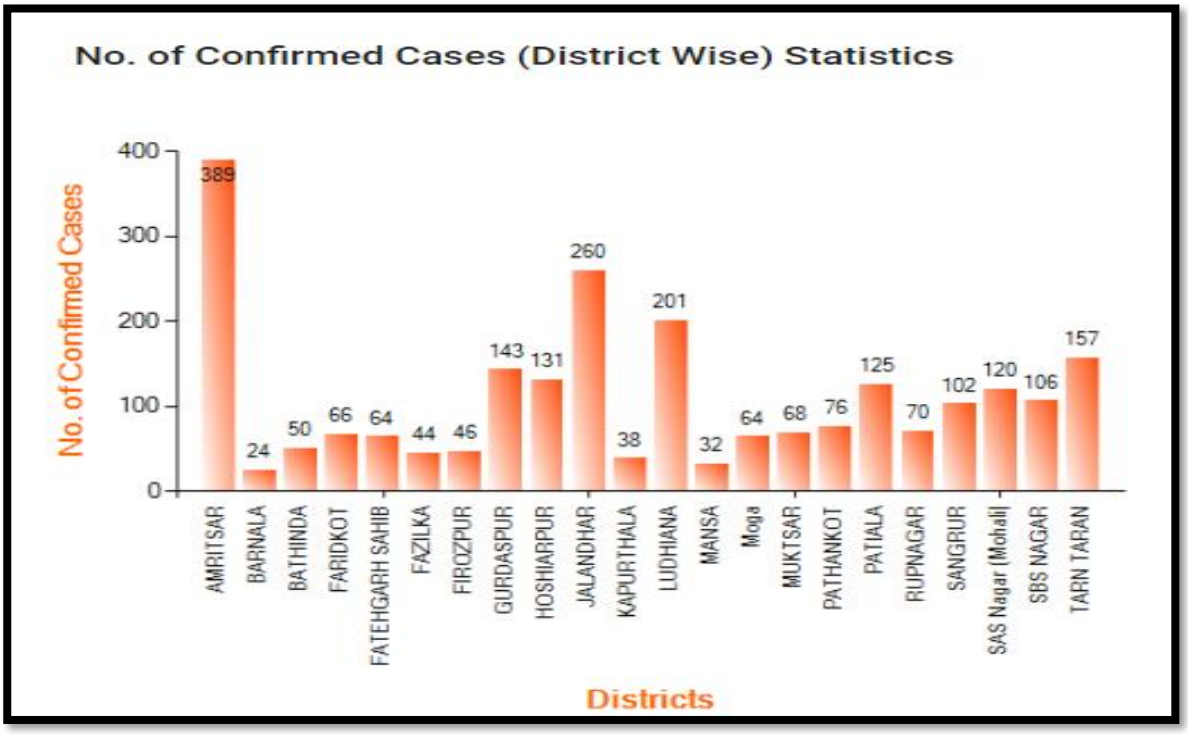


Fig 16, number of confirmed cases district-wise as of June 4, 2020

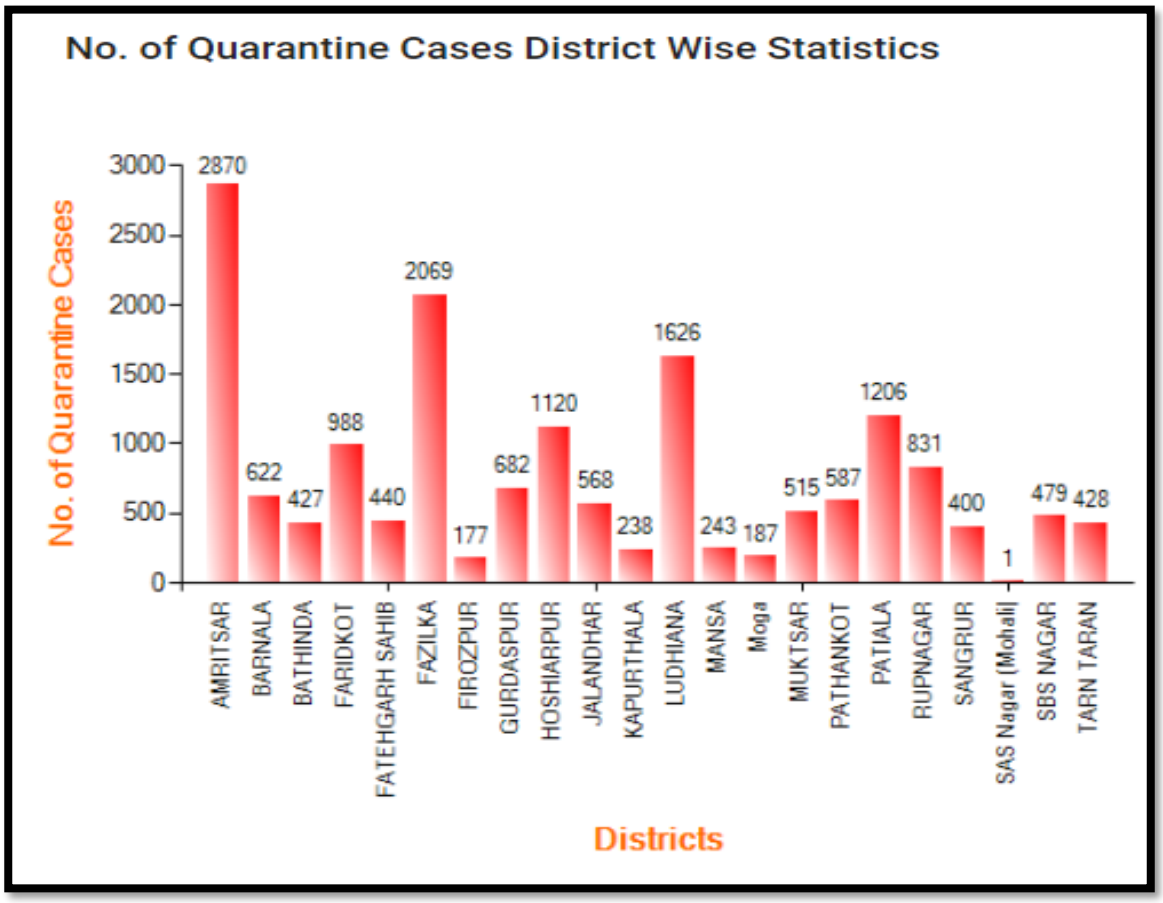


Fig 17, number of quarantine cases district wise as of June 4, 2020.

Lockdown Phase 1: 22 March 2020 – 14 April 2020

S.No.	District	Confirmed Cases	Cured	Deaths
1	SAS Nagar	56	5	2
2	Jalandhar	25	4	2
3	Pathankot	22	0	1
4	SBS Nagar	19	15	1
5	Amritsar	11	0	2
6	Ludhiana	11	1	2
7	Mansa	11	0	0
8	Hoshiarpur	7	2	1
9	Moga	4	0	0
10	Faridkot	3	0	0
11	Ropar	3	0	1
12	Barnala	2	0	1
13	FG Sahib	2	0	0
14	Kapurthala	2	0	0
15	Patiala	2	0	0
16	Sangrur	2	0	0
17	Muktsar	1	0	0
18	Gurdaspur	1	0	0
	Total	**184**	**27**	**13**

Fig 19, district wise COVID-19 cases report till April 14, 2020.

Lockdown Phase 2: 15 April 2020 – 3 May 2020

S.No.	District	Total Confirmed cases	Total Active cases	Total cured	Deaths
1	Amritsar	218	208	8	2
2	Jalandhar	124	112	8	4
3	Ludhiana	111	101	6	4
4	SAS Nagar	95	57	36	2
5	Hoshiarpur	88	81	6	1
6	Patiala	86	80	5	1
7	SBS Nagar	85	66	18	1
8	Muktsar	50	49	1	0
9	Bathinda	35	35	0	0
10	Gurdaspur	30	29	0	1
11	Ferozepur	29	27	1	1
12	Moga	28	24	4	0
13	Pathankot	25	15	9	1
14	Mansa	16	12	4	0
15	FG Sahib	16	14	2	0
16	Tarn Taran	14	14	0	0
17	Ropar	14	11	2	1
18	Kapurthala	13	10	2	1
19	Sangrur	11	8	3	0
20	Faridkot	6	5	1	0
21	Fazilka	4	4	0	0
22	Barnala	4	2	1	1
	Total	**1102**	**964**	**117**	**21**

Fig 19, District wise COVID cases report by May 3, 2020

Lockdown Phase 3: 4 May 2020 – 17 May 2020

S.No.	District	Total Confirmed cases	Total Active cases	Total cured	Deaths
1	Amritsar	307	8	295	4
2	Jalandhar	207	69	133	5
3	Tarn Taran	154	69	83	0
4	Ludhiana	144	108	29	7
5	Gurdaspur	122	3	116	3
6	SBS Nagar	106	37	68	1
7	SAS Nagar	102	4	95	3
8	Patiala	100	15	83	2
9	Hoshiarpur	92	3	85	4
10	Sangrur	88	34	54	0
11	Muktsar	65	23	42	0
12	Moga	59	1	58	0
13	Ropar	60	35	24	1
14	FG Sahib	56	46	10	0
15	Faridkot	59	20	39	0
16	Ferozepur	44	0	43	1
17	Fazilka	44	44	0	0
18	Bathinda	41	4	37	0
19	Mansa	32	22	10	0
20	Pathankot	29	13	15	1
21	Kapurthala	32	5	25	2
22	Barnala	21	0	20	1
	Total	**1964**	**563**	**1366**	**35**

Fig 20, District wise COVID cases report till May 17, 2020.

Lockdown: Phase 4: 18 May 2020 – 31 May 2020

District	Total Confirmed cases	Total Active cases	Total cured	Deaths
Amritsar	377	60	310	7
Jalandhar	245	29	209	7
Ludhiana	193	33	151	9
Tarn Taran	157	4	153	0
Gurdaspur	137	8	126	3
Hoshiarpur	120	22	93	5
Patiala	118	10	106	2
SAS Nagar	111	8	100	3
SBS Nagar	102	1	100	1
Sangrur	96	5	91	0
Ropar	70	10	59	1
Muktsar	66	0	66	0
Faridkot	62	1	61	0
Moga	62	3	59	0
Pathankot	60	27	31	2
FG Sahib	58	1	57	0
Bathinda	47	4	43	0
Ferozepur	46	0	45	1
Fazilka	44	2	42	0
Kapurthala	36	0	33	3
Mansa	32	0	32	0
Barnala	24	3	20	1
Total	**2263**	**231**	**1987**	**45**

Fig 21, District wise COVID cases report till May 31, 2020

COVID-19 response and preparation by the government of Punjab

Timeline	Steps were taken by the government of Punjab	
March 2	**Emergency measures**	Emergency measures were taken by the government to control the widespread COVID-19. Punjab government released a notification for private as well as government institutions to set up Flu Corners.
March 9	**COVA App**	Sensitization of the public was done by this mobile application.
March 21	**Social Security Relief**	From the orders of CM, the Finance Department in the state released the budget of Rs. 296 Crore on account of social security pensions to 24.70 lakh beneficiaries for January and February 2020.
March 22	**Lockdown**	Government of Punjab orders State-wide lockdown under section 144 from March 23 to March 31 to control the COVID-19 Pandemic.
March 29	**Committees**	Agriculture & Food, Health Sector Response & Procurement, Media & Communications, and Lockdown Implementation were the four committees set up to deal with COVID-19.
April 3	**Disaster Res. Fund**	The budget of Rs. 53.43 crores were released to Deputy Commissioners of different states to tackle the emergency arising out of the COVID-19.
April 6	**Relief Fund**	Rs. 50 crore and Rs. 150 crores were released by the Government of Punjab for medical equipment and relief works respectively.
April 7	**Mandi Board Committee**	Mandi Board meeting was set up with 30 members to develop the systems for wheat harvesting that was to be initiated on April 15.

April 8	**Testing Strategy**	4 RNA extraction machines and 5 RTPCR machines for testing was led by Punjab government by 10 times with procurement.
April 10	**Exit Strategy Taskforce**	The exit strategy was formulated with a multidisciplinary task force for a gradual relaxation of curfew/ lockdown in Punjab. The report was to be submitted in 10 days.
April 12	**Procurement Infrastructure**	3691 purchase centers including 280 sub yards, 153 main yards, 1434 purchase centers adding 1824 yards of rice mills created.
April 23	**Tackle Domestic Violence**	The detailed strategy was formulated by Punjab Police to take appropriate actions. These cases were headed by DSP for Crimes against Women (CAW).
April 24	**Telemedicine**	To provide 'Comprehensive Primary Health Services', telemedicine concept was followed in 300 Health and Wellness centers on door-steps of people in rural areas.
April 25	**Group of experts**	Post-COVID revival strategy was formulated by Mr. Montek S. Ahluwalia with a committee of 20 members. The first report under this strategy was to be submitted on July 31.
April 26	**State-wide Curfew**	All 22 districts were sealed under curfew imposition in the state. However, essential services including MNREGA works, essential services were allowed to continue in the state.
April 29	**COVID Help Regn.**	The people who want o return to Punjab from other countries and states were provided the option of online registration on http://covidhelp.punjab.gov.in
April 30	**Compulsory quarantine**	The(positive or negative) both, the cases were said to be under compulsory quarantine who were returning to Punjab.

May 4	**Child Rights in COVID**	For the Protection of Child Rights, the Government of Punjab appointed Vice-Chairman and 4 Non-official members in State.
May 5	**Machinery Subsidy**	Punjab government gave a subsidy of up to 50% to farmers for purchasing machinery in the season. This was the initiative taken to tackle the problem of labor scarcity amid COVID.
May 10	**Compensation**	Grant of ex-gratia compensation of Rs. 50 lakhs to the dependant members/ legal heirs of employees, who die in harness while on Government duty.
May 13	**Movement of Migrants**	More than Rs. 6 Crores was spent by the Punjab government to provide funds for the movement of migrants in the state till now.
May 14	**School tuition fees**	The rule by the Government of Punjab was made that the schools that are providing online classes to the students could only charge the tuition fees.
May 16	**Save Animals**	Vaccination was provided free of cost to save the animals from diseases such as Hemorrhagic septicemia (Ghal ghotu), swine fever, and a Black quarter (Patt soj).
May 16	**Curfew replaced with Lockdown**	The decline was shown in the number of cases from the past few days so the Government of Punjab announced the replacement of strict curfew with lockdown till May 31.
May 17	**Free medicines for Co-morbidities**	As MOs and RMOs advised the Government to provide free of cost treatments for hypertension and diabetes. So, the steps were taken in favor of advice by the Government of Punjab.
May 17	**No COVID-19 case during the procurement**	The Ministry of Health declared that during the harvesting season not even a single case of coronavirus was reported through mandis in

		Punjab.
May 18	**RTI Helpline**	RTI helpline is the portal where the queries raised by people were answered. The operational timings were from 10 am – 4 pm on +91 1722864100.
May 18	**Telemedicine Collaboration**	The government of Punjab launched telemedicine Ventures between Cleveland Clinic USA and CMC Ludhiana. Cleveland Clinic was the option to provide Physician-to-Physician video consultations.
May 18	**Investments during COVID-19**	The investments in IT/ ITeS sectors in the state have touched Rs. 605 crores which are approximately 65% higher than the investment figure of last financial year.
May 19	**House and Property Tax**	The government of Punjab decided to extend the deadline to pay the outstanding house tax or property tax without any penalty till 30th June 2020.
May 19	**Maternity Leaves**	Punjab government decided to grant 180 days maternity leaves to Government college Faculty Lecturers.
May 19	**Subsidies to SC Beneficiaries**	Punjab Land Development and Financial Corporation have issued subsidy to the tune of Rs. 140.40 lakh for SC beneficiaries to help them recover from the COVID crisis.
May 20	**e-Sanjeevani OPD**	CDAC Mohali's flagship implemented and integrated the telemedicine in the state. Gynecology services are to be started from 1st June in the state.
May 21	**PPE Manufacturers**	PPE manufacturers in the state got success as Government requested from these units whenever needed at HLL rates.
May 23	**High Recovery Rate**	Punjab got high success with a percentage of

		over 90% with only 143 active cases. The districts like Ferozepur, Sangrur, Bathinda, SAS Nagar, and Moga have 0 active cases by date.

Fig 22, Responses of Punjab government

Health Infrastructure arrangement by Punjab during COVID-19

Health facilities/ hospitals as Isolation hospital in the state of Punjab for COVID-19:

Sr. No.	**District**	**Beds**	**Isolation facility**	**Sample drawing facility**
1	Nawanshahr	50 beds	The entire District Hospital was an isolation facility. Gynae & Obstetric services and emergency services will be run in Sub Divisional Hospital Balachaur. Emergency health services will be available in Community Health Centres Banga, Rahon, and Mukandpur.	District Hospital Nawashahar
2	Jalandhar	350 beds	District Hospital Jalandhar. Emergency services and other OPD will be operational in ESI Hospital Jalandhar.	District hospital Jalandhar
3	Bathinda	80 beds	Advance Cancer Care Centre of Baba Farid University at Bathinda.	Advance Cancer Care Centre of Baba Farid University at Bathinda.
4	SAS Nagar Fatehgarh Sahib SDH Khanna of Ludhiana	350 beds	Gian Sagar Medical College and Hospital, Banur.	**SAS Nagar**: The samples will be taken at District Hospital Mohali and a temporary 10-bed isolation facility will be run at District Hospital Mohali and Gian Sagar Medical College and Hospital, Banur.

				Fatehgarh Sahib: The samples will be drawn at District Hospital Fatehgarh Sahib and a 10-bed temporary facility will be run at District Hospital Fatehgarh Sahib. **Khanna**: The samples will be drawn at Sub Divisional Hospital Khanna and a temporary facility of 5 beds will be run at Sub Divisional Hospital Khanna.
5	Patiala Sangrur	350 beds 250 beds	New Mother and Child Hospital in Government Medical College, Patiala. Super Speciality block in Government Medical College, Patiala.	**Patiala**: Samples will be drawn at New Mother and Child Hospital, Patiala. **Sangrur**: The samples will be drawn at District Hospital Sangrur and a 10-bed temporary isolation facility will be run there.
6	Amritsar	116 beds	Guru Nanak Dev Medical College, Amritsar	Guru Nanak Dev Medical College, Amritsar
7	Ludhiana	100 beds 30 beds	District Hospital, Ludhiana. Urban Community Health Center Vardhman.	The sample drawing facility will be operational at District Hospital Ludhiana.
8	Fazilka	100 beds	Jalalabad Hospital run by Baba Farid, University of Health Sciences, Faridkot.	Jalalabad Hospital run by Baba Farid, University of Health Sciences, Faridkot.

9	Ferozepur	50 beds	Eye department in District Hospital, Ferozepur.	Eye department in District Hospital, Ferozepur.
10	Shri Muktsar Sahib	50 beds	Rehabilitation Centre, Village Their, Gidderbaha-Malout Road, District Shri Muktsar Sahib.	Rehabilitation Centre, Village Their, Gidderbaha-Malout Road, District Shri Muktsar Sahib.
11	Kapurthala	100 beds	Rehabilitation Centre, Circular Road, Mohabbat Nagar Kapurthala.	Rehabilitation Centre, Circular Road, Mohabbat Nagar Kapurthala.
12	Gurdaspur	50 beds	Rehabiltation Centre, Jiwanwal Babbri, Gurdaspur.	Rehabiltation Centre, Jiwanwal Babbri, Gurdaspur.
13	Pathankot	50 beds	New Mother and Child Hospital, Pathankot	New Mother and Child Hospital, Pathankot
14	Hoshiarpur	75 beds	District Hospital, Hoshiarpur. Emergency services will be operational in Mother and Child Hospital Hoshiarpur and Emergency Block of the District Hospital	District Hospital Hoshiarpur.
15	Ropar	50 beds	District Hospital, Ropar (1st floor) with separate entrance and exit.	District Hospital, Ropar (1st floor) with separate entrance and exit.
16	Barnala	50 beds	The rehabilitation center, Sohan Patti, Khuddi Road, Barnala.	The rehabilitation center, Sohan Patti, Khuddi Road, Barnala.
17	Tarn Taran	30 beds	New Mother and Child Hospital building in District Hospital Tarn	Mother and Child Hospital building in District Hospital Tarn Taran.

			Taran.	
18	Faridkot	100 beds	Guru Gobind Singh Medical College and Hospital Faridkot.	Guru Gobind Singh Medical College and Hospital Faridkot.
19	Mansa	30 beds	District Hospital Mansa. OPD and Emergency services will be in the Mother and Child Hospital Building of District Hospital Mansa.	District Hospital Mansa
20	Moga	25 beds	Community Health Centre Bagha Purana.	Community Health Centre Bagha Purana.

Fig 23, Infrastructure facilities by Punjab government

- The facilities set up away from existing healthcare institutions were allotted with SMO or Program Officer with additional changes by Civil Surgeon.
- The concerned higher authorities in the hospitals will ensure setting up proper sample drawing facilities with the proper instructions.
- The isolation facilities were the responsibilities of concerned members as per rules.
- The availability of N-95 masks and PPE kits were the duties assigned to the Civil Surgeon of that area.
- The responsibilities of the Civil Surgeon included the availability of manpower, Medical Officers, General Duty Doctors, Nurses, Technicians, and other staff as per requirements.
- The isolation facilities and sampling facilities should be properly managed by Civil Surgeon according to duties and responsibilities written in documents.
- Civil Surgeon Mohali was held responsible for allocating the staff and in case of shortage he can tie up with Director Health Services.
- The Principals of college Government Medical College Patiala and Amritsar is the responsibility of them to look after.
- Baba Farid University of Health Sciences was given the responsibility of Bathinda, Jalalabad, and Faridkot health centers.

- The facilities were made functional from 25.03.2020 with full force.
- In case the authorities of the hospital need any clarification, then they were allowed to get clearance from the Director of Health Services.
- The sites such as pshfw@punjab.gov.in directorhealth-pb@punjab.gov.in and outbreakcellpunjab@gmail.com to get the contact and name of in charge of hospital facilities.
- Ministry of Health and Family Welfare set up guidelines for isolation facilities in India. The guidelines were allowed to be followed in every state's healthcare facilities.

Guidelines for setting up isolation facility/ ward to handle COVID-19 outbreak issued by the National Centre for Disease Control included (Appendix 1):

1. Quarantine and isolation
2. Setting up isolation facility/ ward
3. Checklists for isolation rooms
4. Wearing and removing Personal Protective Equipment (PPE)
5. Transport of infectious patients

Quarantine and isolation

Quarantine and isolation are the measures taken by the health ministry to break the chain of transmission in the community. In these two measures, the individuals are separated from people and kept in a place where they have to stay alone for 14 days. The persons who tested positive were not discharged until twice they get negative reports. It was observed from the reports that 15% of the patients were likely to develop the symptoms of pneumonia, 5% of whom require ventilator management.

Setting up an isolation facility

Airflow is necessary for the isolation facility so that airborne infection can be reduced to a level that ensures the cross-infection of other people within the healthcare facility.

- At the State level, healthcare facilities should be developed with a minimum of 50 beds in an isolation ward.
- At the District level, healthcare facilities should minimum have 10 beds in isolation wards.

Checklist for isolation room (Appendix 1)

- Hair covers
- Gloves
- Sharp Containers
- Eye protection
- Clean single-use towels
- Face Shield
- Plain soap
- Reusable vinyl or rubber gloves for environment scanning
- Alcohol-based hand rub
- Latex single-use gloves for environment scanning
- Plastic aprons
- Particulate respirators
- Gloves and Aprons
- Plastic aprons
- Single-use long-sleeved fluid-resistant or reusable non-fluid resistant gowns.
- Large plastic bags
- Standard clinical management protocols
- Appropriate clinical waste bags
- Standard IEC
- Standard protocols for hand hygiene, sample collection and BMW displayed clearly
- Collection container for used equipment
- Appropriate detergent for environment cleaning and disinfectant for disinfection of surfaces, equipment, and instruments.

Wearing and removing Personal Protective Equipment (PPE)

The guidelines were developed before entering the isolation room or area and leaving the isolation room or area.

Before entering the isolation room or area:

- Collect the equipment as per need.
- Maintain hand hygiene with an alcohol hand rub or soap and water.

- Put on PPE in the order that ensures placement of PPE items and prevention from self-contamination and self-inoculation while taking off and using PPE.

Leaving the isolation room or area:

- Removal of PPE should be in a way that they prevent self-contamination or self-inoculation with contaminated PPE or hands.
- The principles are as follows:
    - The most contaminated PPE were to be removed first.
    - Hand hygiene steps to be followed first after removing gloves.
    - Removal of mask or particulate respiratory last.
    - Discarding of disposable items in rubbish bins.
    - Put the reusable items to dry in a closed container.
    - Perform hand hygiene with hand-rub or soap and water.

Transport of infectious patients

The infected patient is carried from various units of the hospital by following the various precautions:

- Covering the body of the colonized area of the patient's body.
- Transportation of patients by removing the existing PPEs to move the patient into and outside the facility.
- The destination where the patient is shifted must be informed before transfer for suitable accommodation.
- The use of lifts, corridors, and bed transfer floors helps the staff in the movement of the patient.

Results/ Findings

Punjab COVID Timeline along with the demographic, migration, gender, health, and economic aspects have been defined.

The imposition of lockdowns in the state-led Punjab to achieve the highest score of 64% in recovery rates. The Health Minister of the state Balbir Singh Sidhu said that this is 'the best throughout the country'. He also said that this fight is not yet over yet as many people stranded in the other parts of Punjab. This is the data that is shown from the above figures like there were around 2000 coronavirus cases that were reported from Punjab state. According to the Ministry of Health, there were 1980 cases out of which 1547 were recovered and got discharged from the hospital. The state has got 37 COVID-19 fatalities.

From the infrastructure and other facilities reports, it has been seen that the extent of COVID-19 in the state and preparation of appropriate strategies were done from time-to-time. The Punjab government also conducted a survey in which they came across the State in a bid to contain the situation. This survey was conducted in high-population including comprising health frontline workers, health workers, farmers, policemen, the staff of municipal corporations, doctors, industrial workers, people with containment zones, and compromised immunity.

The decision comes to the state as it has been rocked by the surge in confirmed COVID-19 cases since the Unlock 1.0 was announced. Hence, this number reached to 3063 so far, out of which 65 already succumbed to the viral disease. This was the survey conducted in four districts of Punjab and several other districts from other states. By looking at a high number of fatalities, the Punjab government left to fend itself for ramping up its health infrastructure to effectively fight the COVID-19 outbreak. They received Rs 72 crores from the Central government. Although, Punjab is amongst the worst-hit states as 1980 people were infected by the virus that has claimed 37 lives. To get financial assistance, the state government wrote two letters seeking financial assistance of about Rs 879 crores for improving the healthcare facilities. However, this amount was received to them under the account of the National Health Mission (NHM). This budget was allocated for the up-gradation of the state's ailing health infrastructure. Punjab government set up Intensive Care Units in district facilities. Earlier, Except Jalandhar and Kapurthala no other facility was having well-equipped radiodiagnosis machines.

By seeing the rise in cases, Punjab's Chief Minister Amarinder Singh was willing to send back the people including migrants, and spent Rs 7.5 lakh per train. The number of migrants registered was 2 lakh migrants out of 11 lakhs who registered on a specific portal of Punjab. A large number of trains were needed for Bihar, but the state was not willing to take in people at this stage as their quarantine facilities were full. From the analysis of death cases, it was concluded that the patients who died were having multiple comorbid conditions, such as diabetes, hypertension, obesity, and lung infection.

The state government took great initiatives such as in addition to testing of interstate travelers, the health department started testing high contact government employees that include health, revenue, policemen, mandi boards, procurement agencies, urban local government, food & civil supplies, and also high contact persons in harvesting and sowing operations.

The usage of digital platforms in a state like COVA application helped the people to stay safe. This resulted in maintaining a distance from the nearest COVID-19 patient and also giving assistance to district administration if a quarantined patient or suspect moves beyond 100 meters of his/ her location.

As a result, the COVA application helped in geotagging the positive patients, the district administration from this report was allowed to trace the locations that the positive individual has visited during the last few days. By this, the telecom companies were sent hourly reports to the Department of Health on breaches in the district. The survey concluded that 10 lakh people of Punjab downloaded this application and this is enabling the government officials as well as government to take effective measures to execute social distancing norms and lockdown while making the essential as well as other important services available to the statesmen.

After the decline in coronavirus cases, the state CM Amarinder Singh said that there would be still lockdown in the state. Non-containment zones were given some relaxations however, the educational institutes were still advised to close till further orders. This was done because looking at the earlier spread of cases in the state, he warned that the number could go up as non-resident Indians and migrant workers would enter the state.

Discussion/ Analysis

Economically

Punjab state stared the loss at revenue of Rs 20,000 crores in 2020-21. Since this was the first financial quarter of the state in which the lockdown was imposed because of the coronavirus outbreak.

The Finance Minister of Punjab, Manpreet Singh Badal said in the press conference that Punjab has imposed lockdown before other states and this has affected a large number of the immigrant population who resides in the countries such as North America and Europe. The state-wise curfew was announced by the CM of Punjab on 22 March to minimize the spread of infection.

In more than 30 days of curfew, not even a single rupee was generated from GST, lotteries, registration of properties, or petroleum. The revenue loss that was seen in April was about Rs. 5000 crore and 1000 crore in the next two months.

The budget for Punjab in this financial year was Rs 88000 crore and the other 35842 crores were to be earned from different taxes. The estimation of capital outlay is estimated at around Rs 59000 crore of which Rs 10820 crore was the capital outlay. The capital outlay denotes the expenditure that leads to the creation of assets.

Demographic, Socio-economic, and Migration impact on COVID-19 Punjab

The whole world is facing the fights over COVID-2019 outbreak. The socio-cultural, socio-political, and socio-economic domains are affected by Indians who are settled in abroad countries. Many youths from Punjab have migrated to western countries to earn more income. The study done has reflected the data with the title 'Socio-Economic and Demographic Analysis of Internal Migration Jalandhar, Patiala, Amritsar and Bathinda. From the graphs, it has been clearly shown that these districts have a high number of cases. During the survey in five villages of rural Patiala it was found that 296 migrants were there from 207 households. These facts are presented according to the data until December 2019. The percentage of people accounted for migrated population based on the category are 92.57 percent from general caste, 2.70 from backward caste, and 4.73 percent were Dalits. From the general category, 91.56 percent were land-owning Jats from the state. The most commonly chosen countries were Canada, Australia, New Zealand, the United States, and Italy. Around 56.42 percent of migrants belong to nuclear families as per the survey recordings. The study presented the reasons of unemployment as peer pressure, improved living

conditions, desire to earn more. From the demographic aspect, the majority of population that has shifted to other countries falls in the reproductive age group of 15 to 45 and holds about 96 percent of emigrants. Here, there is a need of planned strategy and some serious interventions.

Psychological and health impact on Punjab due to COVID-19

Health concerns, financial implications, home quarantine, and changes in lifestyle have given a mental shock to people. Punjab has more than half percent of the population dependant on Agricultural works. They are under psychological stress because Punjab uses to get agricultural laborers from other states. The government of Punjab has taken steps by taking concern on this issue in the way that the institutional organizations such as Panchayats will partner with extension service providers like KVKs, FPOs, and NGOs to bring them relief. Financial assistance is given by the government to farmers in the way of subsidy on seeds, equipment, and fertilizers used in farming.

Conclusion

Swine Flu, SARS, Ebola, MERS have been the pandemic outbreaks that have affected various strata of people. In these scenarios, healthcare emergencies have been built to limit the spread of infection. The priority for extension needs to research on best practices that the state as well as the whole country should follow to deal with the problem.

The best practices can be:

1. Geographically tagging affected areas
2. Mentally motivated and counseling issued by the central government.
3. Strictly following the guidelines
4. Cleaning and maintenance of “high-risk” surfaces
5. Tracking down NRIs travel history
6. Effective usage of COVA application.
7. Usage of mobile vans to collect samples and restrict the movement of suspected cases.
8. Strictly following COVID-19 safety rules.
9. Contact tracing
10. Provision of food and shelter to needy.

Appendices

Appendix 1

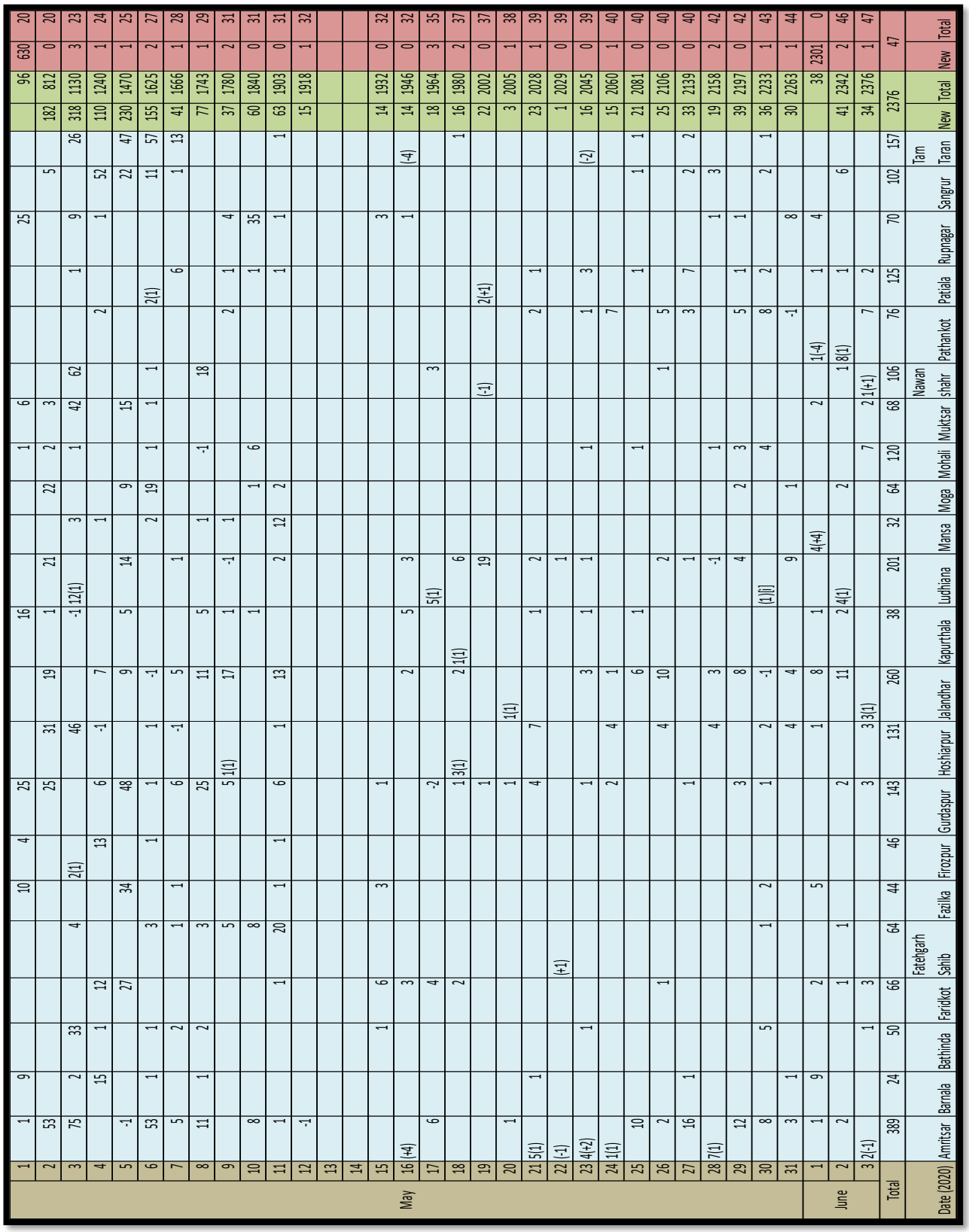
Checklist for isloation rooms

Checklist for isolation rooms

- Eye protection (visor or goggles)
- Face shield (provides eye, nose and mouth protection)
- Gloves
- reusable vinyl or rubber gloves for environmental cleaning
- latex single-use gloves for clinical care
- Hair covers
- Particulate respirators (N95, FFP2, or equivalent)
- Medical (surgical or procedure) masks
- Gowns and aprons
- single-use long-sleeved fluid-resistant or reusable non-fluid-resistant gowns
- plastic aprons (for use over non-fluid-resistant gowns if splashing is anticipated and if fluid-resistant gowns are not available)
- Alcohol-based hand rub
- Plain soap (liquid if possible, for washing hands in clean water)
- Clean single-use towels (e.g. paper towels)
- Sharps containers
- Appropriate detergent for environmental cleaning and disinfectant for disinfection of surfaces, instruments or equipment
- Large plastic bags
- Appropriate clinical waste bags
- Linen bags
- Collection container for used equipment
- Standard IEC
- Standard protocols for hand hygiene, sample collection and BMW displayed clearly
- Standard Clinical management protocols

Appendix 2

Punjab district-wise and date-wise cases from the month of March to May 2020



Date (2020)	Amritsar	Barnala	Bathinda	Faridkot	Fatehgarh Sahib	Fazilka	Firozpur	Gurdaspur	Hoshiarpur	Jalandhar	Kapurthala	Ludhiana	Mansa	Moga	Mohali	Muktsar	Nawan shahr	Pathankot	Patiala	Rupnagar	Sangrur	Tam Taran	New	Total	New	Total
1	1	9					10	4	25			16			1	6				25			96	630	20	
2	53								25	31	19	1	21	22	2	3					5		812	0	20	
3	75	2	33		4		2(1)		46			-1 12(1)	3		1	42	62		1	9		26	318	3	23	
4		15	1	12				13	6	-1	7		1					2		1	52		110	1	24	
5	-1			27			34		48		9	5	14		9	15					22	47	230	1	25	
6	53	1	1		3			1	1	1	-1		2	19	1	1	1		2(1)		11	57	155	2	27	
7	5		2		1	1	1		6	-1	5		1						6		1	13	41	1	28	
8	111	1	2		3				25		11	5		1		-1	18						77	1	29	
9					5				5 1(1)		17	1	-1	1					2	1	4		37	2	31	
10	8				8							1			1	6					35		60	0	31	
11	1			1	20	1	1		6	1	13		2	2					1		1	1	63	0	31	
12	-1																						15	1	32	
13																										
14																										
15			1	6			3		1											3			14	0	32	
16	(+4)			3							2	5	3							1		(-4)	14	0	32	
17	6			4					-2			5(1)					3						18	3	35	
18				2					1 3(1)		2 1(1)		6									1	16	2	37	
19									1				19				(-1)		2(+1)				22	0	37	
20	1								1	1(1)													3	1	38	
21	5(1)		1						4	7		1	2						2	1			23	1	39	
22	(-1)				(+1)								1										1	0	39	
23	4(+2)			1					1		3	1	1			1			1	3		(-2)	16	0	39	
24	1(1)								2	4	1								7				15	1	40	
25	10										6	1			1					1		1	21	0	40	
26	2			1						4	10		2				1		5				25	0	40	
27	16	1							1				1						3	7		2	33	0	40	
28	7(1)									4	3		-1			1					1	3	19	2	42	
29	12								3		8		4		2	3			5	1	1		39	0	42	
30	8		5			1	2		1	2	-1	(1)[1]				4			8	2		2	36	1	43	
31	3	1								4	4		9		1				-1		8		30	1	44	
1	1	9			2		5			1	8	1	4(+4)			2		1(-4)		1	4		38	2301	0	
2	2			1		1			2		11	2	4(1)		2		1	8(1)		1		6	41	2342	2	46
3	2(-1)		1	3					3	3(1)						7	2	1(+1)	7	2			34	2376	1	47
Total	389	24	50	66	64	44	46	143	131	260	38	201	32	64	120	68	106	76	125	70	102	157	2376	47		

Date (2020)		District																						Cases		Deaths	
		Amritsar	Barnala	Bathinda	Faridkot	Fatehgarh Sahib	Fazilka	Firozpur	Gurdaspur	Hoshiarpur	Jalandhar	Kapurthala	Ludhiana	Mansa	Moga	Mohali	Muktsar	Nawns hahr	Pathankot	Patiala	Rupnagar	Sangrur	Tarn Taran	New	Total	New	Total
	1	1	1											1			3								5	46	4
	2	-1								1			1											2	48	1	5
	3	3												3		2					1			9	57	0	5
	4	3			1						1					2			1					8	65	0	5
	5		1										1(1)			1			-1					3	68	2	7
	6	1(1)				2						1	1			4					2			11	79	1	8
	7	1												2	4	7			6					20	99	0	8
	8				1						2		2			10	1				-1			16	115	1	9
	9	1	1(1)								3(1)		2	6		1						1		15	130	2	11
	10										1					11(1)			8			1		21	151	1	12
	11				1						3	1				3			1	1				10	161	0	12
	12										7(1)					2								9	170	1	13
	13										2		1			1			6					10	180	0	13
	14								1		1					2						1		5	185	0	13
April	15																			1				1	186	0	13
	16								-1		6		1						2	4				13	199	1	14
	17							1			7		3(1)							4				15	214	1	15
	18										3		1(1)			1				15				20	234	1	16
	19										6					4								10	244	0	16
	20										1													1	245	0	16
	21															1				5				6	251	0	16
	22	2									5	1								18				26	277	0	16
	23										9	-1				1								10	287	1	17
	24	1									1		1	2						6				11	298	0	17
	25										6(1)		1					1	1	6				15	313	1	18
	26										9													9	322	0	18
	27											3								-1			6	9	331	1	19
	28									1	7					2							2	12	343	0	19
	29			2	3					3			11			8		2		2		1		33	376	0	19
	30	67						1	3		3(1)	6	48		1	13	3	1		1	2	2	7	158	534	1	20

Bibliography

Available at: https://www.deccanherald.com/national/coronavirus-in-india-news-live-updates-total-cases-deaths-flights-trains-today-schedule-mumbai-delhi-kolkata-bengaluru-maharashtra-gujarat-west-bengal-tamil-nadu-covid-19-tracker-today-worldometer-update-lockdown-4-latest-news-838583.html

Awareness on COVID-19(2020). Available at: https://www.mohfw.gov.in/pdf/FAQ.pdf

Central Helpline numbers for Coronavirus (2020). Available at: https://www.mohfw.gov.in/pdf/coronvavirushelplinenumber.pdf

Coronavirus news highlights: India's recovery rate increases by 4.5% to 47.4%; National tally crosses 1.74 lakh

Coronavirus Stats tracker. Available at: https://visalist.io/emergency/coronavirus

COVID-19 India. Available at: https://www.mohfw.gov.in/

COVID-19 Notifications. Available at: http://pbhealth.gov.in/Coronanotifications.html

COVID-19 orders by Government of Punjab, Department of Health and Family Welfare. Available at: http://pbhealth.gov.in/Compedium%20Final/(1)isolation/Notification%20of%20facilities%20as%20Isolation%20Hospital%20in%20the%20State%20of%20Punjab%20Dated%2006-05-2020.pdf

COVID-19 pandemic in Punjab, India (2020). Available at: https://en.wikipedia.org/wiki/COVID-19_pandemic_in_Punjab,_India#March

COVID-19 Punjab data. Available at: https://www.google.com/search?q=covid+19+data+punjab&rlz=1C1CHBD_enIN903IN903&sxsrf=ALeKk03b_F1L4zgX_NbUFZ_UHHm9x2ydRg:1591028974233&source=lnms&tbm=isch&sa=X&ved=2ahUKEwiMm9jmhOHpAhUFyzgGHSs1ChQQ_AUoA3oECAsQBQ&biw=1366&bih=635

COVID-19 Punjab Heat Map Available at https://dronamaps.com/corona.html#/

COVID-19: Punjab Govt Turns Two Jails Into Quarantine Centers To House Symptomatic Inmates. Available at: https://www.republicworld.com/india-news/law-and-order/covid-19-punjab-govt-turns-two-jails-into-quarantine-centers.html

District-wise COVID-19 positive cases in India; check the complete list. Available at: https://www.indiatvnews.com/news/india/covid19-district-wise-positive-cases-india-check-complete-list-coronavirus-lockdown-602310

Monthly Media Bulletin COVID-19 March, April, and May. Available at: http://pbhealth.gov.in/media-bulletin.html