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Non-COVID19 Services through Public Facilities and Biju Swasthya Kalyan Yojana (BSKY) during the pandemic 2020-21

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NON-COVID19 SERVICES THROUGH PUBLIC FACILITIES AND BIJU SWASTHYA KALYAN YOJANA (BSKY) DURING THE PANDEMIC 2020-21

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Abstract

The second year of Biju Swasthya Kalyan Yojana (BSKY), the Universal health coverage scheme of Odisha was challenging amidst the onset of pandemic due to COVID 19 and tested the resilience of the health system significantly. Maintaining non-covid services during the pandemic is an essential activity. It has significant dividends in terms of continued healthcare services to both acute and chronic patients needing care. It helps in reducing unintended consequences/complications including indirect mortality for these sections of patients.

Odisha has good experience of managing such disruptions in health services during natural disasters and has overtime become efficient in activating all its reserve support system into action quickly. This analysis is an effort to review the uptake of non-covid services through the BSKY scheme in both public and empaneled private hospitals during the pandemic year. The key factors which contributed to management of both the pandemic and routine health care services in Odisha are also explored.

Keywords: COVID -19, Non-covid services, Biju Swasthya Kalyan Yojana

Introduction

The primary objective of a national health system is improving population health, providing financial risk protection, and achieving user satisfaction along with quality care. Health being a state subject in India, sub- national actors including communities plays a critical role in the response and are reservoirs of resilience for health systems.

The term ***resilience*** has been part of the lexicon of multiple scientific disciplines; psychology, disasters, engineering, and economics. Its Latin origin, resilire, means "**bouncing back**"-understood literally or rather metaphorically in the context of health. The first disciplinary definitions came from ecology in 1973 by **Holling** as a system's "ability to absorb change and disturbance and still maintain the same relationships between populations or state variables."

Health system resilience can be defined as the capacity of health actors, institutions, and populations to prepare for and effectively respond to crises; maintain core functions when a crisis hits; and, informed by lessons learned during the crisis, reorganise if conditions require it. (Kruk et.al, 2015). The key characteristics of a resilient health system are they are aware, have the ability to self-regulate, diverse, learn from their past experiences, adaptive and can provide an integrated response to any health system shocks. Resilient health systems can also deliver everyday benefits and positive health outcomes. This **double benefit** of improved performance in both bad times and good is called "**the resilience dividend**". Resilience incorporates the concept of emergency preparedness, which deals with prevention, protection and quickly responds and recovers from emergencies particularly whose scale and timing overwhelm the routine capacity.

Odisha is prone for natural disasters like floods, cyclones and also epidemic diseases, which stress the health system quite often. The super cyclone in 1999 and subsequent disasters due to cyclones (Phaillin (2013), Hudhud (2014), Fani (2019)) have caused loss of lives, livelihood, damage to infrastructure, crops and epidemics. The state ranks 16th in the Niti Ayog health index. It has shown rapid progress in improving its health indicators[1]. The state is striving to better its performance with a strong political will, community engagement and good governance despite inadequacies in health care infrastructure and human resources for health.

[1] https://sdgindiaindex.niti.gov.in/assets/Files/SDG3.0_Final_04.03.2021_Web_Spreads.pdf

World Health organization (WHO) in its guidance to countries [2]has emphasized the need to maintain essential services during the pandemic based on health system context and local burden of diseases. Essential services as defined by WHO include vaccination, reproductive and child health services, management of chronic conditions, acute presentations and emergencies, continuity of critical therapies and auxiliary services like diagnostic labs, imaging and blood banks. The non-essential services need to be identified such as elective surgeries which can be delayed or postponed so that service delivery can be optimized with available health care staff and resources and if needed, they may be restricted to designated facilities by modifying service access, clinic space or service delivery. These modifications are discussed below.

Service access modifications

- Determine which essential services will continue / paused/ referred to another clinic
- Screen and triage patients for symptoms/exposure to COVID-19 before they enter health facility; Consider using telehealth platforms
- Triage and test patients for COVID-19, including, where possible, touchless temperature checks.
- Ensure hand hygiene, appropriate use of PPE, and regular cleaning, especially of high touch surfaces and objects regularly
- Ensure use of a medical mask for all patients with/without respiratory symptoms or other symptoms suggestive of COVID-19

Clinic Space modifications

- Separate patients by maintaining a distance about 2 meters when possible (e.g., move waiting areas outside) and limiting the number of people in the facility at a time
- Repurposing clinic space designating certain facilities for COVID-19 care while others for essential non-COVID-19 services.
- Modify underused spaces in facilities that have access to improved water sources (and good ventilation) for use as isolation areas for presumptive or positive COVID-19 patients.
- Ensure separate spaces for assessment of acutely ill persons and delivery of essential non-COVID-19 services.

Service Delivery modifications

[2] World Health Organization. COVID-19: operational guidance for maintaining essential health services during an outbreak: interim guidance, 25 March 2020. No. WHO/2019-nCoV/essential_health_services/2020.1. World Health Organization, 2020.

- Minimize patient contacts with Health Care Workers (HCW) and other patients to reduce risk of exposure or infection:
  - Lengthen time between appointments for stable, healthy patients.
  - Use of telemedicine consultative visits (either video, phone calls, SMS (short message service)) for screening, follow-up, and refilling prescriptions.
  - Implement 3- or 6-month dispensing of medication for healthy, stable patients. Who were using medicine for chronic illness.
- Provide fast-track services for acute and chronic patients to reduce contact with multiple providers (e.g., charts pulled, medications ready, one provider sees patient through all services).
- Limit number of visitors who may accompany patient
- Relocate services—each community and healthcare facility will need to determine options best fits their circumstances and resources.
- Re-assign staff from less busy services to assist with essential services.

Hence this paper examines experience learnt from earlier disasters in Odisha and initiatives undertaken to manage COVID 19 epidemic and maintain non-covid services.

Study Methods

The overall objective was to study Odisha's health system response to non-covid services during the COVID 19 pandemic

Research Question: "Has the health system emergency preparedness of Odisha with prior experiences of disasters and epidemics made it more resilient to manage non-covid services during pandemic?"

Objectives:

1. To conduct desk review and document the lessons learnt by Odisha government in managing the health system shocks due to natural disasters
2. To examine experience learnt from earlier disasters and initiatives undertaken to manage COVID 19 pandemic and deliver non-covid services.
3. To document the utilization trends for non-covid services through the public facilities and private facilities under the Biju Swasthya Kalyan Yojana

Approach:

Based on frameworks used in ecology, **three levels of resilience** can be applied to health systems: absorptive capacity, adaptive capacity, and transformative capacity. The ***absorptive capacity*** relates to the capacity of a health system to continue to deliver the **same level (quantity, quality, and equity**)

of basic healthcare services and protection to populations despite the shock using the **same level of resources** and capacities. ***Adaptive capacity*** is the capacity of the health system actors to deliver the same level of healthcare services **with fewer and/ or different resources,** which requires making organizational adaptations. Finally, the ***transformative capacity*** describes the ability of health system actors to **transform the functions and structure of the health** system to respond to a changing environment (Karl Blanchet et.al, 2017).

Table-1: Levels of resilience and indicators

Absorptive capacity	1. Health service Utilization at PHC/CHC/DHH and BSKY empaneled hospitals 2. Utilization of human resources (HR) 3. Utilization of funds 4. Decision space at the district and below
Adaptive capacity	1. Utilization of additional HR/ Funds 2. Decision space at the district and below 3. New systemic changes introduced to deal with the situation
Transformative capacity	**1. Functional changes** Distribution of power within and between departments Different level of care of health service delivery **2. Structural changes** Changes in infrastructure Public private partnership (PPP) initiatives Change in HR & Funding Procurement and supply change

Data Sources

Quantitative data was collected from government documents, health management information system (HMIS) (2019-20/2020-21), Claims data from the Biju Swasthya Kalyan Yojana (2019-20 and 2020-21), published literature from publicly available sources to understand the depth and the different dimensions of the response. COVID 19 portal of the state for the pandemic related information, action taken and state briefing reports to the press and public were reviewed. In addition,

informal observations, reflective meetings minutes/circulars/Government orders provided insights to understand the response.

Table-2: Data sources and data collection tools

Objectives	Data sources	Method	Tools
Objective 1	Publicly available information -fact sheets of disaster response briefing reports	Secondary data review	Review of documents
Objective 2	Policy and strategy documents of the response from Odisha state COVID 19 Portal and health department websites, circulars, GOs issued	Secondary data review	COVID 19 case data and response analysis
Objective 3	HMIS data, BSKY Scheme performance data and interaction with key officials	Quantitative and Qualitative	HMIS and BSKY data analysis using Excel, and SPSS

Reviewing the routine reporting data (in-patient and outpatient),, number of indirect deaths, resulting from change in utilization of routine health services is a key ingredient of health system resilience that was considered. This is essential for adequate allocation of resources to both 'crisis response activities' and 'core functions', which is not usually measured. Further quantifying the extent of the **drop in utilization** of essential reproductive, maternal, and neonatal health services by analyzing the health management Information system (HMIS) data and the Universal Health Coverage (UHC) scheme **Biju Swasthya Kalyan yojana** data will give us a good sense. An attempt has been made to review the time taken for these indicators to return to pre-event level. Assessing the rapid **pace of recovery** from crisis is a cardinal measure of success.

Key findings

Evolution of the Odisha disaster management system

Odisha state disaster management authority was the first in the country to be established in 1999 even before the Disaster management act was passed in 2005[3],[4]. The State Executive Committee (SEC) under the Chairmanship of the Chief Secretary coordinate all disaster management activities of the state ably assisted by the State Emergency Operations Centre (SEOC)[5] office of the Special Relief Commissioner and Odisha State Disaster Management Authority (OSDMA), under the Revenue & Disaster Management Department. Disaster Management at the state level is mostly supported by the State Disaster Response Fund (SDRF). In the event of a calamity of a severe nature when the State Disaster Response Fund is insufficient additional central assistance is provided from National disaster relief fund (NDRF). Funds from other sources like State budget, Chief Minister's Relief Fund, External Assistance and loans from International Development Agencies like World Bank etc., supplement the needs for disaster management.

[3] https://www.osdma.org/preparedness/early-warning-communications/ewds/#gsc.tab=0
[4] https://www.osdma.org/state-dm-plan/#gsc.tab=0

[5] State Emergency Operations Centre is the key department that organizes and coordinates the operations of entire relief and restoration activities

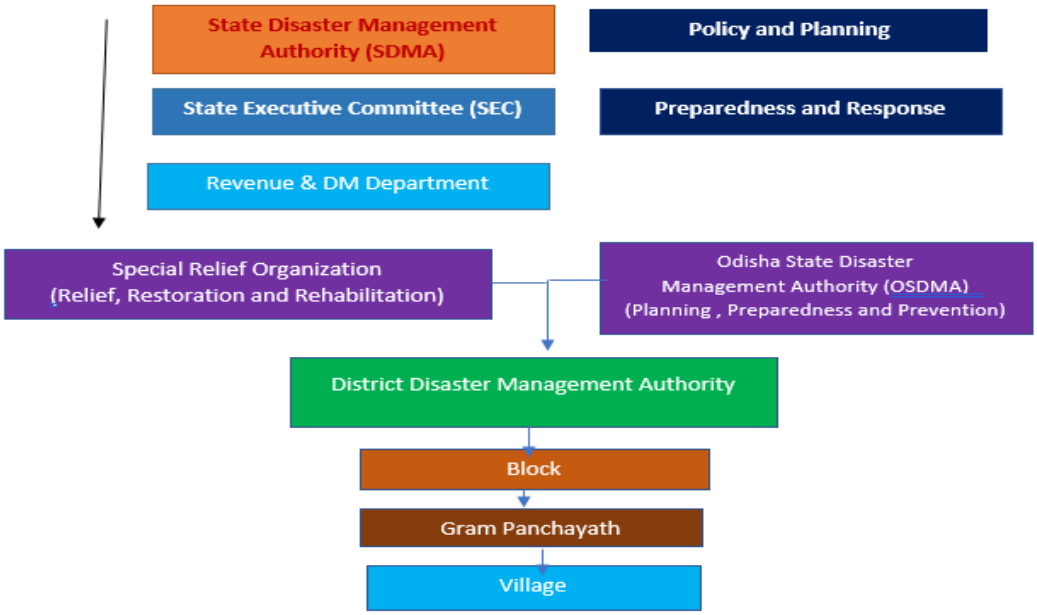


Fig.1: Institutional arrangement for disaster management in Odisha

Odisha has increased its multipurpose cyclone and flood shelters from 75 in 1999 to 814 (in 25 districts) currently which has been designed by IIT, Kharagpur in identified vulnerable locations. These centers have been well equipped to manage emergency search and rescue operations and has facilities and supplies to manage the evacuated people. These shelters which are managed by Community based committees are trained in managerial skills, search and rescue and providing first aid too. They are also responsible for maintenance of these facilities during normal times.

Another key investment the state has done is in weather forecasting (doppler radars located in Gopalpur, Paradip and Balasore) which has helped them in getting advance warning and sufficient time to evacuate the people from locations that are likely to be affected. Odisha has also implemented early warning dissemination system (EWDS) which can activate sirens across 122 towers along the 480 km coastline at a press of the button.

The Government of Odisha formed Odisha Disaster Rapid Action Force (ODRAF) vide notification no.939/CD dated 07.06.2001. ODRAF is a multi- disciplinary, multi-skilled, high-tech force for all types of disasters has been set up. ODRAF is the first of its kind in the country is a force of 20 units with about 50 personnel carved out of the Orissa Special Armed Police (OSAP), Armed Police Reserve (APR), India Reserved (IR) Battalion and Specialized India Reserve (SIR) Battalions and is structurally a lean organization. The main purpose of ODRAF is to reduce casualties, re-establish

communication, quick deployment of personnel and equipment's and minimize expenditure and time lag.

Odisha has also revised its state disaster management plan in 2019 based on the Sendai framework for disaster risk reduction (SFDRR) which was adopted by United Nations in 2015 in Sendai, Japan, on March 18, 2015. It recommend scaling up implementation of **disaster risk reduction (DRR)** strategies as means to improve resilience to disasters globally. The SFDRR in contrast to its predecessor, the Hyogo Framework for Action 2005-2015, puts a lot of emphasis on health and proposes resilient health systems as an opportunity for ensuring effective DRR in the health sector. It recognizes that the State has the primary role to reduce disaster risk but that responsibility should be shared with other stakeholders including local government, the private sector and other stakeholders.

The framework provides priorities for action to prevent new and reduce existing disaster risks by;

- **Understanding disaster risk;** In all its dimensions of vulnerability, capacity, exposure of persons and assets, hazard characteristics and the environment
- **Strengthening disaster risk governance**; ensuring the coherence of national and local frameworks of laws and public policies , defining roles and responsibilities, guide, encourage and incentivize the public and private sectors to take action and address disaster risk
- **Investing in disaster reduction for resilience** ; drive innovation, growth and job creation and consider measures that are cost- effective and instrumental to save lives and reduce losses
- Enhancing disaster preparedness for effective response, and to **"Build Back Better**" in recovery, rehabilitation and reconstruction.

The Odisha state disaster management plan thus covers disaster risk reduction, mitigation, preparedness, response, recovery and better reconstruction in detail. Odisha has faced many natural disasters in the past, and it is clearly seen that they have evolved in their responses after every successive disaster in ensuring quicker and larger evacuation of vulnerable people from the susceptible areas and reducing loss of lives. Post the super cyclone in 1999 which left about 10000 people dead, disaster management capability of Odisha has improved and is currently one of the best in the country. The impact was very clear when no lives were lost during the recent cyclone Amphan during a raging COVID 19 pandemic in May 2020.

Thus, they had to tackle the double disaster of both the cyclone and the pandemic well thus fulfilling the vision of the state disaster management plan, "***To build a safer and disaster resilient state and significantly reduce the loss of life and number of people affected, economic losses and damage to critical infrastructure due to disasters, through a culture of prevention , mitigation and preparedness***

and building the capacity at all levels to effectively respond to disasters and to build back better."

Table-4 gives details of the major disasters and their impact in Odisha over the last two decades.

Table-3: Review of previous disasters and response in Odisha

Name	Date /Year	Severity	W.S (in km/h)	Landfall Location	Evacuation (Odisha State Only)	No. of people evacuated	Impact
Super Cyclone, Odisha	29th Oct 1999	Super Cyclone	276	Erasama-Jagatsinghpur	Puri, Bhadrak, Jagatsinghpur, Kendrapara and Balasore	150000	The cyclone severely affected around 18 million people in 14 districts and left about 10,000 people dead.
Phailin	12th Oct 2013	Very Severe Cyclonic Storm (VSCS)	215	Gopalpur, Ganjam	Ganjam, Puri, Khurdha, and the Chilika lagoon	1 Million	About 13.2 million people were affected in 171 blocks in 18 Districts of the state, and resulting in 44 human casualties.
Hudhud	12 Oct 2014	Very Severe Cyclonic Storm (VSCS)	185	Visakhapatnam	Gajapati & Ganjam in Odisha	68,000	Districts like Ganjam, Gajapati, Koratpur, Rayagada, Nabarangpur, Malkangiri, and Kalahandi of Odisha were affected. 3 deaths were reported from Odisha
Titli	11th Oct 2018	Very Severe Cyclonic Storm (VSCS)	126	In between north Andhra Pradesh and south Odisha coast	Ganjam, Gajapati	3,00,000	Gajapati, Ganjam, Raygada and Puri districts were affected.
Fani	3rd May 2019	Very Severe Cyclonic Storm (VSCS)	250	Puri Coast.	Puri, Kendrapara, Ganjam, Jagatsinghpur.	1.5 milion	16.5 million People in over 18,388 villages in 14 of the 30 districts in the state (Figure 0.1). Puri, Khurda, Cuttack, Jagatsinghpur. 64 casualties reported in above mentioned districts. Out of which 39 were from Puri.
Amphan	20th May 2020	Extremely severe cyclonic storm	180-190	West bengal coast.	Baleswar, Kendrapara, bhadrakh,	1.8 lakh	Odisha Govt. has reported no loss of human life though it has affected around 45 lakh people

							and damaged a large number of houses in the coastal districts
Yaas	May 2021	Very Severe Cyclonic Storm	120-140	Odisha and West Bengal	Balasore	4 lakh	3 deaths were reported and 120 villages were flooded

Learnings from Odisha management of disasters:

The learnings from the previous disasters have been examined and the state has taken a positive step to address them[6]. The first and foremost is that **co-ordination and communication is critical.** Dependency on national weather forecasts lead to delay in receiving weather warnings and also in disseminating it to at-risk populations. The state got only 2 days prior information regarding the impending super cyclone in 1999 compared to 4 days during Phaillin and the information was disseminated through the media, SMS, hotlines which helped in evacuating more people about 1.2 million of them from 18 districts to safety.

Secondly **use of technology** is important and creation of knowledge networks with Indian meteorological department (IMD), Earth system science observation, Indian space research organization, central water commission, geological survey of India and National remote sensing centre ensured generation of core information.

Trust by the people on the information shared is indispensable to save lives. In 1999 disaster people did not heed to the late warnings to evacuate and the death toll was very high while in 2013 the people complied to the instructions. This was also due to better interaction with the communities and involvement of local non-governmental agencies in creating awareness about the risks involved.

Creating the necessary infrastructure to support the efforts through **strong leadership**. In 1999 there were only 75 shelters which was inadequate to accommodate the evacuated people. Efforts were made to strengthen the infrastructure by building more number of multi-purpose shelters, better roads and bridges to improve connectivity and faster evacuation which paid off in subsequent disasters. October 29th is celebrated as disaster preparedness day to create a culture of preparedness and saving precious lives was the goal communicated for all actors involved in mitigating effects of the disasters from districts to village level responders. These learnings from natural disasters have been repackaged during COVID 19 response which has ensured better management of the epidemic in the state which is detailed in the subsequent sections.

[6] https://www.mei.edu/publications/learning-deaths-disasters-case-odisha-india

COVID 19 situation and state response

Odisha reported its first case on March 16th, 2020. The cumulative cases as on August 14th, 2021, are presented in Table-1. Odisha contributed around 3% of the total cases in India and 1.6% of the total deaths nationally. *The current total positivity rate stands at 1.64%. Cumulatively the state performed 1,69,57,359 tests of which 5.86% of the samples were positive.

- **Source: Odisha covid dash board information.**

Table-4: Cumulative COVID 19 cases distribution*

State/National	Confirmed	Active	Recovered	Deaths
Odisha	9,94,565	10,428	9,77,197	6887
India	3,21,55,833	3,81,865	3,13,30,527	4,30,762

**as on August 14th,2021*

The key initiatives taken by Odisha swiftly helped to control the pandemic reasonably[7]. Odisha was the first state to declare **COVID 19 as a disaster** and go into lockdown and evoking the provisions of the Epidemic disease act and sections of criminal code of procedure (CrPC) and developed a detailed action plan to manage the pandemic. The Odisha state disaster management authority was the nodal agency to co-ordinate the COVID 19 efforts in the state. **Village sarpanchs were also empowered** through delegation of powers as per Disaster management act 2005 up to the level of district collectors. Thus, the local authority was strengthened to manage the crisis at their level especially of the returning migrant workers by setting up quarantine camps and temporary medical camps. It also launched a **dedicated helpline, telemedicine facility, online COVID 19 portals [8]** with facility for those returning from other states and countries to register, updating important information to the public through advisories and guidelines to health care providers. The state also set up a COVID 19 dashboard[9] to ensure up-to-date information about the cases, hospitals, bed status and district level information too for stakeholders and public to be able to make informed decisions. The state met the expenses of quarantine stay by using the multipurpose shelters for flood/cyclone as quarantine centres and for housing the migrants returning from different stats. The state also provided **Rs. 15,000 as incentive** for those completing the 14-day mandatory quarantine for foreign returnees and **Rs. 2000** for migrant workers and any violations were treated as crime.

[7] Swain D, Vijay VR, Das H, Issac A, Stephen S, Jacob J. Combit response to COVID-19 pandemic in Odisha: future public health challenges and measures. Int J Community Med Public Health 2021;8 979-85
[8] https://covid19.odisha.gov.in/index.html
[9] https://statedashboard.odisha.gov.in

Strict lockdown measures including legal action against those spitting in public, harassing COVID warriors and those not following social distancing measures and use of masks in public places, misinformation through social media were enforced. The self-help groups were involved in making masks and their distribution.

To fight the COVID-19 pandemic, in June 2020, the government of Odisha announced setting up of COVID-19 Care Homes (CCHs) in all 6,798 Gram Panchayats of the state. Each of the CCHs set up in the state had facilities to accommodate 10 to 20 persons, and all put together could accommodate about 70,000 people. Every institute that created isolation facilities - CCCs/ CCHs were required to nominate a dedicated offi cer, who would maintain close and regular contact with the Chief District Medical Officer ODISHA | 81 SECTION B : STATE PRACTICES (information collected through secondary research) Home-based Management of COVID-19: Best Practices Adopted by States of the district. Further, a nodal officer was also specially notified by the District Collector/Municipal Commissioner for home isolation.

Odisha also roped in the private sector to set up COVID 19 hospitals with 1000 beds in partnership with the government. About 68 dedicated covid hospitals were set up. Learning from the experience of Italy where both the COVID 19 and non-covid patients were treated in the same hospitals which led to cross infections, Odisha had segregated the patients through dedicated COVID 19 hospitals. The available bed strength in its hospitals as on August 14th, 2021, was 8416 general beds and 2711 ICU beds. It also ramped its testing capacity for RT-PCR (Reverse transcriptase polymerase chain reaction) from one lab in the state[10] to one lab in every district by August 15th, 2021. This was supported by procuring the necessary testing kits and expanding field testing at tribal units, urban primary health centres[11]. Pooled sample testing and outsourcing testing at some labs to enhance the per day testing from 1500 to 3000 tests per day was done. The private National Accreditation Board for Testing and Calibration Laboratories (NABL) labs have also been roped in to provide RT-PCR, rapid antigen tests and TrueNat and CBNAAT tests. Further genome sequencing at Institute of Life Science of Bhubaneswar which has been declared as the designated laboratory for SAS-CoV-2 genome sequencing for samples collected as per protocol from identified groups like returnees from United Kingdom and other priority groups as per directions and local context was initiated.

The UHC scheme of the state was also leveraged and treatment for eligible patients in both public and private empaneled hospitals were extended. The Odisha government has approved a

[10] https://www.niser.ac.in/healthcentre/sites/default/files/9869%20covid%20testing-1_1.pdf

standardised rate for reimbursement for the treatment of coronavirus patients at COVID care facilities run by private hospitals by capping the charges by the private medical facilities. The rate for treating COVID-19 patients at private healthcare centres which the state government will reimburse, has been fixed at Rs 4,750 per day per isolation bed, Rs 17,000 per ICU bed and Rs 18,000 per ventilator use.

The state also took pro-active measures to support the health workforce by releasing 3 months' salary in advance and, those who died due to COVID 19 were declared as martyrs and their salary would be paid to their kin till superannuation. Further the insurance for health workers with coverage up to 50 lakhs announced by the centre was also implemented as per the guidelines.

The vaccination efforts were also managed in a systematic way. 49% of total population have been vaccinated with at least one dose by October 2021 and 39% among them have completed both the doses. Presently 99% of population has been vaccinated with first dose and 97% of them have been vaccinated with 2nd dose as on 7th April 2022.Heartburn, sore throat, unbearable headache, chills and fever are the common side effects reported in Odisha after vaccination

Table 5: District wise progress of vaccination*:

Sl.No	State (District Wise)	Total population	Total 1st Dose	%	Total 2nd Dose	% Of second dose
1	Angul	1452156	739610	50.93	247009	33.40
2	Balangir	1879857	936387	49.81	254614	27.19
3	Balasore	2645403	1266549	47.88	497651	39.29
4	Bargarh	1688631	771284	45.68	249580	32.36
5	Bhadrak	1717224	1012003	58.93	330809	32.69
6	Boudh	502925	250582	49.82	73454	29.31
7	Cuttack	2991896	1342803	44.88	650209	48.42
8	Deogarh	356273	221826	62.26	58046	26.17
9	Dhenkanal	1359805	715761	52.64	263157	36.77
10	Gajapati	658711	283186	42.99	102501	36.20
11	Ganjam	4023095	2182516	54.25	1562717	71.60
12	Jagatsinghpur	1296147	649173	50.08	233829	36.02
13	Jajpur	2082999	1053444	50.57	338958	32.18
14	Jharsuguda	660636	390631	59.13	164305	42.06
15	Kalahandi	1797631	873349	48.58	272405	31.19
16	Kandhamal	835745	368632	44.11	136374	36.99
17	Kendrapara	1642012	881564	53.69	308313	34.97
18	Keonjhar	2053976	1058560	51.54	326048	30.80
19	Khurda	2566907	648319	25.26	268219	41.37
20	Koraput	1572798	843616	53.64	352515	41.79
21	Malkangiri	699039	370849	53.05	118156	31.86
22	Mayurbhanj	2872501	1126178	39.21	372705	33.09
23	Nabarangpur	1391878	659471	47.38	166193	25.20
24	Nayagarh	1097579	583822	53.19	196722	33.70
25	Nuapada	695835	398060	57.21	112326	28.22

26	Puri	1936552	1045098	53.97	471231	45.09
27	Rayagada	1103419	542383	49.15	164623	30.35
28	Sambalpur	1186853	761340	64.15	390472	51.29
29	Subarnapur	695609	409493	58.87	157360	38.43
30	Sundargarh	2386518	1098537	46.03	465726	42.40
	Overall	47850610	23485026	49.08	9306227	39.63

*As of October 2021

The districts of Balangir, Boudh, Deogarh, Gajapathi, Kalahandi, Kandhamal, Keonjhar, Malkangiri, Mayurbhanj, Nabarangpur, Nuapada and Rayagada had made comparatively slow progress in vaccination of Covid19. Cuttack, Ganjam and Sambalpur have performed well in both first and second dose administration.

Odisha State Medical Corporation Limited (OSMCL) invited online global bids through an e-Tender portal for supply of the 3.80 crore doses of COVID-19 vaccine from manufacturers" to provide free vaccine to the people of Odisha. The bidders were not permitted to withdraw their bid after the opening of the technical bid, within the minimum bid validity period of 180 days and after accepting the Letter of Intent. On May 10, 2021, the state cabinet had approved the proposal to float a global tender for acquiring coronavirus vaccines.

Covid Deaths

Overall, till October 2021, 8312 deaths have been reported due to covid, which is around 1.8 % of total deaths reported due to covid in India*. 2 districts have reported less than 50 deaths due to covid and 6 districts less than 100.

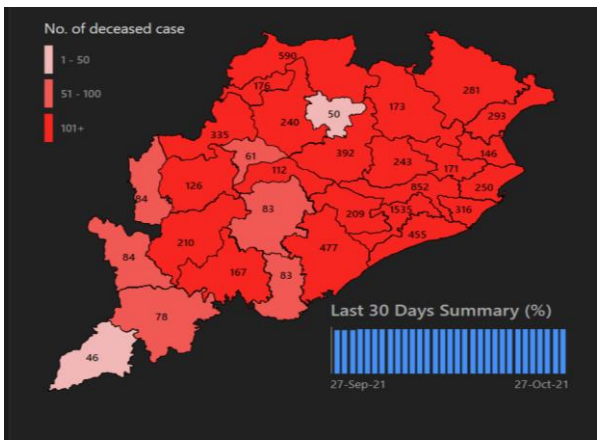


Fig 2: Covid deaths across the districts of Odisha*source Odisha covid dash broad.

Deceased body management

Odisha has adopted the guidelines released by Government of India to manage **Deceased** body of the covid patient. Th guidelines include precautions to be followed by health workers in handling dead body to protect themselves and family members through infection and prevention practices and personal safety equipment. Guidelines were also provided for removal of body from isolation area, disinfecting, handling in mortuary and performing autopsies if required.

Learnings that helped in the current Pandemic

The Odisha health system assessment in terms of preparedness like establishing support camps, storage and supply of essential medicine , activation of first response centers during emergencies and its resilience has given valuable inputs to the policy makers to fine tune and improve their processes. The state has repurposed the use of flood shelters to quarantine centres and also for returning migrants were isolated. The essential supplies and medicines maintaine during floods were also used to manage the care of patients till the additional supplies were ordered. Considering that Odisha is one of the states with weak health system we could also identify other drivers like governance, community engagement, political stability that may contribute to its resilience even with the critical gaps, which would need more time to be addressed. The lessons learnt while dealing with the crisis especially their ability to repurpose existing capacity and manage the increased requirements of the health system is interesting to understand and document.

Trends of Utilization with respect to non-covid essential services

It is quite interesting to see the trends how public hospitals have performed in continuation of non-covid essential health care services in Odisha. Trends observed in public hospitals performance shows the effort of sustained health systems during pandemic for essential services along with support for treatment.

Table 6: Key non-covid services trends over the years in Public hospitals.

Indicator	2018-19	2019-20	2020-21	% Difference 2020-21 vs. 2019-20
OPD	62,732,140	72,652,805	56,993,917	-21.55
IPD	3,398,899	3,855,549	2,970,421	-22.96
Immunization	34,284,495	36,168,919	37,454,069	3.55
Deliveries	630765	623920	628239	0.69
Major surgeries	118,928	151,275	122,896	-18.76
Minor surgeries	929,041	1,295,416	1,031,646	-20.36
Emergency admission	2825276	3693771	2283918	-38.16
Registration				

Source: HMIS data.

The Table-6 explains that on an average above 80% of essential services have been delivered in the year 20-21 despite strict lockdown and extra burden of covid care on health systems. Outreach of immunization has shown a positive trend of more than 3% and a marginal increase in deliveries. It is important to note that home deliveries (Non – institutional) has increased by 3% compared to 2019-20 in the year 2020-21. This may be due to reduction in access to health care facilities due to travel restrictions. The home deliveries recorded in 2018-19 were 48,942 which was reduced by 13.39% and only 35,129 home deliveries were recorded in the year 2019-20 but in 2020-21 it has again shown an upward trend to 36,261 home deliveries.

Even though the surgical cases performance has gone down by around 20% in the 2020-21, but still it is better than the performance recorded in 2018-19. This shows how consistently the health work force have worked to provide continuation of care for non-covid services too in Odisha.

Trends in Public hospital utilization in peak covid times

The first case in Odisha for covid was reported in March 2020 and had a very slow progress and first peak period was experienced from June 2020 to November 2020 and had a constant progress till April 2021.

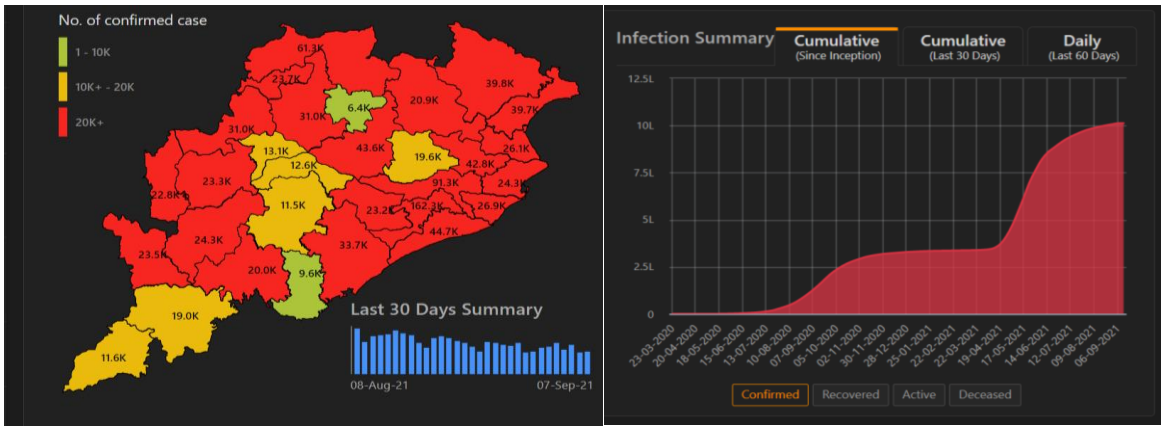


Fig 3: District wise distribution of covid cases and trends

The month wise trend and impact on services in these months on essential health care services is quite interesting to observe since it made a pathway for resilience. Meanwhile, when we study HMIS information which provide us details of progress and utilization of services in the public hospitals, it shows the continuation of care with respect to few essential services like OPD and IPD services,

deliveries, emergency admissions, Immunizations, and surgical procedures. The trends are graphically shown below.

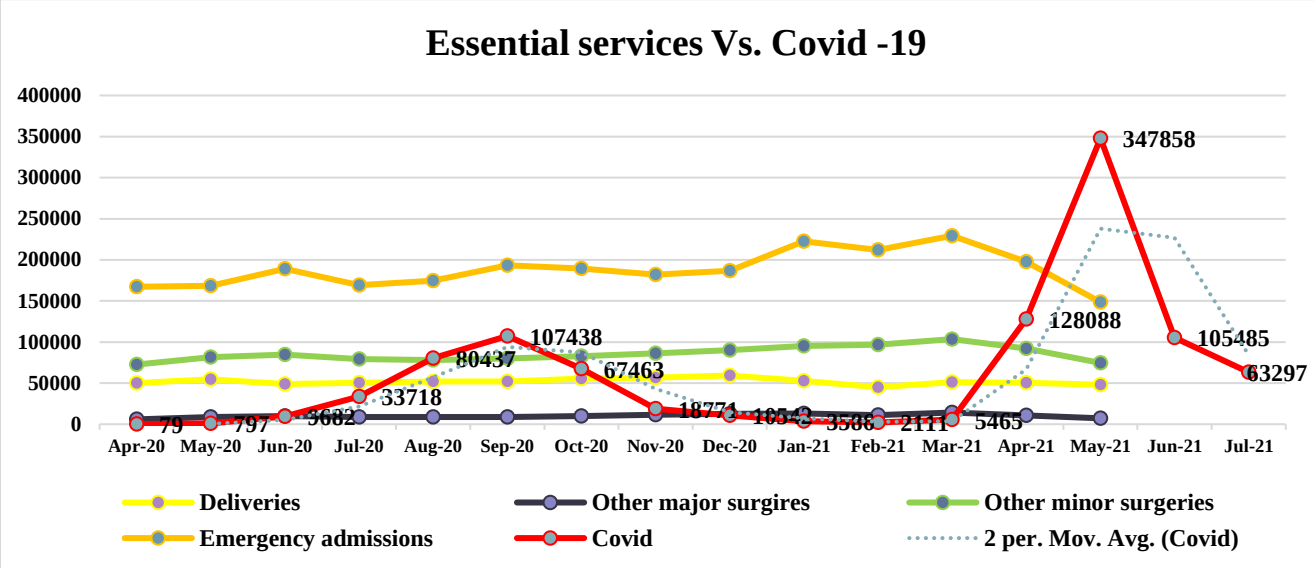


Fig 4: Utilization of key non-covid services during first and second wave of Covid-19

The graph above shows that second wave of covid has impacted on continuation of essential services too. Emergency admissions, surgical procedures and even to small extent number of deliveries performed have also come down during the second wave of covid in Odisha. Regarding OPD and IPD services, during the first wave of covid we have observed around 7% reduction in OPD but in second wave OPD in public hospitals had a reduction of 10.3%. Reduction may also be due to impact of cyclone that hit Odisha (Yaas May 2021).

The covid has affected almost all 30 districts but few districts had a severe impact of covid cases. Out of total 10.29 lakh covid cases reported in Odisha, more than 50% cases (more than 5 lakh cases) are reported in eight districts itself as explained below.

Table-7: Top District wise covid cases trends

District	Confirmed	Active	Recovered	Deceased	Other. Death	% of confirmed cases
Khordha	162324	2305	158539	1470	10	15.77
Cuttack	91309	799	89692	813	4	8.87

Sundargarh	61286	142	60568	572	4	5.96
Puri	44696	163	44086	444	3	4.34
Angul	43633	71	43183	379	0	4.24
Jajpur	42775	274	42343	157	1	4.16
Mayurbhanj	39762	202	39285	272	3	3.86
Balasore	39723	335	39098	285	5	3.86

As seen in the above table the districts Khordha, Cuttack and sundargarh have recorded more than 30% of cases. Let's see the details of three districts below.

Khorda

Fig 5: Covid heat map of khorda district. (April 2020- July 2021)

Overall, 16% of covid cases were reported from Khorda district in Odisha. Out of 11 blocks in the district, 5 blocks had more than 100 cases of covid as shown in the map above which have been color coded with red. There were 3 dedicated covid hospitals and 2 covid care centers out of which 1 hospital is private hospital within the district with a bed capacity of around 1150 beds. Now let's see how the public hospitals have performed in continuation of few essential services in the district.

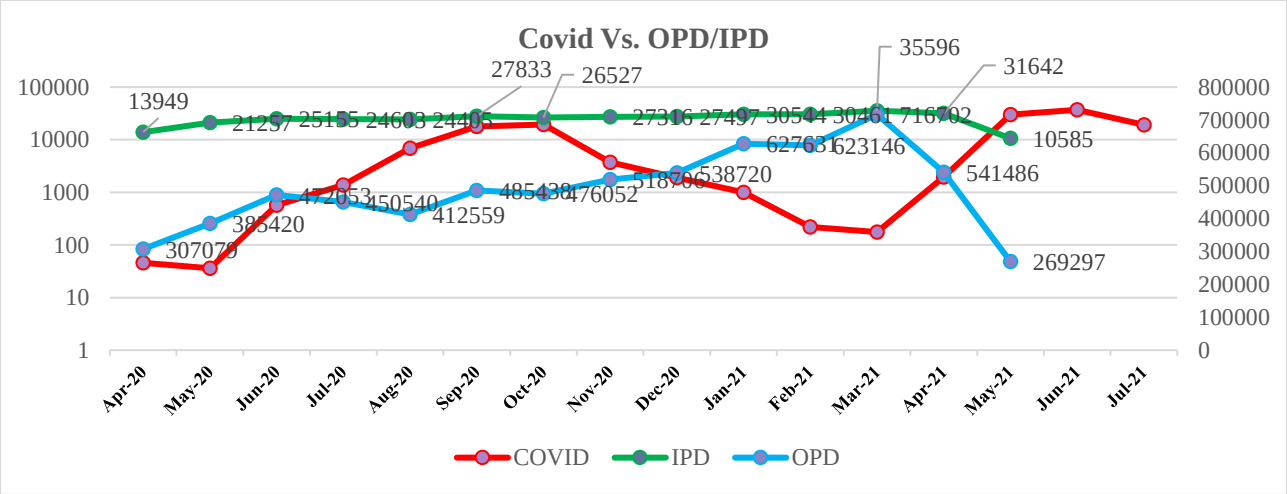


Fig 6: OPD and IPD services of Khordha district

Even though there is an impact of covid and cyclone situation seen on OPD/IPD services in the district, it is similar to the trends observed at the state level. During the first wave of covid and Amphan cyclone period since both were impacted together, we have seen 44% reduction in OPD numbers in April 2020 when compared with March 2020. The district recorded around 5.53 lakh OPD in the month of March 2020 but in the month of April 2020 the numbers were reduced to 3.07 lakh. Similarly, 38% reduction is observed in IPD admissions too. From May 2020we have seen a gradual increase again in both OPD and IPD treatments, by September there is an increase of 58% OPD and 99% increase of IPD when compared with April 2020 in spite of increase in covid numbers.

Other essential services

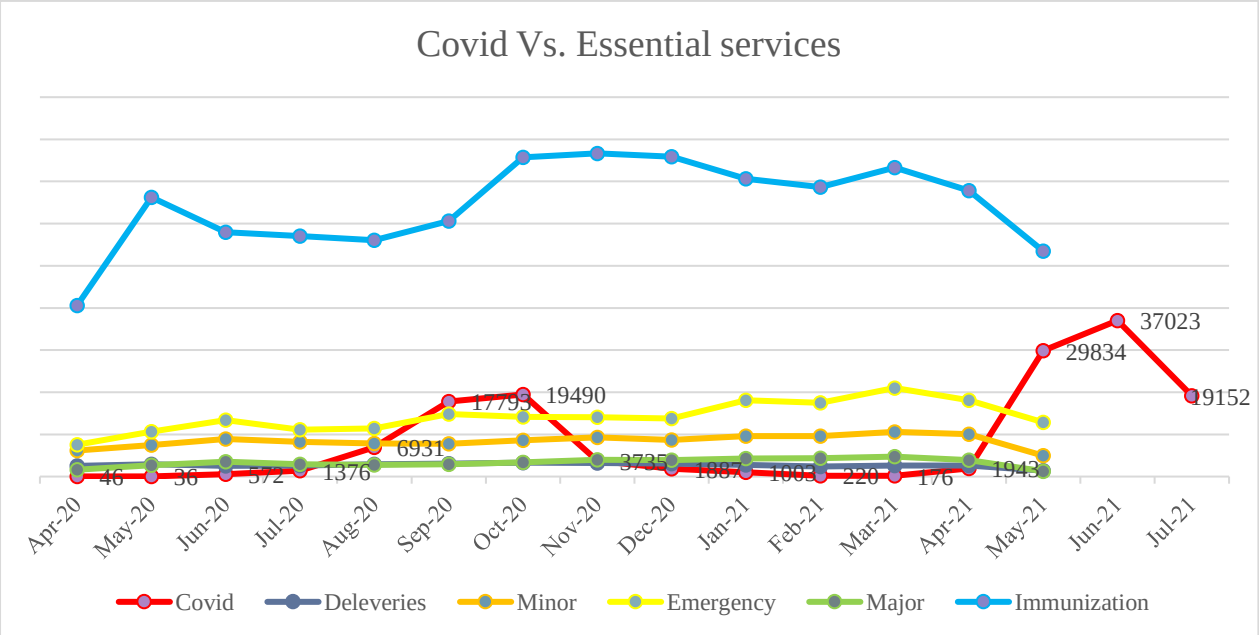


Fig 7: Trends of Covid vs. Essential services

In Khorda district, covid started in the month of April 2020 with 46 cases and by the month of October it reached its peak as 19490 cases recorded in a month. During this period, we can observe a gradual increase in essential services utilization also. Emergency admissions were increased up to 100% by the month of September. There is an increase of 30% deliveries in public hospitals in the district, more than 100% increase in surgical procedures and 28% increase in minor surgical procedures. These trends establish the continuation of essential care of non-covid services despite high covid situation. Immunization programs have also made good progress in the district during covid period.

Cuttack

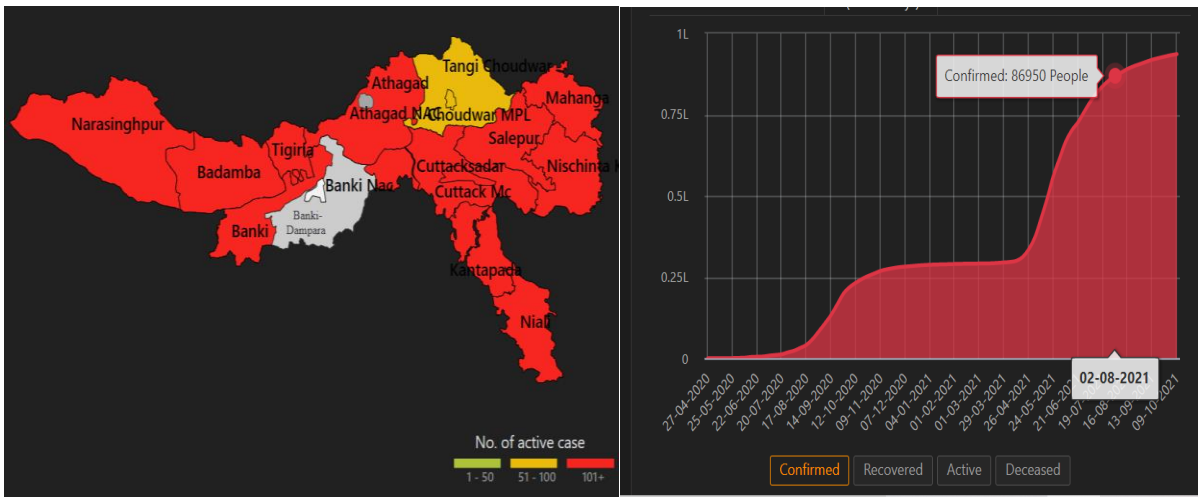


Fig 8: Block -wise heat map -Cuttack (April 2020 – July 2021)

Cuttack has reported 93619 cases of covid cumulatively till October 2021, Except Bamki - Dampara and Tangi taluks all other blocks in the district reported more than 100 cases. Cuttack district had 9 dedicated covid hospitals and 4 covid care centers with a bed capacity of more than 1500 beds to manage covid situation in the district. With the strong support from the health system, the district has recorded a recovery rate of 98.44% and only 894 covid deaths out of 93619 active cases.

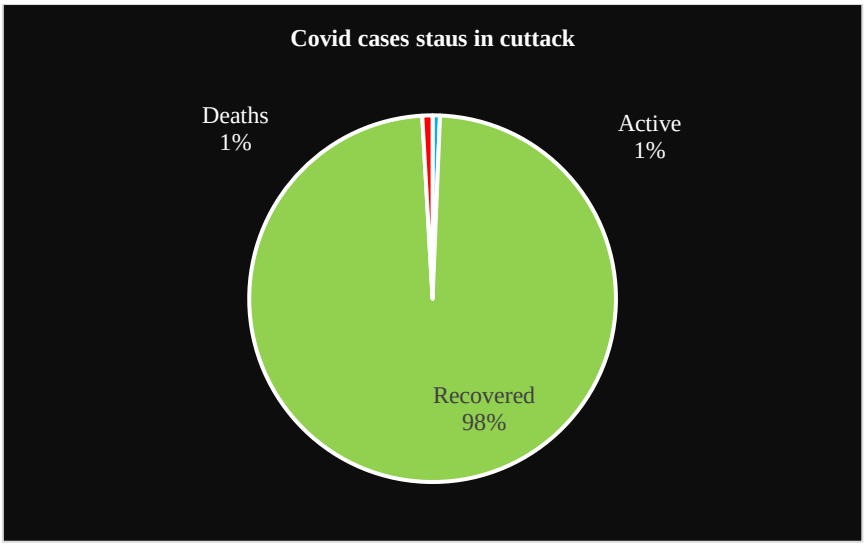
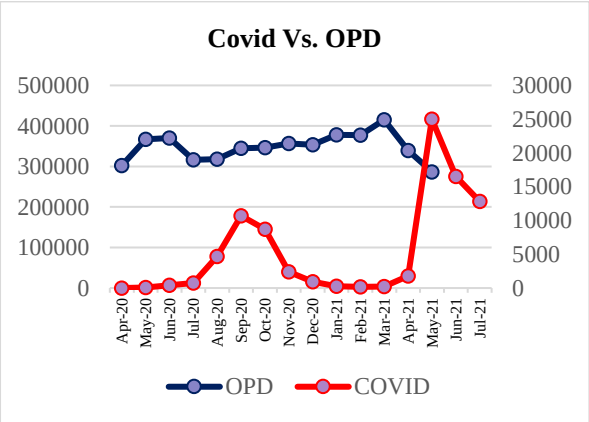


Fig 9: Covid-19 status in Cuttack (April 20- July 2021)



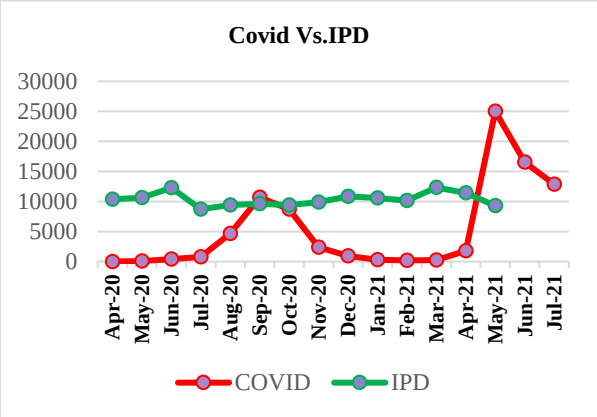


Fig 10: Covid 19 Vs. OPD/IPD trends

In the month of May 2020, 3.66 lakh OPD visits are registered, and it went down to 3.18 lakh by august and again increased to 3.45 lakh by September which shows a drop of 13.8% when compared with May-20. From September again the graph shows upward progress and by the month of March 2021 OPD registrations in Odisha public systems were 4.15 lakh which is a gradual increase month on month. this is around 20% increase when compared with September -20. Again, it is observed that, due to effect of second wave of covid -19 in April there was a reduction of 18% and 30% in month of May-21. the OPD registrations in May -21 were only 2.86 lakh.

In case of IPD admissions the district shows only small impact during the first wave of Covid. The total IPD admissions were 10,800 in the month of April -20 which got reduced to 8700 by June but had an

immediate resilience from July which crossed 9300 and a constant increase month on month till April -21. in April -21 there were 11200+ admissions.

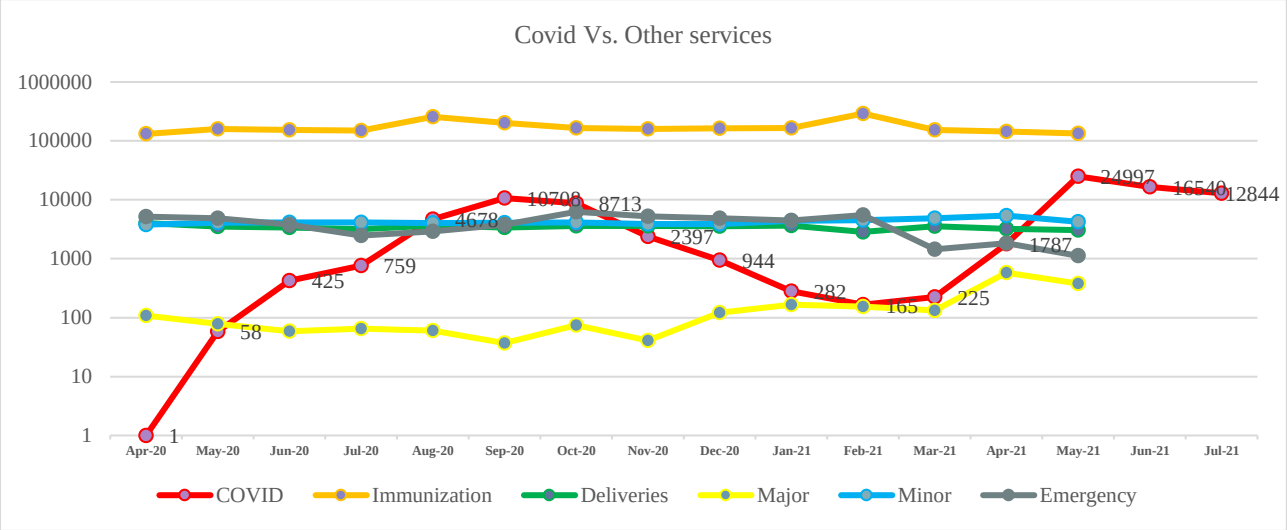


Fig 11: Progress of non-covid services Vs. covid in Cuttack

Cuttack also had a quite similar impact on non-covid essential services when compared with Khorda. The services show a mild impact in first wave and again comeback by September 2020 and a big impact during second wave in the month of April and May 2021. But Child immunization programs had an impact only in second wave. During the first wave the progress was much better than pre peak period of covid. The same has been illustrated in the graph shown above. Emergency admissions reduced both during first and second wave.

Sundargarh

Sundargarh has reported 5.98% of total covid cases in Odisha and is the third highest in the state. Out of 17 blocks in the district only two blocks have reported less than 500 cases. The covid cases started raising in the district from the month of July and experienced first wave till November -21. Second wave progressed strongly from end of March and reached its peak by July-21 and continued the trend till now. Health system supported covid management in the district by dedicating more than 2800 beds. Quite similar to Cuttack here also death percentage is less than 1%.

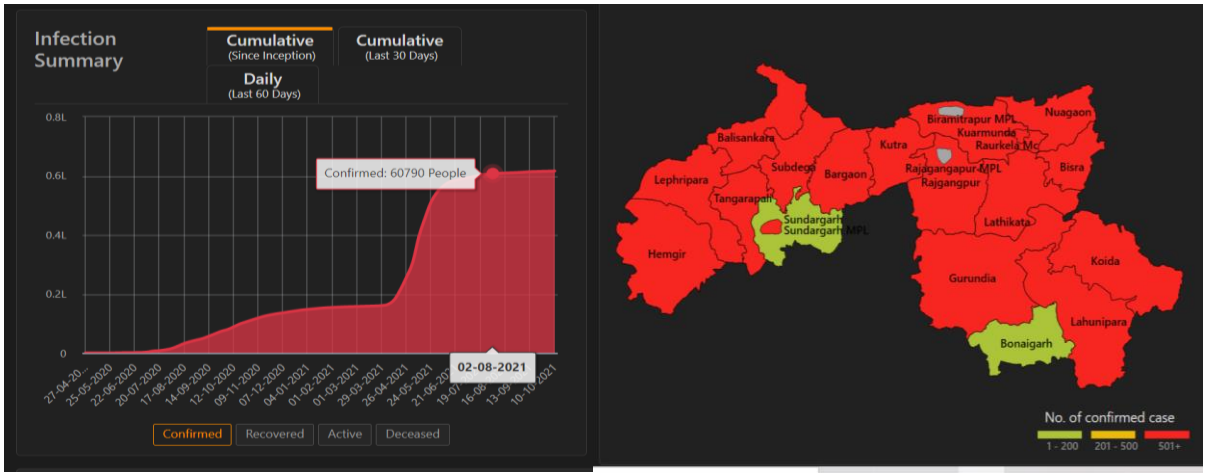


Fig 12: Block -wise heat map -Sundargarh (April 2020- August 2021)

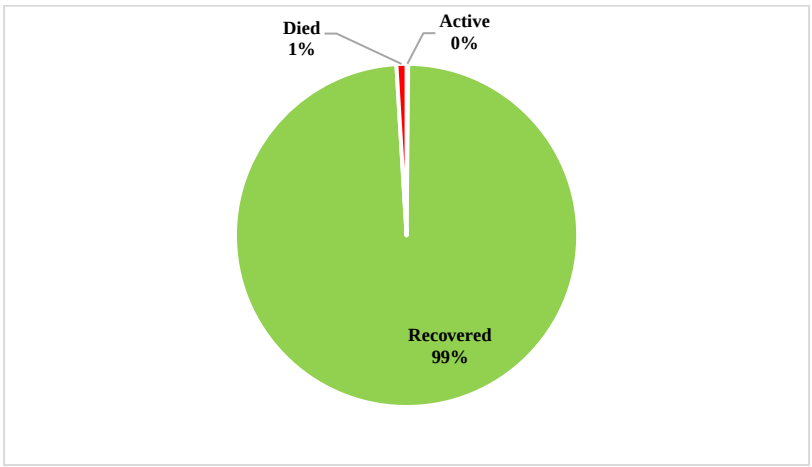


Fig 13: Covid-19 status in Sundargarh

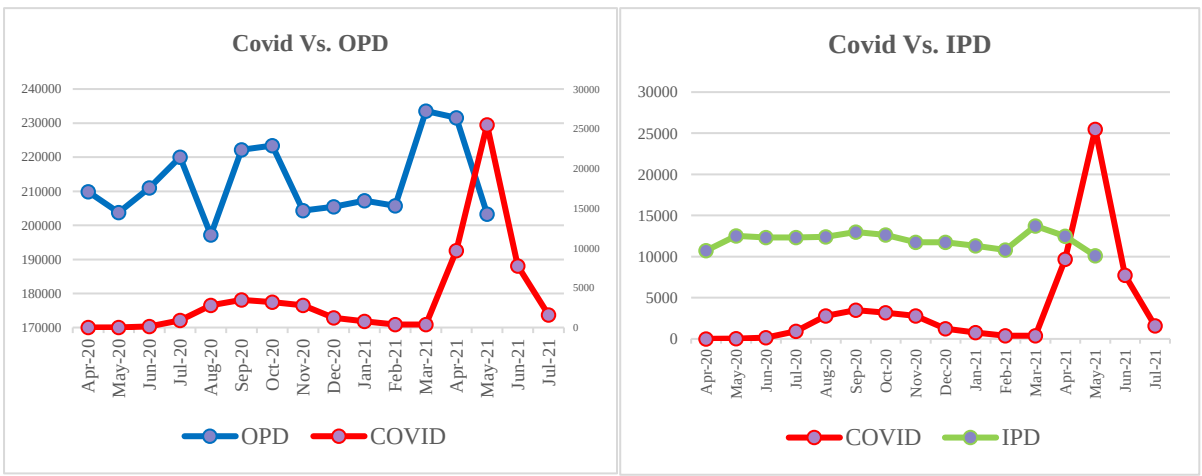


Fig 14: Graphs showing Covid Vs. OPD/IPD trends

In Sundargarh district out of total covid cases reported 19% of cases were reported during first wave of covid which had its peak intense from August to November 2020. Second wave contributed to 66%

of total cases which was more intense from April 2021 to June 2021. We can observe 2-3 % increase in OPD registrations monthly and there was an overall decrease in OPD by 6.5% in the month of August and again by November OPD registrations increased by 12% even after prevalence of strong covid impact. Inpatient admissions in the district were constant till November 2020 with an average monthly admission of 12000. In December we can observe a reduction of 7% cases which again gradually increased to same average of monthly 12000 admissions within a month.

Other non-covid essential services in Sundargarh District

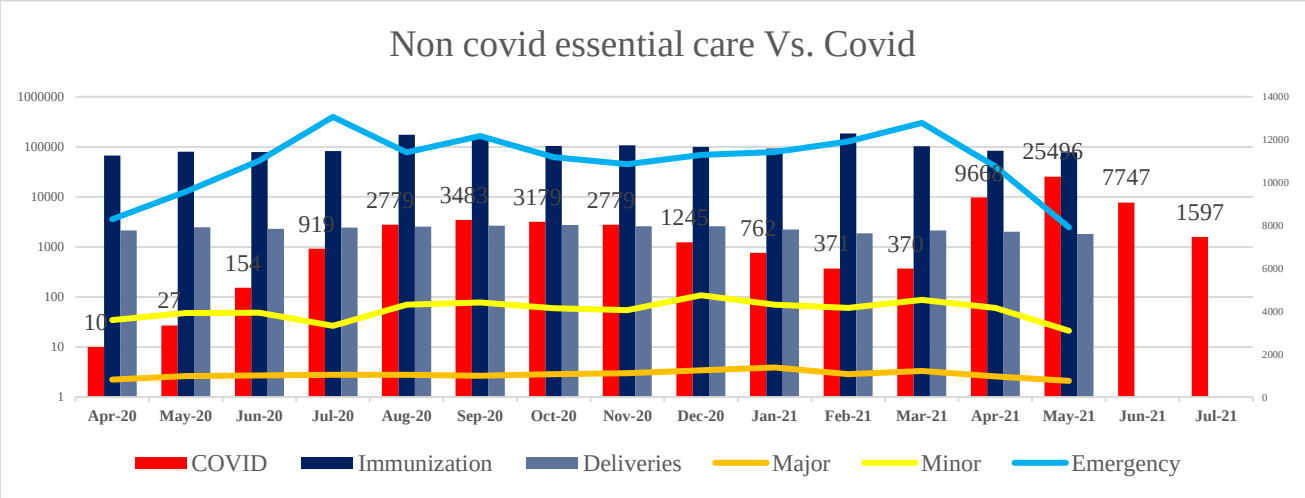


Fig 15: Non- Covid essential care services trends in Sundergarh

In April and May 2020, a smaller number of cases registered in other services like deliveries, immunization, major and minor surgical procedure and emergency admissions. After June district has maintained a constant progress along with covid care. As explained above, in Sundargarh also second wave of covid had a big impact than first wave covid 19.

Districts like Puri, Anugul, jajpur and Mayur Ganj also show similar trends with decline in services (negative impact) on even essential health care services during second wave of covid and mild impact during first wave. But Odisha health systems has shown resilience from time to time and has successfully bounced back to ensure continuity of the essential medical services with minimal impact of covid.

Mortality Insights:

In India out of total cases reported for covid -19 it is observed that 1.3% of cases were reported as deceased but in Odisha the deceased rate under covid is only 0.8%. When we observe the deaths

recorded in Odisha in HMIS data it is observed that there is an increase of 5.4% when compared with 2019-20.

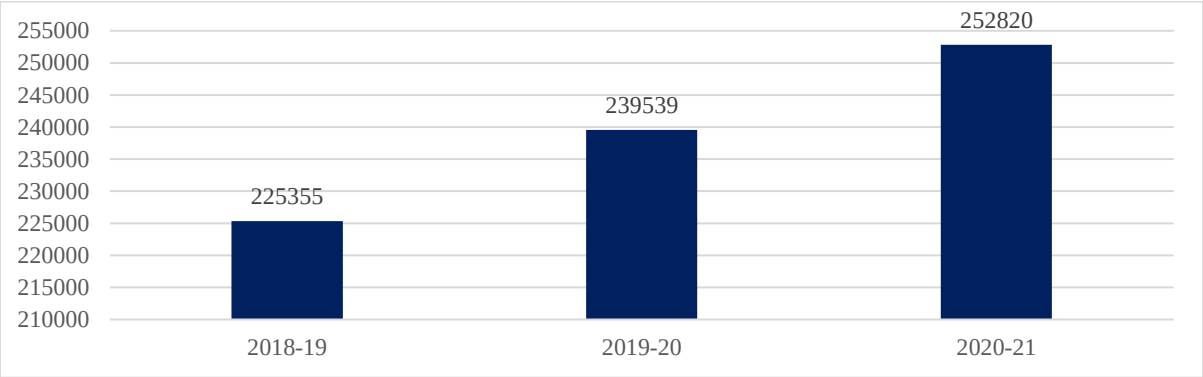


Fig 16: Deaths in Odisha year wise

In the recorded deaths during the year 2020-21, 78% of deaths reported are adult deaths and 13% from inpatient admissions and 6% of deaths were of infants. When we compare the same with previous years in spite of covid situation still the infant, child and maternal death are similar/lower to the previous year's trends. But the overall deaths have increased by 5.4 % even though there is a decrease of OPD/IPD registrations by 20% when compared with the year 2019-20. The details of deaths are provided in the table below

Table 8: Summary of Major death registered in three years

Type of deaths	2018-19	2019-20	2020-21
Emergency department deaths	3679	5245	5938
Inpatient deaths	24632	33231	31867
Infant deaths	18245	18165	15241
Child deaths	2004	1915	1486
Maternal deaths	741	754	741
Adult deaths	176038	180208	197535
Total deaths	225339	239518	252808

Source: HMIS data Odisha

The adult deaths in the above table include death due to cancer, chronic diseases, cause not recorded, acute causes, neurological issues and strokes, heart related problems, respiratory infections, tuberculosis and even diarrhea. When compared with 2019-20 we can observe 4% increase is in cause not recorded deaths. It is unfortunate to see deaths due to suicide attempts getting increased in the year 2020-21. The issue of under reporting of deaths if any has not been assessed in this study. There is a 58% and 23% decrease with respect to diarrhea and TB respectively. It is also observed, 17% increase in suicide deaths, 8% increase of deaths due to animal bites.

Covid management without affecting service delivery for other essential routine health services

Few important steps taken by government and policy changes made during the covid period have helped the state in minimizing the impact of covid on essential health care services and to provide necessary health for covid patients. The key actions have been listed below.

1. Dedicated covid care centres for home isolation and designated COVID 19 hospitals were identified for treatment which allowed other hospitals to continue the treatment for non-covid services.
2. To aid the procurement of essential drugs and other requirements, the financial powers delegated to the authorities making the procurement U/r-12 of DFPR 1978 and Para-4 of FD OM No.4939/F dt 13.02.2012 was enhanced for a temporary period.
3. Letter from principal secretary health for utilization of the services of AYUSH Doctors and their training & capacity building towards combating COVID-19 spread & its management. All Ayurveda and Homoeopathic Medical Officers in the districts were placed at the disposal of the respective Chronic disease management and health Primary services mainly the Chief district medical officers and Primary health medical officers.
4. Odisha government trained the doctors/PG/Undergraduate students (final year & 3rd years), nursing, lab technicians on COVID management which provided additional manpower to handle covid situation.

These initiatives helped in continuation of essential services too since pandemic was handled through a systemic precautionary measure.

Biju's Swasthya Kalyan Yojana- Second year of implementation

The vision of Odisha Hon'ble Chief Minister has been to provide quality health care to all citizens of the State, especially the economically vulnerable sections. With this objective, Biju Swasthya Kalyan Yojana (BSKY) has been launched as a path breaking program to provide universal health coverage, with special emphasis on the health protection of vulnerable families and women, State Government will bear the cost of healthcare provided in empanelled private hospitals for identified economically vulnerable families in the State, for an annual health coverage of Rs. 5 lakh per family and additional Rs.5 lakh for the women members of the family after exhaustion of the initial limit. under the scheme.There was a significant shift in the scheme implementation in the second year from Third party administrator (TPA) supported to full assurance mode of implementation by the state health assurance society (SHAS). Due to continued low performance, the contracts of both the TPAs who were functioning as implementation support agency to the SHAS, was not extended. The

TPAs fell short in their key responsibilities of timely processing of pre-authorization and claim, verification of hospitals for empanelment and regular monitoring, conducting audits of triggered cases and addressing beneficiary related issues. As the state teams developed capacity, preparations for the transition to full assurance mode without third party administrators was decided to be rolled out from March 1st, 2020.

A new team of processing doctors were recruited and trained, IT systems were overhauled to manage the workflow, district coordinators were re-oriented and their roles and responsibilities expanded, hospitals were briefed on the proposed changes, new health benefit packages with revised rates as per Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PM-JAY) packages was integrated in the transaction management system and the Year 2 of BSKY was rolled out with support from technical partners (Health System Transformation Platform is the technical support partner for implementation of Biju Swasthya Kalyan Yojana). As the stakeholders were settling into the new process, COVID 19 pandemic started making its presence felt in Odisha. The analysis of claims utilization in year 2 is done in this context to assess the effect of the pandemic on the scheme performance.

Second year BSKY scheme performance (2020-21) and April- July 2021::

In the year 2020 March, April and May months had a drastic down fall of utilization under BSKY but quite like the trends established in the HMIS data analysis from June onwards we can see the good progress even under impact of first wave of covid -19 in the state. In the below graphs we can also see the negative impact on utilization during the second wave of covid which started from April 2021.

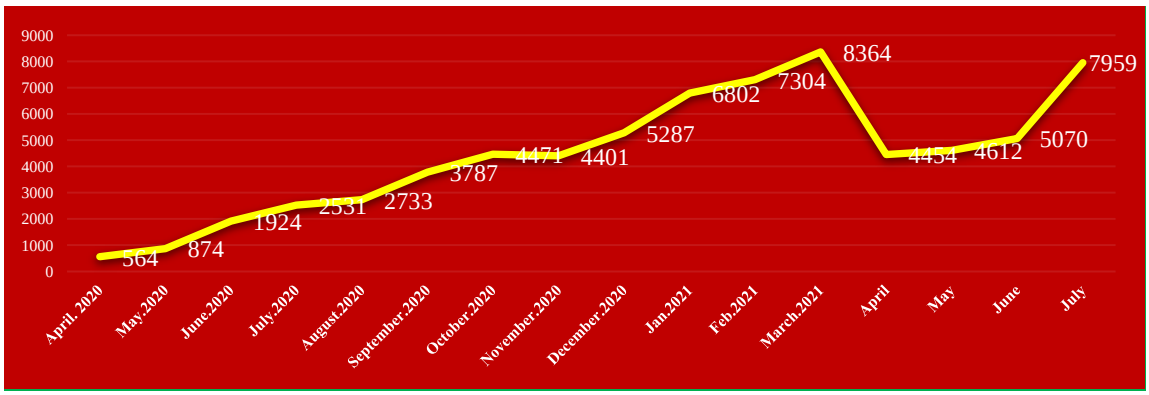


Fig 17: Claims trends of BSKY second year implementation

Table-9: Year wise average monthly claims of BSKY

Year	Avg. Monthly claims	% Of Difference

2019-20	3426	
2020-21	4087	19.29
2021-22	5524	35.16

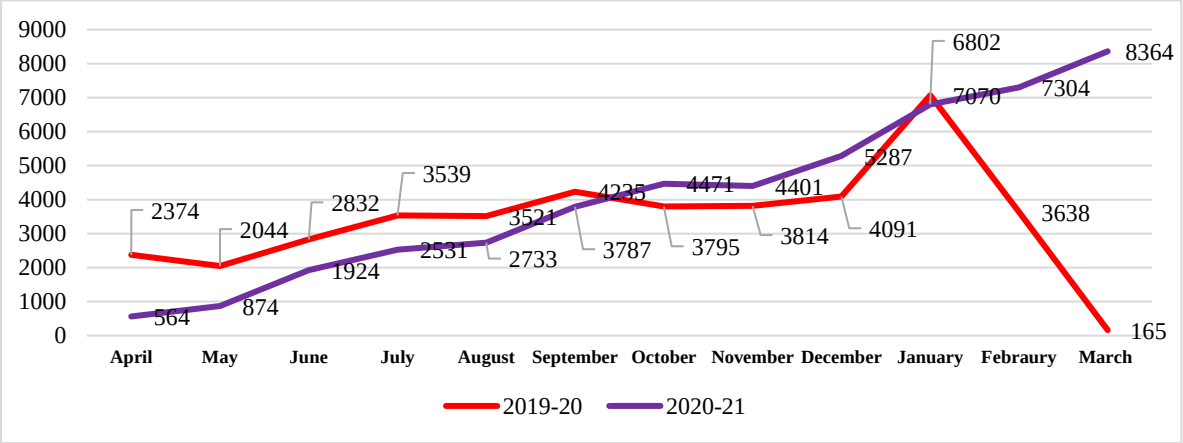


Fig 18: Comparison of BSKY 2019-20 and 2020-21

Active hospitals

Out of 179 empaneled hospitals till the month of December 2020 only around 50% of network hospitals were active and gradually got increased, In the month of July 2021, 74% of total network hospitals were active under BSKY.

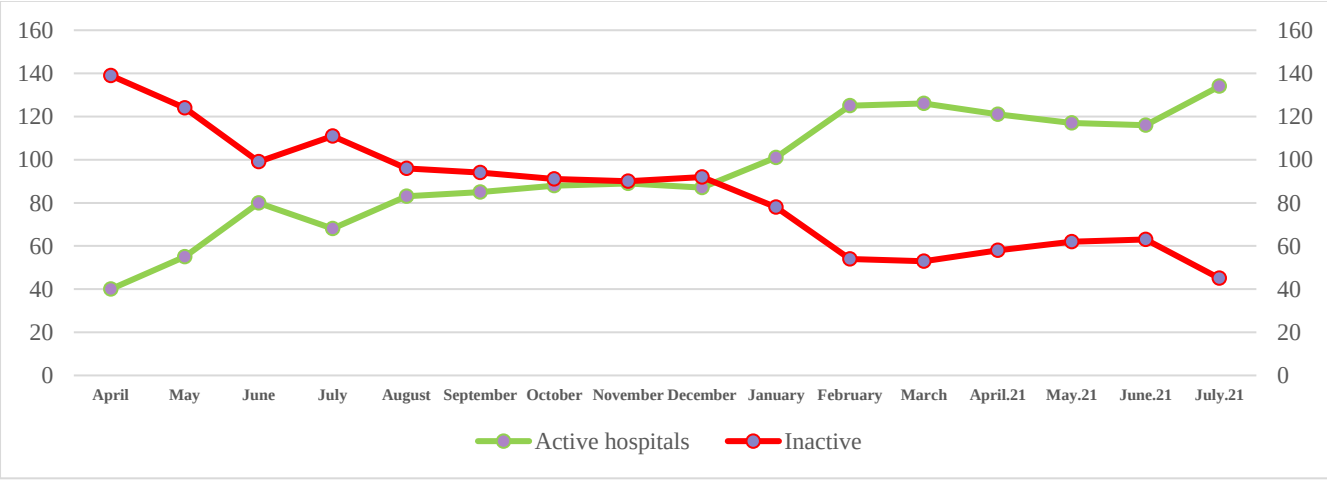


Fig 19: Performance of hospitals month-wise

Essential services support under BSKY:

BSKY covers around 1500+ procedures under the scheme in empaneled private hospitals out of which dialysis, cataract, maternal care related care along with oncology treatment are the major packages which get utilized under the scheme. Dialysis and cancer treatment are chronic conditions which need

regular treatment and maternal care is one of essential services which need immediate medical care at the time of need. The next section deals with how BSKY has supported the continuity of care in these services during covid period.

Dialysis:

Dialysis has contributed 17.67 % of BSKY utilization in the year 2020-21 which had a contribution of only 9.2% in the year 2019-20. In the year 2020-21, 277 families have utilized dialysis services, which is an increase of 77 families when compared with the year 2019-20. Among the 8669 claims received on dialysis for the year 2020-21, 66% of cases are reported from below mentioned six districts out of which three districts (Cuttack, Jajpur and Khordha) were severely affected from covid too.

Table 10: Uptake of dialysis services in districts affected by COVID 19

Sl No.	District	No. Of Dialysis Cases
1	Cuttack*	2580
2	Jajapur	1109
3	Kendra Para	596
4	Jagatsinghapur	584
5	Baleshwar	484
6	Khordha	407

Monthly trends of dialysis cases also show an impact of covid and continuation of services even during peak period of restriction and impact. It is observed from the trends that there was a sudden dip in utilization of dialysis in the month of November 2020 but recovered within a month and again dipped in April 21 due to second wave of covid, same can be seen the line graph below.

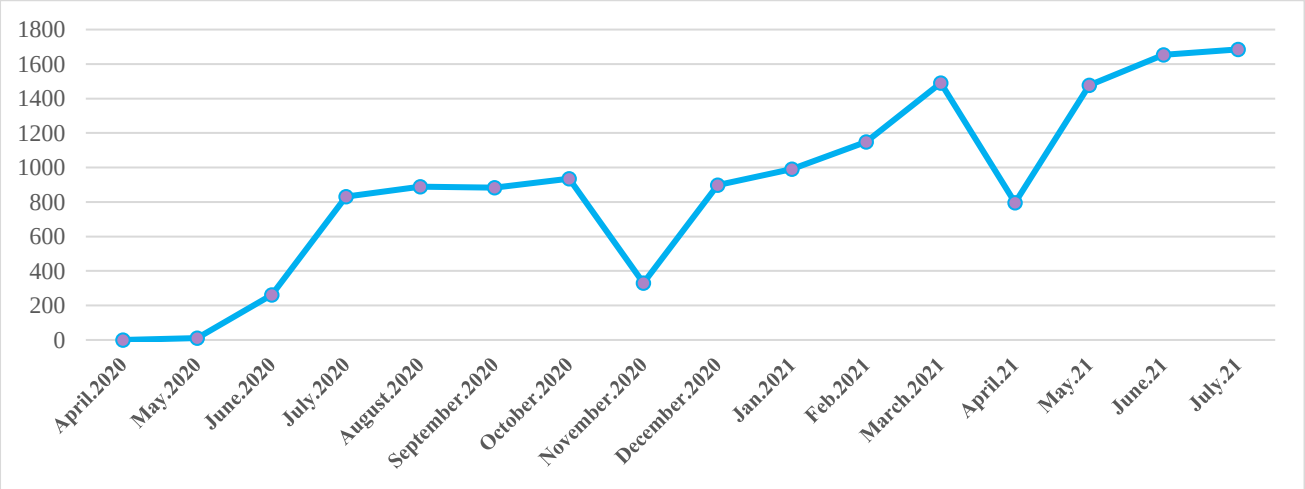


Fig 20: Dialysis cases 2020-21 and 201-22 till July

Cancer treatment

Oncology treatment involves continuous and long treatment which cannot be interrupted for the benefit of the patient. Now let's understand, the utilization of oncology packages under BSKY. The contribution of oncology packages to overall utilization of BSKY in the year 2020-21 is only 5.13%. out of the total cases registered for oncology 52% are related to medical oncology, surgical oncology 18% and radiation oncology 30%.

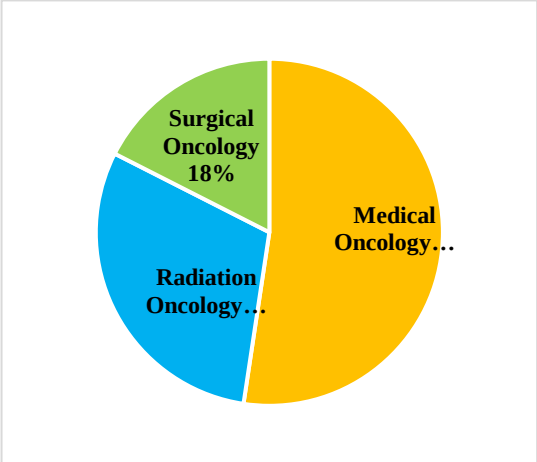


Fig 21: Oncology Utilization under BSKY

It is observed in the monthly trends that surgical packages had an impact in both first and second wave of covid. The most utilized package under surgical oncology is presented in Table 11.

Table 11: Surgical oncology package utilization under BSKY

Package	No. of claims
Composite resection (Oral Cavity)	94
Neck dissection - comprehensive	57
Myocutaneous flap	44
Chemo Port Insertion	33
Microvascular reconstruction (free flaps)	28
Fasciocutaneous flap	15
Breast conserving surgery (lumpectomy + axillary surgery)	14
Axillary dissection	13

Breast conserving surgery with Oncoplasty	13
Hemi glossectomy	12

35% of surgical oncology cases are recorded from only 6 districts namely Khorda, Puri, Kendra Para, Ganjam, Cuttack and Sundargarh out of which 4 districts were massively affected by Covid -19.

Medical Oncology:

Medical oncology is the specialty which was utilized 52% in the overall cancer care under BSKY. 379 families across the state have utilized BSKY for medical oncology related treatments. Out of total cases 52% were utilized by females and 48% by males. In case of medical oncology also, a greater number of cases are registered under BSKY in districts which include Khorda, Puri, Kendra Para Cuttack along with Jagathsinghpur but, when we see the hospitals provider medical oncology cases it is available only in three districts which includes- Cuttack, Ganjam and Khorda. 66% of total medical oncology cases have been treated in only two hospitals. The month wise trend of medical oncology cases under BSKY is shown in the graph below.

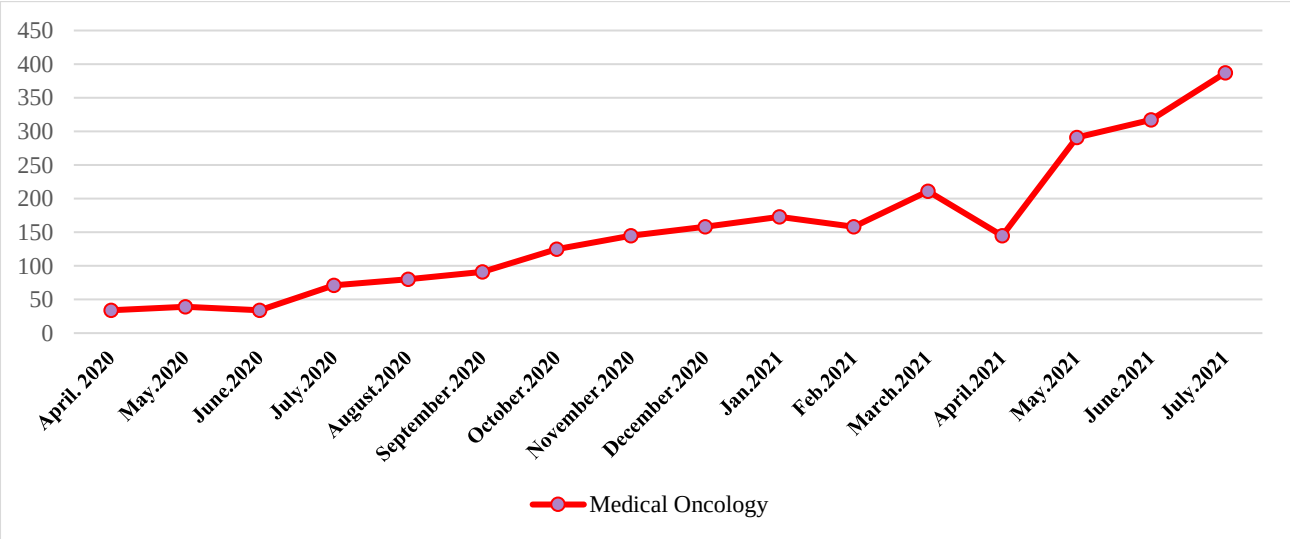


Fig 22: Medical oncology trends

Table 12: Top packages utilized under medical oncology in the year 2020-21

Package	No Of Cases
Carboplatin + Paclitaxel	120
Paclitaxel + Carboplatin	115
Cyclophosphamide + Epirubcin	87
Paclitaxel	81
Capox	70
Trastuzumab	61

Radiation oncology

758 cases were registered for radiation oncology from 618 families in the year 2020-21. The treatment has been provided only two districts Cuttack and Khorda in six hospitals. Hospitals have continued providing services to BSKY beneficiaries even during cyclone and covid. During the month of April and May 2020 no case has been reported for radiation. From June it took off and had a slight dip during covid peak time during first wave, but second wave there was hardly any effect on radiation treatments. The most utilized packages under radiation oncology are Adjuvant, Neoadjuvant, Radical and Stereotactic Radiotherapy. Monthly trends are shown the graph below.

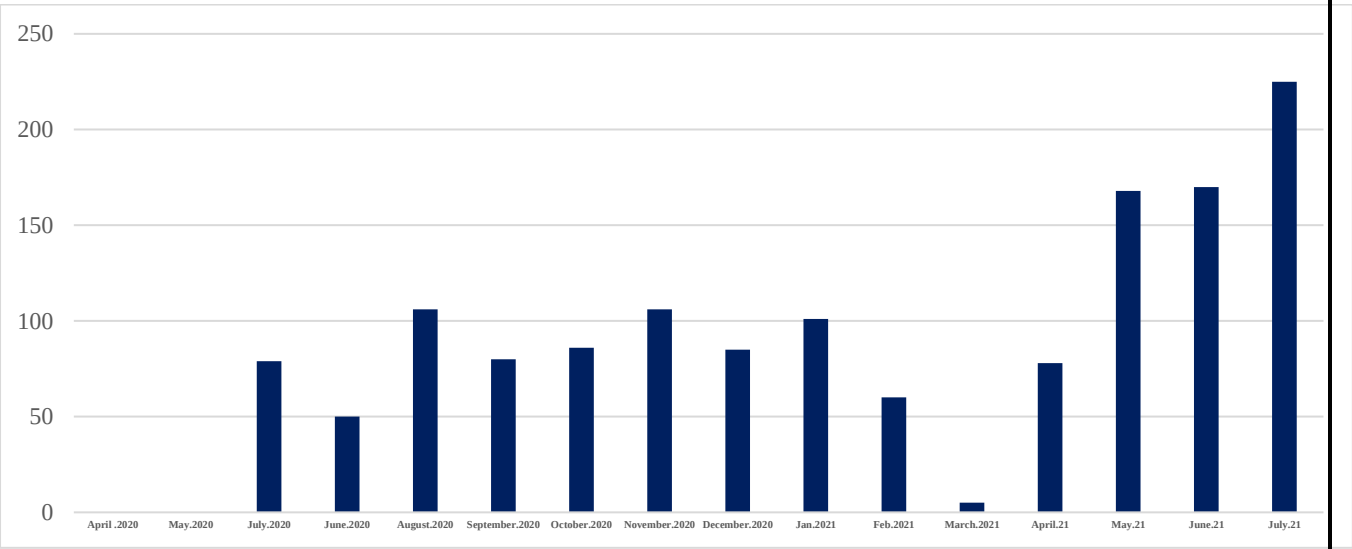


Fig 23: Radiation treatment trends month wise during COVID

Ceasarian deliveries

C-section's deliveries are also a kind of essential treatments, in many cases it saves life of both mother and child. In the 2020-21 BSKY have recorded 5869 c- section deliveries. The first of wave covid did not show any effect of utilization of C-section procedures but second wave had an effect. But BSKY looks resumed services earlier and even at peak period quite regular percentage of cases have been registered. Month wise trends along with covid -19 cases have been illustrated at the graph below.

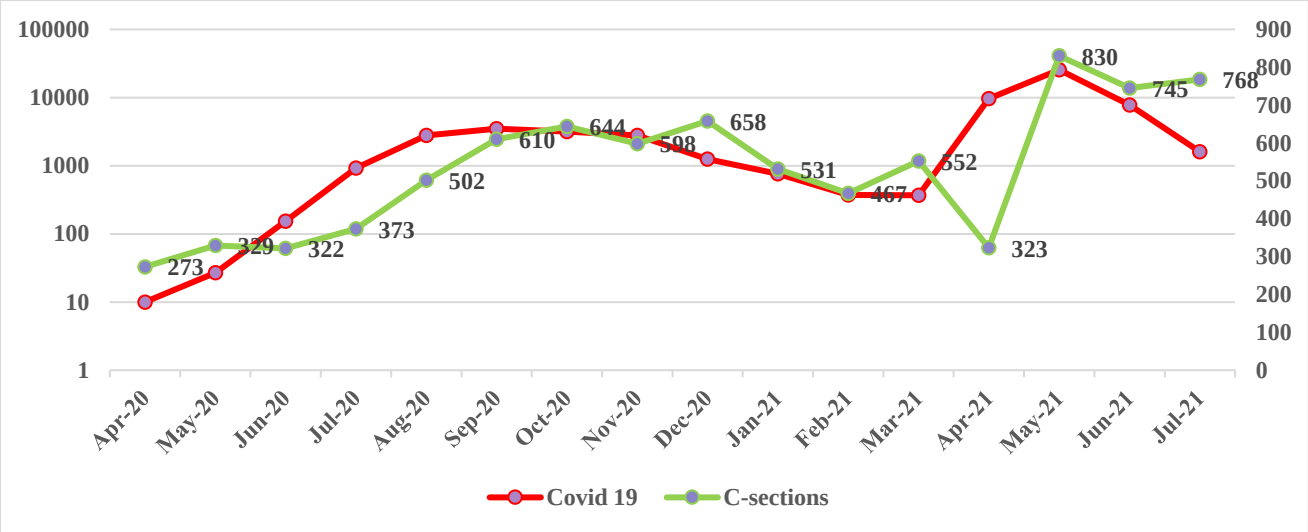


Fig 24: Month-wise trends of C-section deliveries during COVID

Over all 5802 families have utilized this service in the year 2020-21. 78% of deliveries have been reported from six districts mentioned below. Even though the numbers do not show any change when we observe the trends, region wise a lot of gap is seen which has a potential to increase the utilization.

Table- 13: District wise variation in C-section deliveries

District	No. Of Claims
Cuttack	1265
Bhadrak	1188
Khordha	1003
Nayagarh	439
Puri	374
Jajapur	347

83% of deliveries have been conducted only five districts – Khorda, Cuttack, Bhadrak, Dhenkanal, and Nayagarh. Khorda had a severe effect from covid but still it maintained its leading position in treating C-section surgeries too.

Discussion:

As seen from the analysis of the study Odisha has managed to maintain its essential health services during the COVID pandemic too. Based on their previous experience of managing disasters, they

have been able to take timely measures to reduce the pandemic impact on the health care services. The BSKY scheme has also shown consistent performance during the pandemic.

The non-covid services should not be neglected especially for those with pre-existing conditions and chronic diseases while focusing on managing covid affected patients. The pandemic-imposed lockdown and travel restrictions affect the cancer patients seeking care especially as most of the facilities are outside their native district in urban areas. This may have led to postponed cancer surgeries which eventually would have resulted in an advanced stage leading to patient needing palliative than curative services and adverse outcomes. In a cancer care centre in Odisha which continued services during the pandemic[12] following a fixed protocol of two RT-PCR tests one before admission and another 72 hours after surgery for the patient and testing for the fixed family attendant, use of N 95 masks always ensured all the patients admitted during the study period were negative up to 30 days post-surgery. Hence continuity of cancer care services during the pandemic is critical. Some cancer hospitals such as the Tata memorial hospital Mumbai ensured services by limiting the number of appointments per day, permitting only one attendant with the patient, tele-consultation for follow-up, protecting vulnerable staff and modified chemotherapy regimens[13].

Even if limited hospitals were providing non covid services many out-patient services may be open for shorter time, travelling to the facilities with movement restrictions are an issue even with letters from hospitals or the pass system cause delay in verifying which leads to missing appointments. Further the facilities also functioned at lower operational capacity due to positive cases among staff and other exposed staff quarantined.

There have been instances of such difficulties faced in certain regions within India where COVID 19 had a significant impact which mean people may stop trying to access services and many lives may be lost at home too such as cardiac patients due to acute heart attacks. Antenatal services, access to HIV and tuberculosis drugs have also been affected. The viability especially due to increased running costs because of high usage of personal protective equipment's (PPE) and risks of running private hospitals for non-covid services and also limited uptake also has led to closure of facilities.[14]

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The learnings of managing the present pandemic situation by Odisha need to be carried as guidelines for the way forward to handle similar kind of pandemic situation in future.

1. Creating awareness to the public on the guidelines, , and availability of health care services during the pandemic is very important.
2. Constituting a health disaster management unit also make a big difference in establishing preventive and capacity development measures.
3. Reserve financial resources need to be arranged for health disaster management.
4. Health systems need to be strengthened to manage Essential and Emergency health services without interruption at any circumstances by increasing manpower, enhancing skills and effective governance.
5. Capacity building and community screening activities to identify high risk and risky patients should be adopted as a continuous effort through health care front line workers.

Conclusion

Odisha has been able to rise to the occasion and ensure dedicated hospitals for COVID and other essential services to provide the care to the beneficiaries. The bounce back post the peak has been significant which enabled them to maintain overall health care to its population through the public system and through the private facilities of BSKY Scheme. This paper has attempted to document the impact at both state and district levels and the response of the health system which would be a good case study for other states to review and learn from this experience.

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