Background

The COVID-19 pandemic and associated economic lockdowns have had a severe impact on health systems around the world. While headlines keep track of case counts and mortality due to COVID-19, information about the indirect impact of the pandemic on other health indicators is less readily available. This brief provides an overview of the impact of India’s nationwide lockdown, which started on March 25th, 2020, on inpatient care patterns under PM-JAY based on claims data analysis.

While access to medical care facilities was one of the few exceptions to stay-at-home orders during the lockdown, care-seeking behaviors and health care provision were nevertheless significantly affected. Several factors could explain this. On the supply-side, hospitals may be preoccupied with COVID-19 preparations or caseloads resulting in fewer resources for non-COVID cases. This may be particularly relevant in public hospitals, which have been the primary focus of the policy response, and could extend to activities such as submitting pre-authorization requests or claims documents as required under PM-JAY. Private hospitals may reduce services out of fear among health workers that they will become infected or among owners that their business outlook will be jeopardized if they are perceived to be treating COVID-19 patients. On the demand-side, PM-JAY beneficiaries might delay or forego treatment due to fear of infection at a hospital, they may not be able reach hospitals due to public transport shutdowns and mobility constraints, or the nascent economic crisis may affect financial considerations related to seeking care. These factors are summarized in Figure 1.

Highlights

• This brief provides an assessment of the impact of India’s national lockdown on the utilization of inpatient services under PM-JAY based on an analysis of claims data.

• Overall, average weekly claim volumes during ten weeks of lockdown were 51 percent lower than the weekly average observed during the twelve weeks prior to the lockdown. The decline in claim value was even steeper.

• There was wide variation in claim volume trends across states, with the steepest declines (over 75 percent) in Assam, Maharashtra and Bihar, while much smaller declines (about 25 percent or less) were observed in Uttarakhand, Punjab and Kerala.

• Among demographic groups, women, younger and older populations (under 20 and over 60) reduced their utilization by more than men, young adults or the middle-aged.

• There was a small but perceptible shift in PM-JAY utilization from public to private hospitals, with several possible explanations for this trend.

• Among procedures, planned surgeries such as cataract operations and joint replacements suffered a decline of over 90 percent, while hemodialysis declined by only 6 percent. There was also a sharp fall in cardiovascular surgeries. Of particular concern are significant declines in admissions for child delivery and oncology.
Box 1: Methodology

Data source: The analysis is based on claims data drawn from the PM-JAY Transaction Management System (TMS). The main indicator of claim volumes (utilization) is non-rejected pre-authorization requests. It should be noted that not all states are fully captured in TMS, including Goa and Rajasthan. Less than half of Gujarat’s hospitals use the TMS portal but the authorities report aggregates, meaning that overall trends are accurately captured in the analysis, but procedure-wise analysis heavily under-reports Gujarat trends.

PM-JAY beneficiaries: These include all those with INR 5 lakh family coverage, including both those covered by PM-JAY (co-financed by the Government of India and states) and all additional “extension” families fully funded by states under their own expanded coverage initiatives.

Time period: The analysis covers 22 weeks of data, from January 1st, 2020, to June 2nd, 2020. The national lockdown started on March 25th but had been significantly relaxed as of June 1st, 2020.

Box 2: COVID-19 treatment under PM-JAY

PM-JAY is in the early stages of offering coverage of COVID-19 treatment to beneficiaries in need. While confirmed cases reimbursed by PM-JAY are still few, it is useful to review claim volumes for packages that might be undiagnosed COVID-19 cases. The figure below shows total weekly average claim volumes for several packages such as pneumonia, respiratory failure, febrile illness, or pyrexia. The trend is similar to the overall pattern of PM-JAY utilization, with a 68 percent decline during the first week of lockdown compared to the previous week. The future course of the pandemic in India remains highly uncertain, but during the lockdown period analyzed here, there is little evidence of a surge in COVID-19 caseloads at least on a national level. Therefore it is more likely the threat of COVID-19, not the actuality, that is driving the trends described in the brief.

A steep decline in claim volumes for packages that may be associated with COVID-19 symptoms
Key Findings and Implications

Sharp declines and shifting profiles

The weekly nationwide PM-JAY claim volume during the first week of lockdown was 64 percent lower than just two weeks earlier (Figure 2). The decline in average weekly claim volume was 51 percent if the 10-week lockdown period (March 25th to June 2nd) is compared to the 12 weeks that preceded lockdown (January 1st to March 24th). Two other patterns are noteworthy. First, the decrease in claim volumes started during the week prior to the lockdown. This may partly reflect the one-day ‘Janata Curfew’ on March 22nd, announced three days in advance by the Prime Minister in a widely broadcast address, and other measures related to international travel and restrictions on congregation of people already in place that week. Together these events likely heralded the arrival of the COVID-19 pandemic in the national consciousness. Second, there was a slight rebound in claim volumes during the later weeks of lockdown, with cases in the last week of observed data about 40 percent higher than the low point recorded during the first week of lockdown. This explains why the average decline during the entire lockdown is markedly less than the immediate decline during the first week.

In terms of claim value, the lockdown-induced decrease in PM-JAY outlays was higher, at 76 percent (Figure 3). This is due to a larger decline in higher-cost packages including surgeries, as described below. The total decline in outlays over ten weeks compared to a hypothetical no-lockdown scenario (that is, a continuation of the pre-pandemic status quo) amounted to over INR 1000 crore, or 15 percent of the Union Government’s PM-JAY budget allocation (excluding state shares).

![Figure 2: Claim volumes fell by 64 percent in the early lockdown phase](image)

![Figure 3: Claim value fell by 76 percent during the early lockdown phase](image)
The nationwide averages in post-lockdown claim volumes mask very large differences across the country. The decline over the full lockdown period was steeper among Brownfield states (65 percent) than among Greenfield states (40 percent). Assam, Maharashtra and Bihar experienced the steepest drops among large states, at 75 percent or more (Figure 4). The decline was smallest in Uttarakhand, Punjab and Kerala, at about 25 percent or less. There was also a steep decline of about 62 percent in cross-state portability cases during lockdown, larger than the overall trend.

There is no clear correlation between the states with the largest drop in utilization and those emerging with the highest COVID-19 caseloads (Figure 5). If Maharashtra is excluded, there is no association among other states. Other factors, such as socio-economic differences and variation in the strictness of lockdown implementation across states and districts, may also play a role.

1. Brownfield states are those which do not use the PM-JAY IT system, typically because they had long-standing state insurance schemes prior to the launch of PM-JAY. These are Andhra Pradesh, Assam, Goa, Gujarat, Karnataka, Maharashtra, Rajasthan and Tamil Nadu. All other participating states are Greenfield.
There are also differences in the demographics of utilization trends during lockdown. There was a small but perceptible change in the gender profile of PM-JAY beneficiaries, as the share of claim volumes attributed to women fell from about 48 percent before lockdown to 45 percent post-lockdown (Figure 6). There was also a small shift in the age structure of those seeking care, as the under-20 and over-60 age groups – the latter being the most vulnerable to COVID-19 but also possibly the most in need of other care – experienced slightly lower utilization shares during lockdown while the share among young adult and middle-aged groups increased (Figure 7).

There were small but notable changes in the share of utilization across public and private hospitals (Figure 8). There was a steeper decline in utilization of public hospitals (67 percent from week 11 to 13) than private hospitals (58 percent), resulting in a shift in the private share of total volumes from 47 percent before the lockdown to 51 percent after lockdown. This trend, which became even stronger late in the lockdown, may reflect several factors. First, beneficiaries might be avoiding public hospitals due to a perception that they are becoming “COVID hospitals”, since government facilities have been the focus of preparedness efforts for a potentially increasing COVID-19 caseload. Second, government hospitals might be too busy with these preparations to carry out tasks related to pre-authorization and claim submission as required by PM-JAY. Third, the shift towards private hospitals might reflect their case mix – in particular, hemodialysis care accounts for a large share of PM-JAY claims and is predominantly provided in the private sector, and the decline in claim volumes for these packages was far lower than for other types of care (as described below).
It is also noteworthy that the number of “active” hospitals – those submitting at least one claim during a week – fell by almost 50 percent in both the public and private sectors (Figure 9). Activity levels among private hospitals started to recover late in the lockdown but remained low among public hospitals.

![Figure 8: A shift in utilization towards private hospitals](image)

![Figure 9: A sharp decline in the number of active hospitals](image)

**Different procedures, different trends**

There was wide variation in the impact of the lockdown on case volumes for different types of care under PM-JAY. Starting with broad aggregates, there was a larger decline in utilization of surgical procedures (57 percent) than medical cases (46 percent) (Figure 10). This is to be expected, since surgeries are more commonly planned in advance, whereas medical cases are not. In order to disaggregate further, the analysis endeavored to categorize the top 90 percent of procedures into four broad categories, as shown in Table 1. These were oncology, hemodialysis, other planned procedures, and unplanned care. Each grouping has specific

![Figure 10: Surgical cases declined more than medical cases](image)
Table 1: Categorizing procedures

<table>
<thead>
<tr>
<th>Procedure group</th>
<th>Key characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oncology</td>
<td>Planned and unavoidable: Oncology procedures that can not be stopped or postponed for a long time</td>
</tr>
<tr>
<td>Hemodialysis</td>
<td>Planned and critical: Stopping or delaying hemodialysis care can have life-threatening consequences</td>
</tr>
<tr>
<td>Planned (excluding oncology and hemodialysis)</td>
<td>Planned and avoidable: Procedures for which delays do not pose a major survival risk, such as cataract or joint replacement</td>
</tr>
<tr>
<td>Unplanned</td>
<td>Unplanned: These may be unavoidable, such as PTCA, CABG, child delivery, accidents, or those requiring medical management such as fever</td>
</tr>
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Characteristics with implications for provider and patient decisions, including whether the care is avoidable and/or critical. As expected, there was a much sharper decline in planned care (excluding oncology and hemodialysis) than unplanned care (Figure 11).

Among planned procedures, a very different story emerges for hemodialysis claim volumes compared to oncology. Hemodialysis, an essential life-saving treatment, declined by only 6 percent nationwide during lockdown, far less than for most other procedures (Figure 12). This is relatively good news when compared with the patterns emerging for most other types of care. Importantly, most of the national decline can be accounted for by an 84 percent decrease in care provided in private hospitals in Maharashtra (Figure 13). Andhra Pradesh was the only other state that also witnessed a significant fall in hemodialysis claims. In some states, claim volumes increased during lockdown. Public hospitals do not play a significant role in hemodialysis in any large state except Kerala, where claim volumes for this type of care remained quite stable. The relative stability of dialysis care coupled with the sharp decline in overall claims meant that during the first week of lockdown, hemodialysis accounted for 51 percent of all claims under PM-JAY, far higher than its usual 20 percent share.

The 64 percent decline in oncology volumes across India during lockdown was concentrated in a few states (Figure 14). In the public sector, which plays a smaller role in oncology care under PM-JAY, there was a 90 percent decline in claims in Maharashtra, and a 65 percent decline in Tamil Nadu. In the private sector, there was an 84 percent decrease in Maharashtra. Tamil Nadu also had a large decline. The COVID-19 pandemic is more advanced in Maharashtra than other states as of early June, and therefore both the supply- and demand-side factors affecting care noted earlier might be more acute in that state. There is some evidence suggesting that ongoing chemotherapy cycles were completed for some patients but not for others, while new patients...
were not started. Regardless, the trend is worrying considering the importance of oncology care for cancer patients, and even more so if a similar pattern emerges in other states that are currently at an earlier stage of the pandemic.

Another area where the trend in claim volumes may raise some concerns is child delivery. Across PM-JAY, there was a 26 percent decline in child deliveries during the lockdown (Figure 15). This applied almost equally to both normal deliveries and Caesarian sections and was also quite consistent across both public and private hospitals. Looking more closely, the main driver has been normal deliveries in the public sector in Bihar and in the private sector in Chhattisgarh (Figure 16). For C-sections, the state with the steepest decline by far was Madhya Pradesh. It should be noted that PM-JAY reimburses a small share of total deliveries in India, even among the bottom 40 percent, as most states have maintained other financing modalities – both supply-side and demand-side – for this priority service.

It is not possible to confirm whether these trends imply a large increase in the number of home deliveries. It is certainly plausible, due to transport shutdowns and possibly the diminished role of ASHA workers due to lockdown, who otherwise play an important role in ensuring that women deliver at a health care institution. However, a more benign explanation would

![Figure 13: Hemodialysis claim volumes in private hospitals: A sharp decline in Maharashtra](image-url)

![Figure 14: A steep decline in oncology care, led by Maharashtra and Tamil Nadu](image-url)
be that deliveries are still happening at government hospitals, but administrators have significantly reduced their efforts to submit pre-authorization requests and claim forms as required under PM-JAY. It is also plausible that Ayushman Mitras (hospital staff charged with patient support and PM-JAY implementation at the hospital level) and/or data entry operators were not able to reach the hospital under lockdown conditions. In any event, this trend merits close monitoring.

The utilization of neo-natal packages declined by 24 percent during lockdown. There was a slight shift from public to private hospitals for neo-natal care, and the largest declines have been observed in the public sector in Tamil Nadu and Madhya Pradesh. The health implications for newborns of such a sharp decline are of course a concern.

There was a nearly 80 percent decline during the early lockdown in claim volumes for relatively common but higher-cost cardiovascular surgery procedures, such as PTCA/stents and CABG/bypass (Figure 17). However, there was a significant rebound in the late lockdown phase. There was also a slight shift from public to private providers for these packages in terms of utilization shares: typically, private hospitals account for about 77 percent of these procedures under PM-JAY, and under lockdown this increased to 83 percent. In the public sector, there was a steep decline in PTCA/CABG surgical procedures in Kerala and to a lesser extent Maharashtra. In the private sector, Maharashtra, Andhra Pradesh and Tamil Nadu have witnessed the largest declines in such care. There was also a 50 percent decline in cerebrovascular cases, and again a shift to the private sector.
The sharpest declines in utilization during lockdown were observed — perhaps reassuringly — for non-urgent elective procedures such as cataract surgery and hip and knee replacement. Claim volumes declined by 99 and 97 percent, respectively, between week 11 and week 13 (Figure 18). In the later weeks of lockdown, there were signs of a gradual recovery of both, especially joint replacement.

**Figure 17: Sharp decline in PTCA/CABG procedures under lockdown**

**Figure 18: Over 95 percent decline in common elective surgeries such as cataract, joint replacement**
India’s national lockdown had a significant impact on inpatient care utilization under PM-JAY. Claim volumes fell by over 50 percent, but with wide variation across states and procedure types. There were also changes in utilization patterns across demographic groups and a slight shift from the public to private sector. Among the procedures reviewed, the declines in child delivery and oncology packages warrant the closest follow-up to better understand the underlying causes and track the recovery back towards historical trends.

Around the world, health systems are struggling to cope under conditions of social distancing and lockdowns. It is possible that intermittent tightening and loosening of pandemic suppression measures will be necessary for many months to come. Ensuring that these have the least possible impact on key health programs will be an ongoing challenge that merits continued close monitoring.
Disclaimer:
The findings, interpretations, and conclusions expressed in the policy brief are entirely those of the authors, and do not represent the views of any author’s employer, official policy or position of any agency of the National Health Authority (NHA). The PM-JAY data used in the analysis should not be utilized/quoted without prior permission of NHA.

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List of PM-JAY Policy Briefs Published so far:
1. **Raising the Bar**: Analysis of PM-JAY High-Value Claims (July 2019).
2. **PM-JAY Across India’s States**: Need and Utilization (September 2019).
3. **PM-JAY and India’s Aspirational Districts** (September 2019).
4. **Supply Side Response to Insurance Expansion**: Evidence from RSBY/MSBY in Chhattisgarh (October 2019).
5. **PM-JAY Without Borders**: Analysis of Portability Services (February 2020).
7. **Quality of Care in PM-JAY**: A First Look at Unplanned Readmissions and Mortality (May 2020).
8. **PM-JAY Under Lockdown**: Evidence on Utilization Trends (June 2020).