

# Assessing impact of COVID-19 on AB-PMJAY

**A detailed study and recommendations  
to address challenges**

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# ABSTRACT

Since the COVID-19 pandemic, AB PM-JAY service utilization across most of the implementing states has reduced significantly. This change can be attributed to deeper underlying factors relating to supply, demand, and infrastructural set-up. Surveys and discussions conducted across the country have indicated that providers are facing financial and service delivery challenges from factors such as low utilization, delayed payments, inadequate and expensive supply of PPE along with disruptions to the commodity supply chain while, beneficiaries continue to face physical barriers to access facilities even post-lockdown as well as information asymmetry and fear of contracting the virus at hospitals. The objective of this paper is to highlight supply-demand challenges faced by states due to lockdown along with providing key recommendations to strengthen AB PM-JAY implementation going forward.

As a part of this analysis, a detailed comparison of states based on their performance before, during early lockdown (lockdown 1.0) and late lockdown (lockdown 3.0) was done. Key indicators such as hospital activity and service utilization were studied to group states into clusters based on similar performance or behavior. These clusters were further analyzed based on performance across various hospital sizes, specialty utilization, age/gender of patients and secondary/tertiary care. Comparing these indicators across specified time periods allows us to highlight focus areas and help formulate state-specific recommendations and key actions.

Hospital activity during early lockdown dropped by 49% as compared to activity before lockdown. During late lockdown, signs of recovery were evident as the drop reduced to 37% with states like Bihar, Uttar Pradesh, Karnataka, Tamil Nadu, Jharkhand and Jammu & Kashmir being the most affected.

It was also noticed that private hospitals (< 50 beds) and public hospitals (<100 beds) were the most affected in terms of hospital activity amongst other empaneled service providers under AB PM-JAY. Similarly, service utilization under AB PM-JAY dropped by 61% during early lockdown as compared to before lockdown scenario. This drop also improved to 46% during late lockdown with states like Maharashtra, Bihar, Assam and Karnataka being the most affected.

# INTRODUCTION

Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PM-JAY) was launched in September 2018 with the idea of making quality healthcare accessible to the most vulnerable and deprived sections of India's population. It is one of the largest government-funded health insurance schemes, covering 10.74 crore poor and vulnerable families for secondary and tertiary hospitalization. Each family is eligible for annual insurance cover for secondary and tertiary care services up to INR 5 Lakh per family, with no cap on family size, age or pre-existing medical conditions, ensuring that necessary treatment is availed by those in need. Since its launch, Ayushman Bharat PM-JAY has shown consistent growth and uptake across the nation. Despite tremendous diversity in healthcare infrastructure and health seeking behavior across states, the scheme is being implemented across 32 states and union territories. The flexibility and adaptive nature of

the scheme has allowed it to scale-up while driving convergence of smaller state-specific schemes under AB PM-JAY. With over 1 Cr treatments, 22,800 empaneled hospitals and over 12.5 Cr e-cards distributed across India, AB PM-JAY has been accelerating its growth.

Due to the COVID-19 pandemic and subsequent pan-India lockdown since March-2020, AB PM-JAY's growth and uptake has seen a dip across many states. Different states, with varied experience and infrastructural capabilities for scheme implementation, reacted differently to the onset of the pandemic. Analyzing the most affected states and the underlying reasons for the utilization dip would help identify weaker areas of scheme implementation. As states re-build and refine scheme implementation framework going forward, learnings from this analysis and paper may be utilized to strengthen foundation of AB PM-JAY implementation and ensure faster and sustainable growth for the future.

## METHODOLOGY

AB PM-JAY functions with a state-of-the-art IT system capturing real-time data from the ground. With every hospital admission, the patient's demographic details along with specifics of treatment offered are captured digitally at the hospital using NHA's Transaction Management System (TMS). Every activity pertaining to the admission, right from surgery details, discharge, claim submission and payment are all updated on this system in due course of treatment. Details of the corresponding hospital, its specializations, bed-strength, manpower and other facilities are captured in NHA's Hospital Empanelment System (HEM). All this information is stored in a central data repository called the National Data Warehouse. The analysis and findings presented through this paper are derived primarily from these two data sources.

This analysis is based on data spread across 2 consecutive calendar weeks (Monday to following Sunday) each in March, April and May 2020.

<b>Timeframe</b>	<b>Representative Time Period</b>
<b>Before Lockdown</b>	2-8 March, 9-15 March 2020
<b>Early Lockdown (lockdown 1.0)</b>	30 March - 5 April, 6-12 April 2020
<b>Late Lockdown (lockdown 3.0)</b>	4-10 May, 11-17 May 2020

Above mentioned time periods have been considered after thorough scrutiny and comparison of AB-PMJAY utilization with alternatives in each timeframe. It was found that the chosen time periods portray the best representation of the respective timeframes.

Metrics used in the analysis have been calculated across these timeframes with the objective of understanding change during early or late lockdown as compared to before lockdown.

Analysis of supply side was done to understand proportion of active hospitals before lockdown that are still active during early and late lockdown. An active hospital refers to a hospital that has successfully registered one or more hospital admissions during the given time frame.

Key indicators used –

- **% Active Hospitals (Early v/s Before Lockdown)** – Ratio of number of active hospitals during early lockdown to number of active hospitals before lockdown
- **% Active Hospitals (Late v/s Before Lockdown)** – Ratio of number of active hospitals during late lockdown to number of active hospitals before lockdown

Analysis of demand side was done to understand compare hospital admissions before lockdown with hospital admissions during early and late lockdown. Key indicators used –

- **% Hospital Admissions (Early v/s Before Lockdown)** – Ratio of number of hospital admissions during early lockdown to number of hospital admissions before lockdown
- **% Hospital Admissions (Late v/s Before Lockdown)** – Ratio of number of hospital admissions during late lockdown to number of hospital admissions before lockdown

Simultaneous comparison of supply and demand side indicators was then done to bucket states based on their performance during late lockdown as compared to before lockdown using the following cut-offs -

Buckets	% Hospital Admissions (Late v/s Before Lockdown)
<b>a. Most Affected States</b>	0% - 40%
<b>b. Moderately Affected States</b>	40% - 60%
<b>c. Least Affected States</b>	60% - 100%
<b>d. Not Affected States</b>	100% or more

In addition to the above-mentioned bucketing, dependency of a state on public or private sector before lockdown was also considered as a key indicator to be incorporated -

**% Private Utilization Before Lockdown** – Ratio of number of hospital admissions serviced by private hospitals before lockdown to overall number of hospital admissions before lockdown

Clustering of states basis the above-mentioned indicators was done to draw key insights, details of which follow in the next section.

**Key points to note:**

- This analysis is based on information captured in the National data warehouse through AB-PMJAY IT system or information gathered via APIs from implementing states
- Data for respective state schemes of Rajasthan and Gujarat were unavailable in the national data warehouse at the time of this analysis, therefore both these states have been excluded
- Data present in the warehouse is subject to change or modifications in scenarios like emergency admissions, internet connectivity issues at the hospital or other technical difficulties. Basis necessary approvals from the respective states, historical data may therefore be updated at a later point in time

# RESULTS AND FINDINGS

Utilization and hospital activity trends in AB PM-JAY data indicate that the lockdown has had an adverse impact on the utilization of services across all districts, at all levels of care, and for majority of services. With the pandemic, both the supply and demand side of the scheme have been impacted. Key findings from the analysis have been outlined below:

## Hospital Activity

AB PM-JAY had 21,573 hospitals empaneled under the scheme as on 23rd May 2020. 56% of these empaneled hospitals were public and 44% private.

Hospital Empanelment and Activity			
	Public	Private	Overall
Empaneled (Since Launch)	12,064	9,509	21,573
Active (Before Lockdown)	4,262	4,252	8,514
% Active (Early v/s Before Lockdown)	51%	50%	51%
% Active (Late v/s Before Lockdown)	59%	66%	63%

**Figure 1: Hospital Activity Summary**

Of all the empaneled hospitals, 51% were active in last 3 months before the lockdown. During the late lockdown period, this number dropped to 25%. The analysis highlights a trend where the number of active hospitals fell by almost 40% as compared to active hospitals before lockdown in both public and private sectors. Overall, 63% hospitals were active during the late lockdown as compared to before lockdown (59% for public and 66% private active hospitals). Small and medium sized hospitals, with less than 100 beds, were the most affected with a steeper decline in activity

as compared to other empaneled hospitals.

Drop in the number of active hospitals has been significant in many states with some states operating at less than 50% of available hospitals as compared to before lockdown - Uttar Pradesh (30%), Bihar (32%), Karnataka (50%), Tamil Nadu (52%), Jammu and Kashmir (53%) and Jharkhand (55%).

This decrease in hospital activity for private hospitals may be attributed to fear among hospital owners and staff of contracting COVID-19 infection or fear of being stigmatized and losing business if they were to treat COVID-19 patients. At the same time, drop in public hospitals may be attributed to limited workforce and resources given the responsibility of handling majority of COVID-19 treatments. Few other hypotheses may be –

- a. Hospitals are offering treatments but not booking them on AB PM-JAY IT platform owing to heavy inflow of patients or lack of resources owing to a drop in the utilization
- b. Hospitals are overcharging for treatment owing to resource crunch or high demand thus leading to

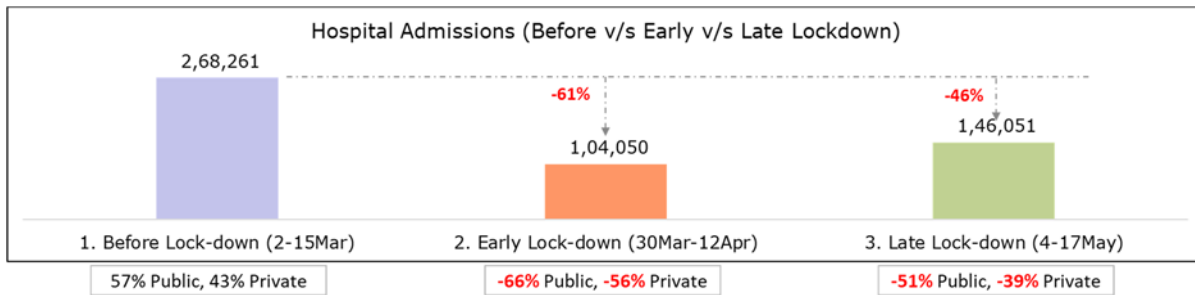
a lower inflow of patients

- c. Hospitals may be facing cash-crunch because of restricted operations and increase in costs even for non-COVID-19 services, or higher cost and limited supply of medical equipment thus being forced to scale down or completely shut their operations

Most of these can be validated by qualitative assessments or surveys with service providers.

## Service Utilization

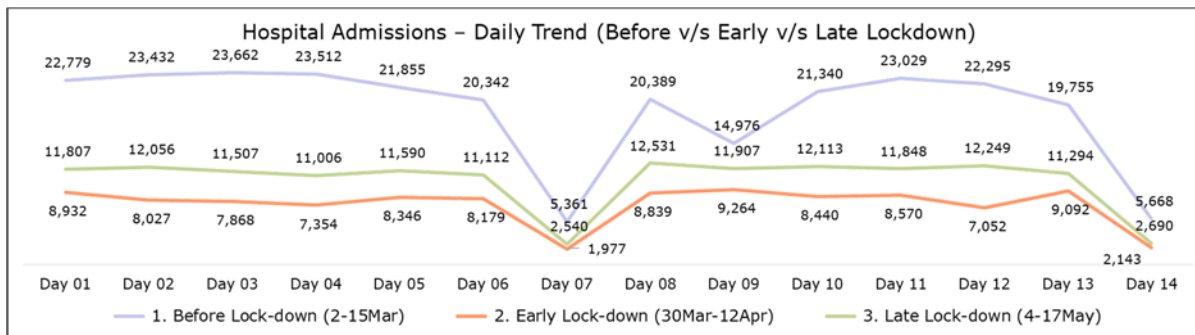
AB-PMJAY has seen over 50% drop in utilization post the announcement of the first national lockdown on 23<sup>rd</sup> March 2020.



**Figure 2: Change in Utilization across pre-lockdown, during lockdown and post lockdown period**

From a daily average of 19,161\* hospital admissions before lockdown, a drop to 7,432\* admissions per day was seen during early lockdown with a subsequent recovery to 10,432\* admissions per day during the late lockdown period. A daily summary of the same may be seen in the Figure 3.

\*The above shared number of hospital admissions excludes utilization from Gujarat and Rajasthan since these two states have been left out of this analysis owing to data availability issues



**Figure 3: Day-wise trend in utilization across selected period**

Utilization of the scheme is at 54% during late lockdown as compared to before (Public sector at 49% and the private sector at 61%). Maharashtra (23%), Assam (28%), Bihar (30%), Karnataka (40%), and Uttar Pradesh (41%) have been the most affected as of late lockdown.

Multiple external factors have contributed to this severe drop in utilization for the above-mentioned states. States like Maharashtra and Karnataka have shown reduced booking of cases on the PMJAY IT

system due to increased burden on the empaneled hospitals. In case of Assam, a state-wide migration to AB-PMJAY IT platform from its state-scheme specific IT system coincided with the late lockdown period. This transition led to delays in registering cases on the AB-PMJAY system thus showing to smaller volumes of scheme utilization.

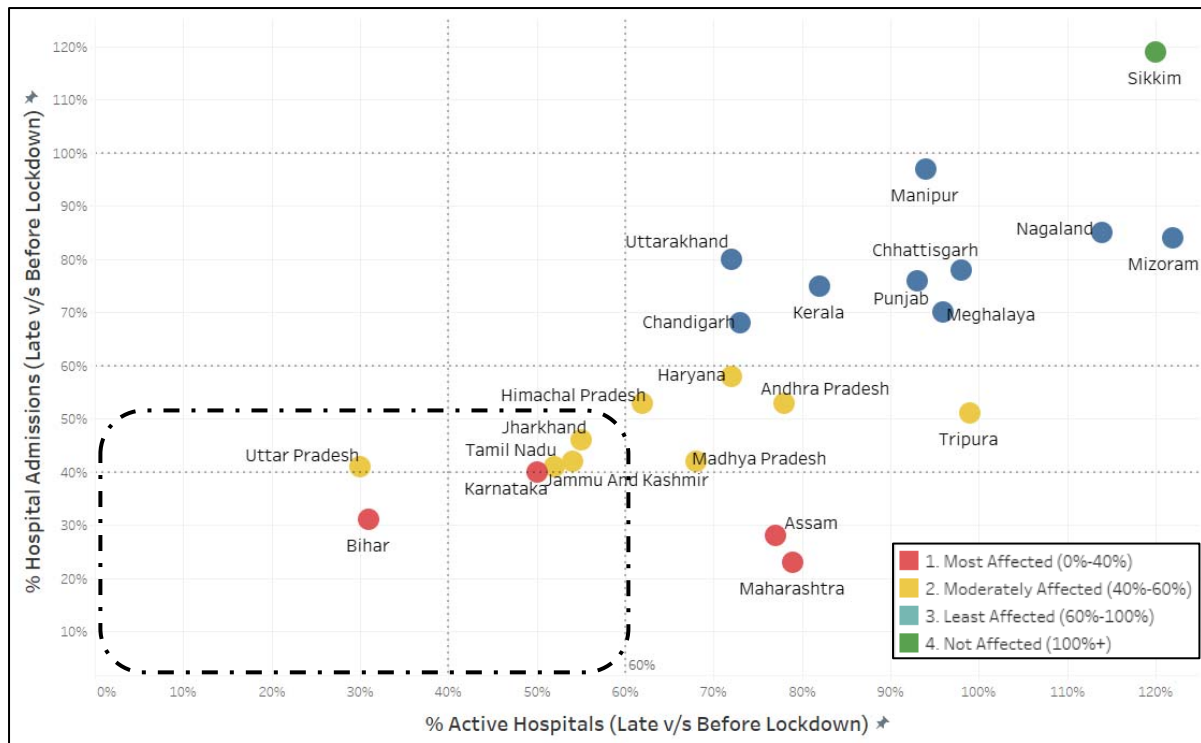
A detailed analysis focused on specialty-wise comparison shows that the number of active hospitals and scheme utilization have decreased for many elective or non-emergency surgeries, e.g. cataract surgeries have gone down by 90%. Given the infrastructural limitations and COVID-19 treatment burden, non-essential procedures were postponed by many hospitals, therefore a significant decline was expected. Oncology services dropped to 57% during late lockdown as compared to before. On the other hand, planned procedures like dialysis, that could not be postponed, dropped only by 10-20%. Alarmingly, unplanned and urgent procedures like caesarean-section delivery have dropped significantly (as high as 70% in some states) thus indicating that people preferred or were forced to do home deliveries. Specialties such as neo-natal and emergency care, which are critical and non-elective, have dropped marginally by 15%-20%.

Physical access has been severely limited given limited ability to attend facilities or meet community health workers, depending on degree of lockdown or public health intervention. Fear amongst beneficiaries of COVID-19 infection is another major barrier for patients to access healthcare. Utilization has begun to increase since lockdowns measures have loosened, indicating that one contributor was restricted movement during lockdown.

## **State-wise Overview**

A detailed comparison of states based on their performance before, during early lockdown (lockdown 1.0), and late lockdown (lockdown 3.0) highlighted specific trends across states. Utilization has varied a lot across states during the period, few states have been able to retain normalcy and others have been struggling to recover the utilization.





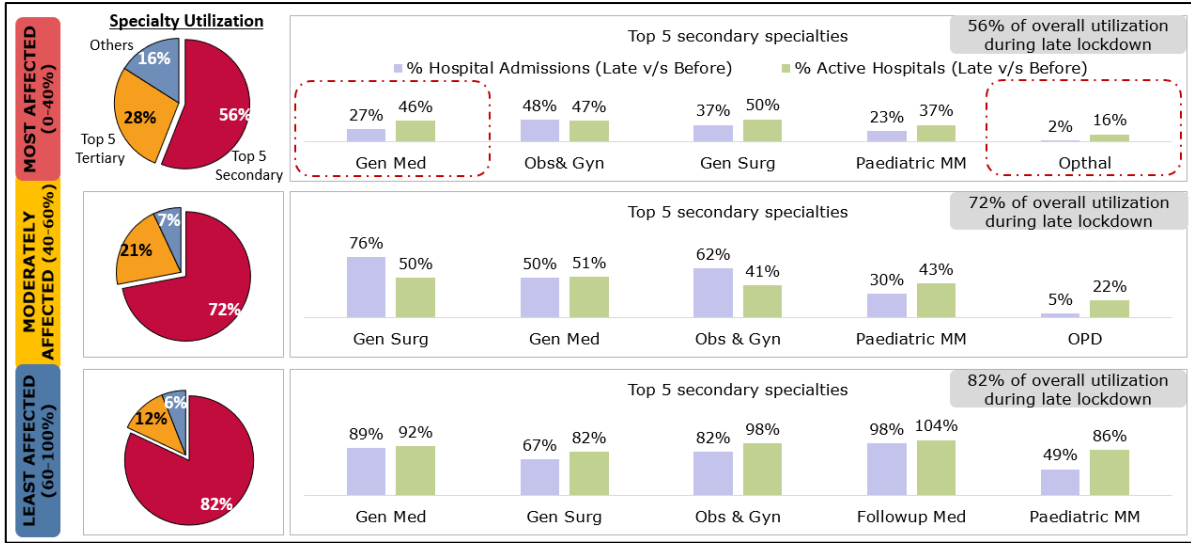
**Figure 4: Grouping of states based on utilization and hospital activity**

In Figure 4, a comparison of Late Lockdown and Before Lockdown periods has shown using previously defined supply and demand focused indicators - % Active Hospitals on the x-axis and % Hospital Admissions on the Y-axis. The plot efficiently separates relatively better performing states (green and blue) from the rest (red and yellow) as of late lockdown. North-Eastern states along with Kerala and Chhattisgarh have shown tremendous improvement and are on their way to match before-lockdown utilization whereas states marked in the left bottom quadrant like Bihar, Maharashtra, Tamil Nadu, Uttar Pradesh, Jharkhand, Jammu and Kashmir show a weaker recovery.

Based on % Hospital Admissions, states have been bucketed into four groups – Most Affected (0%-40%) marked in red in Figure 4, Moderately Affected (40%-60%) marked in yellow, Least Affected (60%-100%) marked in blue and Not Affected (100% or more) marked in green. Most affected states and moderately affected states together constitute to 64% of AB-PMJAY’s utilization before lockdown. These 13 states have therefore been considered as the major focus of further analysis.

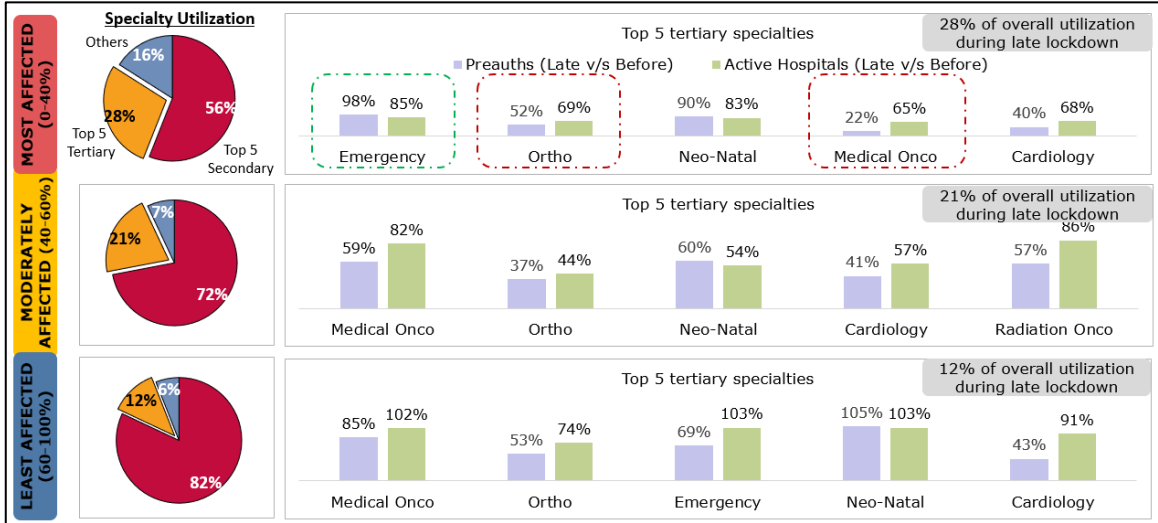
Deeper analysis of these 13 states showed 54% hospital activity during late lockdown as compared to the before lockdown period whereas the least affected states showed 94% hospital activity for the same period. For these 13 states, least activity was seen in the small hospitals with less than 50 beds.

Specialty-wise comparison across most affected, moderately affected and least affected states shows some vital trends in Figure 5 and 6. Simultaneous comparison of demand (% Hospital Admissions) and supply (% Active Hospitals) helps understand how treatments across specialties have been impacted.



**Figure 5: Utilization and hospital activity for secondary specialties across groups of states**

Utilization for General Medicine and Ophthalmology among secondary specialties had dropped severely in 'Most Affected' states with the utilization of 27% and 5% respectively as compared to the before-lockdown period. In 'Moderately Affected' states, OPD and Paediatric Medical Management among secondary specialties had been affected the most with utilization reduced to 5% and 30% respectively as compared to the before-lockdown.



**Figure 6: Utilization and hospital activity for tertiary specialties across groups of states**

Among tertiary specialties in most affected states, Emergency care (utilization at 98% as compared to pre-lockdown period) and Neo-Natal (90%) were the least affected whereas Orthopedics (37%) and Cardiology (41%) were the most affected specialties in moderately affected states.

## Clustering of states

Based on their performance during the late lockdown period, 13 focus were identified. These states were divided into three clusters based on their dependence on public or private sectors before lockdown. These clusters are private dominant states, public dominant states, and states with balanced utilization from both sectors as shown in Figure 7.

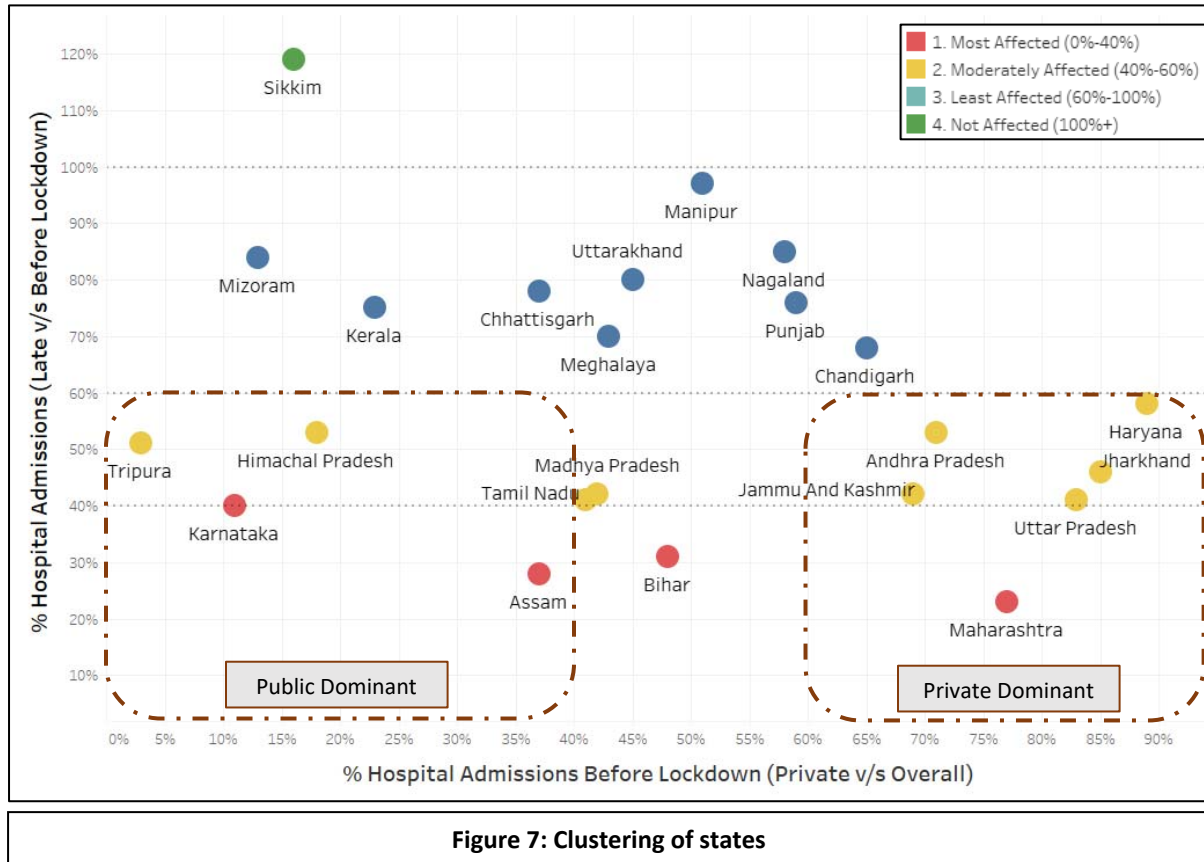


Figure 7: Clustering of states

Cluster 1 includes private dominant states such as Maharashtra, Andhra Pradesh, Jammu and Kashmir, Haryana, Jharkhand, and Uttar Pradesh. Cluster 2 includes public dominant states such as Assam, Karnataka, Himachal Pradesh, and Tripura. Cluster 3, states with balanced utilization, includes Bihar, Madhya Pradesh, and Tamil Nadu.

On comparing utilization and hospital activity across these clusters, few trends emerged such as states having high hospital activity i.e. more than 70% whereas utilization below 40% as compared to pre-lockdown, States having moderate hospital activity i.e. less than 60% and utilization more than 60%, and states having low hospital activity as well as low utilization, i.e. less than 40%. All these states will have few similar challenges on operations and awareness and some state-specific challenges related to hospital inactivity and beneficiary seeking treatment.

About 50% of facilities contracted by AB PM-JAY are private and states that contracted the private sector for COVID-19 related services or for other essential services were anticipated to see less disruption to the continuity of care. However, state policies and empanelment of the private sector vary, and, in many cases, private providers are facing significant financial and logistical challenges and have had to close their doors. It is therefore not surprising that utilization patterns between public and private vary significantly between states. For example, in Bihar and Meghalaya, AB PM-JAY utilization in public health facilities had seen more than 90% drop for caesarean-sections during COVID-19 lockdowns. Some of this demand was absorbed in the private sector, though many women are anticipated to have foregone a caesarean section and delivered at home. In states such as MP, a state that does not contract the private sector for normal delivery including under AB PM-JAY, there was a higher fall in institutional delivery.

	State	Maharashtra	Andhra Pradesh	Jammu and Kashmir	Haryana	Jharkhand	Uttar Pradesh
Hospital Activity (Late v/s Before Lockdown)	Public	Green	Green	Red	Yellow	Yellow	Red
	Private	Green	Green	Green	Green	Yellow	Red
Utilization (Late Lockdown v/s Before Lockdown)	Public	Red	Yellow	Red	Red	Red	Red
	Private	Red	Yellow	Yellow	Green	Yellow	Yellow
Recommendations	Support and activate existing private facilities					✓	✓
	Enable private facilities to share COVID burden	✓	✓	✓			✓
	Increase awareness among patients	✓	✓	✓	✓	✓	
	Revive existing public facilities	✓		✓	✓	✓	✓

**Figure 8: Profiling of states**

States like Uttar Pradesh and Bihar where both utilization and hospitals have been affected will need a different approach to handle the situation in contrast to states like Maharashtra and Andhra Pradesh where hospital activity has not been affected but the effect on utilization had been adverse.

## RECOMMENDATIONS

Based on this analysis, following recommendations have been suggested to further improve utilization of AB-PMJAY across states. The analysis highlights geographies, facilities, and services where initial recovery efforts may need to be targeted to ensure equitable access to and availability of AB PM-JAY services. As a next step, it will be important to conduct deep dives through discussions and beneficiary and provider surveys at the state level to understand the demand and supply-side challenges that must be addressed. Many state health agencies are beginning to conduct deeper analysis to assess the feasibility and appropriateness of these reforms for the local context, based on state-specific analyses, guidance, and inputs. Below, we offer broad considerations and recommendations for reforms identified across the country to mitigate many of the challenges highlighted above.

## Supply Side:

- Assess key factors hindering the provision of services at public and private facilities by leveraging the respective states' call-centers and independent surveys. Selected hospitals facing the highest drops in utilization can be targeted with these efforts
- Understand financial challenges facing providers, including from decreased utilization of services and increased prices for necessary medical and non-medical commodities, as well as procurement of Personal protective equipment (PPE) and other necessary containment measures. To address these challenges, necessary support may include releasing pending payments on priority, helping with commodity supply, procurement and provision of PPE
- Government of India may consider additional financial reforms like offering providers temporary lines of credit or frontloading claim payments based on past activity (that can be deducted from future claims) to allow uninterrupted functioning of hospitals
- To address the COVID-19 burden on public facilities, existing active private hospitals can be roped in. Medium or large size private hospitals could be leveraged to create separate COVID-19 wards to provide services in high demand areas

## Demand Side:

- Understand the demand-side challenges, including restricted physical access to healthcare, limited information around guidelines with the resumption of services, and fear of COVID-19 amongst beneficiaries. To address these challenges, focused IEC activities to be targeted towards districts where the highest drop in utilization is seen. Lay out clear guidelines around COVID-19 testing, provide a list of COVID-19 and non-COVID-19 hospitals
- Collaborative partnership with the national emergency service – 108 could be a possible means of countering patient mobility related issues, especially for those with chronic conditions who may need frequent visits to hospitals

## General Guidelines:

- In the face of COVID-19, providers face increased costs even for non-COVID-19 services due to factors such as heightened PPE needs, distancing of patients leading to fewer beds, etc. Given that both hospital capacity and resources for each patient are increasing, it may be necessary to introduce top-up packages all package rates or create a separate top-up package for hospitals to offset these increased costs and incentivize continued service provision
- Provision of clear guidelines to hospitals on how to triage and manage patients coming in to ensure COVID-19 and non-COVID-19 cases do not mix and ensuring these are posted out front for all patients and visitors to see as well. This will allay fears of contracting the disease at facilities and will allow patients to hold providers accountable. Setting up dedicated fever clinics in the state as per the guidelines of ICMR can also help address this problem.

## CONCLUSIONS AND NEXT STEPS

The preliminary findings of the analysis would be helpful to assess the impact of utilization post-COVID-19 on various states and AB PM-JAY together from both supply and demand side. This information can be supplemented and strengthened if beneficiary and provider surveys undertaken to understand qualitative aspects of the problems better.

Next steps would be to

- Provide state-specific recommendations to each of the focus states in this analysis and help them recover to normalcy and further expand scheme uptake
- Perform a micro analysis at procedure level to track the impact in a detailed manner
- Deep dive to district/block level to provide actionable insights
- Hospital Planning by doing capacity assessment analysis (by leveraging National Health Resource Repository - NHRR data) to identify the providers that can be empanelled to strengthen the AB PM-JAY provider network in areas/regions where supply has been limited by various factors

For successful implementation of the AB PM-JAY, it is crucial to harness the ever-growing potential of the private healthcare sector, as well as significantly enhance the infrastructure and quality of care available at public hospitals to ensure poor and marginalized people get access to essential healthcare. It is also equally critical to monitor the quality and appropriateness of care and have a clear set of guidelines for hospitals to make their staff and beneficiary aware of the preventive measure and ensure their safety during this pandemic time.

To conclude, AB PM-JAY has a very critical role to play in providing healthcare to poor and vulnerable population during COVID-19 times. All efforts must be stepped up to ensure that all essential and non-essential hospitalization care is provided both through public and private empaneled hospitals under AB PM-JAY in convergence with primary care provision through the public health infrastructure.