JAY Ho: Ayushman Bharat's Jan Arogya Yojana (JAY) and Health Outcomes

09
CHAPTER

Of all the forms of inequality, injustice in healthcare is the most shocking and most inhuman.

—Martin Luther King Jr.

This chapter demonstrates strong positive effects on healthcare outcomes of the Pradhan Mantri Jan Arogya Yojana (PM-JAY) – the ambitious program launched by Government of India in 2018 to provide healthcare access to the most vulnerable sections. PM-JAY is being used significantly for high frequency, low cost care such as dialysis and continued to be utilised without disruption even during the Covid pandemic and the lockdown. General medicine – the overwhelmingly major clinical specialty accounting for over half the claims - exhibited a V-shaped recovery after falling during the lockdown and reached pre-COVID-19 levels in December 2020. The final – but the most crucial – analysis in the chapter attempts to estimate the impact of PM-JAY on health utcomes by undertaking a difference-in-difference analysis. As PM-JAY was implemented in 2018, health indicators measured by National Family Health Surveys 4 (in 2015-16) and 5 (in 2019-20) provide before-after data to assess this impact. To mitigate the impact of various confounding factors, we compute a difference-in-difference by comparing states that implemented PM-JAY versus those that did not. We undertake this analysis in two parts. First, we use West Bengal as the state that did not implement PM-JAY and compare its neighbouring states that implemented PM-JAY – Bihar, Sikkim and Assam. Second, we repeat the same analysis for all states that did not implement PM-JAY vis-à-vis all states that did.

PM-JAY enhanced health insurance coverage. Across all the states, the proportion of households with health insurance increased by 54 per cent for the states that implemented PM-JAY while falling by 10 per cent in states that did not. Similarly, the proportion of households that had health insurance increased in Bihar, Assam and Sikkim from 2015-16 to 2019-20 by 89 per cent while it decreased by 12 per cent over the same period in West Bengal. From 2015-16 to 2019-20, infant mortality rates declined by 12 per cent for states that did not adopt PM-JAY and by 20 per cent for the states that adopted it. Similarly, while states that did not adopt PM-JAY saw a fall of 14 per cent in its Under-5 mortality rate, the states that adopted it witnessed a 19 per cent reduction. While states that did not adopt PM-JAY witness 15 per cent decline in unmet need for spacing between consecutive kids, the states that adopted it recorded a 31 per cent fall. Various metrics for mother and child care improved more in the states that adopted PM-JAY as compared to those who did not. Each of these health effects manifested similarly when we compare Bihar, Assam and Sikkim that implemented PM-JAY versus West Bengal that did not. While some of

these effects stemmed directly from enhanced care enabled by insurance coverage, others represent spillover effects due to the same. Overall, the comparison reflects significant improvements in several health outcomes in states that implemented PM-JAY versus those that did not. As the difference-in-difference analysis controls for confounding factors, the Survey infers that PM-JAY has a positive impact on health outcomes.

INTRODUCTION

9.1 As free markets under-provision public goods, a vital role of a government is to provide public goods to its citizens, especially to the vulnerable sections in a society. While the rich can seek private alternatives, lobby for better services, or if need be, move to areas where public goods are better provided for, the poor rarely have such choices (Besley and Ghatak, 2004). Thus, provision of public goods can particularly affect the quality of living of the vulnerable sections in a society. Yet, governments may suffer from the "horizon problem" in a democracy, where the time horizon over which the benefits of public goods reach the electorate may be longer than the electoral cycles (Keefer 2007 and Keefer and Vlaicu 2007). The myopia resulting from the horizon problem may again lead to under-provisioning of public goods. Therefore, the provision of public goods that generate long-term gains to the economy and the society represents a key aspect of governance in a democratic polity.

9.2 As healthcare represents a critical public good, successive governments have committed to achieve universal health coverage (UHC). However, until 2018, UHC remained an elusive dream. In 2018, Government of India approved the Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB-PM-JAY) as a historic step to provide healthcare access to the most vulnerable sections in the country. Beneficiaries included approximately 50 crore individuals across 10.74 crores poor and vulnerable families, which form the bottom 40 per cent of the Indian population. The households were included based on the deprivation and occupational criteria from the Socio-Economic Caste Census 2011 (SECC 2011) for rural and urban areas respectively. The scheme provides for healthcare of up to INR 5 lakh per family per year on a family floater basis, which means that it can be used by one or all members of the family. The scheme provides for secondary and tertiary hospitalization through a network of public and empanelled private healthcare providers. It also provides for three days of pre-hospitalization and 15 days of post-hospitalization expenses, places no cap on age and gender, or size of a family and is portable across the country. It covers 1573 procedures including 23 specialties (see Box 1 for details). AB-PM-JAY also aims to set up 150,000 health and wellness centres to provide comprehensive primary health care service to the entire population.

9.3 The evidence provided in this chapter shows strong positive effects of PM-JAY on healthcare outcomes despite the short time since introduction of the programme. First, PM-JAY is being used significantly for high frequency and low cost care consisting with the general utilisation of healthcare services. Using the distribution of claims, we find that the distribution is a long-tailed one that peaks in the range of INR 10,000-15,000. The highest number of pre-authorization claims received were for procedures that cost in this range. The distribution is heavily right-tailed indicating significantly fewer claims for more expensive procedures.

9.4 Second, general medicine has been the overwhelmingly major clinical specialty used since 2018 with its share continuously growing. It is followed by general surgery, obstetrics and gynaecology. These three categories combine to account for more than half of the claims received on average. Dialysis – high frequency, low cost procedure that is life-saving for patients with renal difficulties – accounts for a large chunk (30 per cent) of the general medicine category claims under PM-JAY.

9.5 Third, the claims for dialysis did not diminish due to COVID-19 or because of the lockdown in March-April 2020 even while we can observe a steep fall in claims under the overall general medicine category during the lockdown. This highlights the users' reliance on PM-JAY for the life-saving dialysis procedure. Thus, the critical, life-saving health procedures such as dialysis seem to have not been severely affected during the COVID-19 pandemic.

9.6 Fourth, general care-seeking as seen in the PM-JAY claims exhibited a V-shaped recovery after falling during the lockdown and has reached the pre-COVID-19 levels in December 2020.

9.7 The final, but the most crucial, analysis in the chapter attempts to estimate the **impact** of PM-JAY on health outcomes by undertaking a difference-in-difference analysis. We compare the health indicators measured by National Family Health Survey 4 (NFHS 2015-16) and the National Family Health Survey 5 (NFHS 2019-20) to undertake this analysis. As PM-JAY was implemented in 2018, these two surveys provide before-after data to assess the impact of PM-JAY with the NFHS-4 serving as the baseline to compare the changes using NFHS-5. To mitigate the impact of various confounding factors, including but not limited to secular improvements in health indicators across the country, we undertake this analysis by calculating a difference-in-difference.

9.8 This analysis is undertaken in two parts. In the first part, we use West Bengal as the state that did not implement PM-JAY and compare the before-after difference in health outcomes to its neighbouring states that have implemented PM-JAY – Bihar, Sikkim and Assam. Apart from all these states being contiguous to each other and therefore being similar on socio-economic dimensions, we show that the baseline characteristics of these two groups of states were similar. In the second part, we repeat the same analysis for all states that did not implement PM-JAY vis-à-vis all states that implemented PM-JAY. Of course, the heterogeneity across the entire group of states in the country is large. The second analysis is less of a like-for-like comparison than the first one. Combining the findings from both these comparisons ensures that the findings are robust not only to a more localised, and therefore, more careful comparison but also to a comparison that spans all the major states in the country. The findings from this analysis are summarised as follows:

1. The proportion of households that had health insurance increased in Bihar, Assam and Sikkim from 2015-16 to 2019-20 by 89 per cent while it decreased by 12 per cent over the same period in West Bengal. When comparing across all the states over this time period, we find that the proportion of households with health insurance increased by 54 per cent for the states that implemented PM-JAY while falling by 10 per cent in the states that did not adopt PM-JAY. Thus, PM-JAY enhanced health insurance coverage.
2. From 2015-16 to 2019-20, infant mortality rates declined by 20 per cent for West Bengal and by 28 per cent for the three neighbouring states. Similarly, while Bengal saw a fall of 20 per cent in its Under-5 mortality rate, the neighbours witnessed a 27 per cent reduction. Thus,

the neighbouring states witnessed 7-8 per cent greater reduction in these health outcomes.

3. Modern methods of contraception, female sterilization and pill usage went up by 36 per cent, 22 per cent and 28 per cent respectively in the three neighbouring states while the respective changes for West Bengal were negligible. While West Bengal did not witness any significant decline in unmet need for spacing between consecutive kids, the neighbouring three states recorded a 37 per cent fall.
4. Various metrics for mother and child care improved more in the three neighbouring states than in West Bengal.
5. Each of the effects described above (points 2-4) manifested similarly when we compare all states that implemented PM-JAY versus the states that did not.

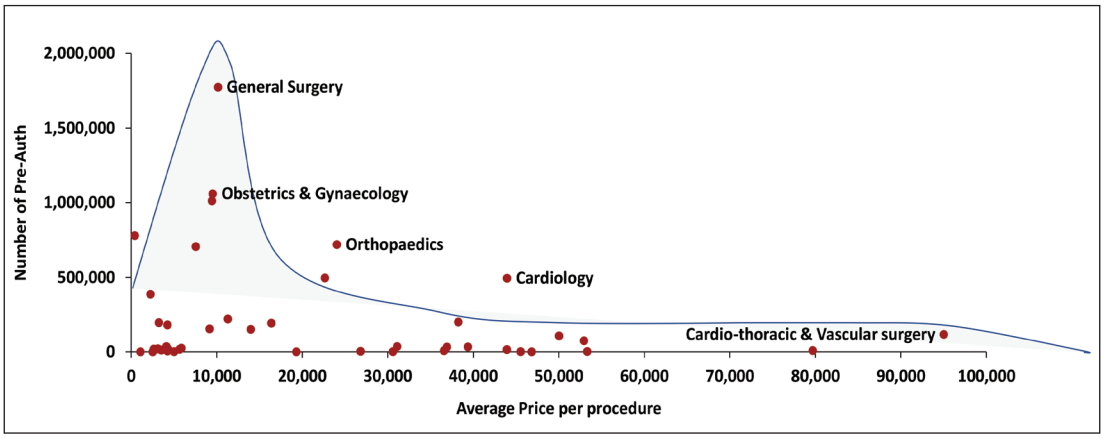
9.9 Overall, the comparison reflects significant improvements in several health outcomes in states that implemented PM-JAY versus those that did not. As the difference-in-differnce analysis controls for various compounding factors, the Survey infers that PMJAY impacted health outcomes positively.

PM-JAY: STATUS AND PROGRESS SO FAR

9.10 As per the latest annual report of PM-JAY released by the National Health Authority (NHA, 2019), the status of implementation is as follows:

- 32 states and UTs implement the scheme
- 13.48 crore E-cards have been issued
- Treatments worth INR 7,490 crore have been provided (1.55 crores hospital admission)
- 24,215 hospitals empaneled
- 1.5 crore users have registered on the scheme's website (mera.pmjay.gov.in)

Figure 1: The distribution in utilization of various procedures



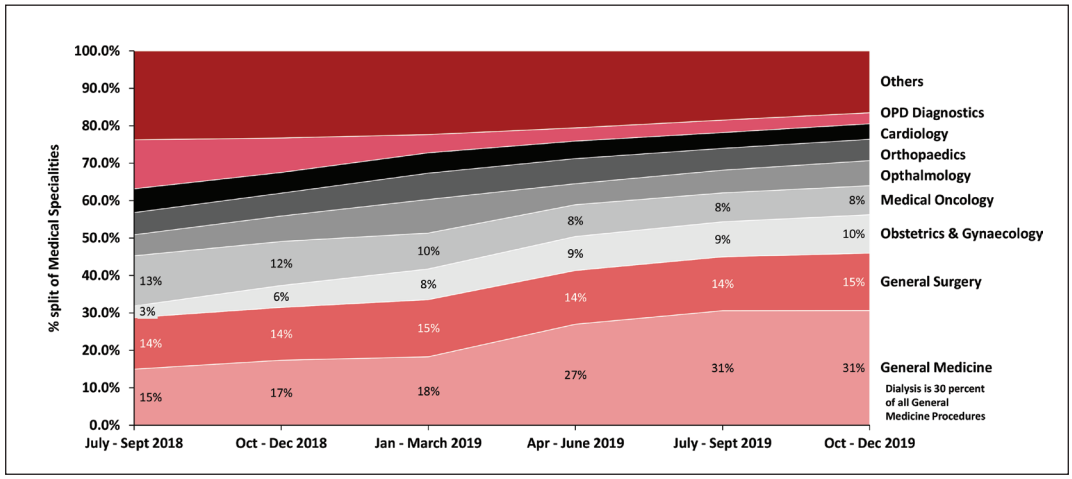
Source: NHA data secured from PMJAY

9.11 Figure 1 plots the number of PM-JAY pre-authorizations claims for a procedure against the average price of the procedure for the time period September 2018 through January 2021 (till January 13, 2021). The distribution is a long-tailed one that peaks in the range of INR 10,000-15,000. The highest number of pre-authorization claims received were for procedures

that cost in this range. The distribution is heavily right tailed indicating relatively fewer claims for more expensive procedures. The high number of claims for low cost procedures could be indicative of people utilizing PM-JAY as a delivery channel for primary healthcare services.

9.12 Figure 2 details the share of overall PM-JAY claims by the nature of clinical specialty over July-September 2018 to October-December 2019.

Figure 2: Share of claims by clinical specialty



Source: NHA data secured from PMJAY

9.13 General medicine has been the overwhelmingly major clinical specialty used since 2018 with its share continuously growing. It is followed by general surgery and obstetrics and gynaecology. These three categories combined made up close to 56 per cent of claims received in October-December 2019. An important caveat to note here is that Dialysis itself comprises a large chunk (30 per cent) of the 'general medicine' category claims under PM-JAY. This is despite the fact that the Pradhan Mantri National dialysis Programme, which was rolled out in 2016, also provides free dialysis to kidney patients in district hospitals. According to data from the National Health Ministry, every year, about 2.2 lakh new patients with end stage renal disease get added in India, resulting in additional demand for 3.4 crore dialysis every year (Ghosh 2016). These facts corroborate India's growing burden of non-communicable diseases in the form of hypertension and kidney disease.

Box 1: Specialties, Packages and Procedures in PM-JAY

Specialty	Packages	Procedures
Burns Management	6	20
Cardiology	20	26
Cardio-thoracic & Vascular surgery	34	113
Emergency Room Packages	3	4

General Medicine	76	98
General Surgery	98	152
Interventional Neuroradiology	10	15
Medical Oncology	71	263
Mental Disorders Packages	10	10
Neo-natal care Packages	10	10
Neurosurgery	54	82
Obstetrics & Gynecology	59	77
Ophthalmology	40	53
Oral and Maxillofacial Surgery	7	9
Orthopedics	71	132
Otorhinolaryngology	35	78
Pediatric Medical Management	46	65
Pediatric Surgery	19	35
Plastic & Reconstructive Surgery	8	12
Polytrauma	10	21
Radiation Oncology	14	35
Surgical Oncology	76	120
Urology	94	143
Unspecified Surgical Package	1	1
Total	872	1,574

PUBLIC GOODS, DEMOCRACIES AND GOVERNANCE

9.14 Samuelson (1954) conceptualised certain goods as "public goods" and argued that that "no decentralized pricing system can serve to optimally determine these levels of collective consumption (of the public good)." As public goods are non-rival and non-excludable, market failures predominate in the provision of such goods. The decentralised free market system that works through prices cannot force consumers to reveal their demand for purely non-excludable goods, and so cannot lead to producers meeting that demand. Also, given their non-rivalry, private producers cannot make the requisite profits to justify investing in such goods. Therefore, public goods may get severely under-produced without intervention by a government.

9.15 Since public goods are not adequately provided for by the markets, they must be supplied by the government. Therefore, provisioning for public goods and ensuring their supply represents one of the most important functions of a government. Access to safe drinking water, sanitation, transport, medical care, and schools is essential both as a direct component of well-being as well as inputs into productive capabilities. Besley and Ghatak (2004) argue that the rich have the option to seek private alternatives, lobby for better services, or if need be, move to different areas. The poor do not have such choices, which accentuates their deprivation when public goods are not provided for especially to the vulnerable sections of society. The presence of strong linkages between public goods provision and economic development accentuates the need

for the provision of public good at national, regional and international levels (UNIDO 2008). Governance therefore entails effective delivery of public goods and services to the vulnerable sections of society.

9.16 Despite the importance of the delivery of public goods, governments may suffer from the "horizon problem" in democracies, where the time horizon over which the benefits of public goods reach the electorate may be longer than the electoral cycles. The myopia that this creates may, therefore, lead to under-provisioning of public goods by governments. Research in political economy, for instance, shows that democratic rulers are often short-sighted due to the constant political challenge presented through electoral cycles. As a result, many democratically elected governments can focus only on short-term gains rather than commit to long-term projects (Keefer 2007 and Keefer and Vlaicu 2007). Therefore, the provision of public goods that generate long-term gains to the economy and the society represents a key aspect of governance in a democratic polity.

Box 2: The impact of health insurance coverage on health outcomes in other countries

Healthcare represents one such critical public good. Countries are increasingly adopting the policy of universal healthcare to reduce inequalities in healthcare provision which is strongly related to inequality of income (Amado 2020). Hoffman and Paradise (2008) find that in the United States, there exist strong interconnections between health insurance coverage, poverty and health. Analysing the impact of Medicaid[1] and SCHIP[2], they suggests that health insurance coverage provided by the government is vital in providing for better health care and health outcomes. Moreover, the extensive literature citing the ill effects of being uninsured in the US makes the case for the public provision of health care insurance.

Ayanian et al. (2000) posits that the likelihood of receiving basic preventive services such as breast cancer screening (64 per cent versus 89 per cent) and hypertension screening (80 per cent versus 94 per cent) was much lower for the uninsured working adults. Similarly, 40 per cent of the uninsured adults did not undergo a routine checkup in the last two years as compared to 185 of insured adults. Further studies illustrates that individuals who lack insurance coverage not only suffers on account of lack of access to care but also bear the burden in terms of worse health outcomes (Hoffman and Pradise 2008. Szilagyi et al, (2006) postulates that children from the low-income group suffering from asthma who were newly enrolled in SCHIP, underwent less number of asthma attacks, reduced rate of hospitalization and less number of visits to the emergency department in the year following the enrollment as compared to the year before enrollment.

Furthermore, access to government healthcare initiatives such as Medicaid and CHIP[3] has resulted into remarkable benefits for children and their families for example, receiving essential health services, long term benefits of better health status, greater academic development and higher future earnings[4].

[1] Medicaid (1965): a public health insurance programme in the US providing health care coverage to low-income families or individuals.
[2] The State Children's Health Insurance Program (SCHIP) (1997) is a US government scheme providing insurance coverage for children whose families earn too much to qualify for Medicaid, but cannot afford private coverage.
[3] Children's Health Insurance Program, formerly known as The State Children's Health Insurance Program (SCHIP)
[4] Center on Budget and Policy Priorities, "Medicaid Works for Children."

These programs have also been able to target racial disparities in health care, with African American and Hispanic children constituting 58 per cent[5] of the children covered under these programs. Also, the likelihood of financial insecurity, medical debt or bankruptcy is reduced if the families have access to these insurance programs (Medicaid and CHIP).[6] Therefore, medical insurance coverage under Medicaid and CHIP allowed for greater financial stability alongside improving child's educational attainment and future earnings.[7] The insurance coverage of the parents tends to be positively correlated with children's benefit as child's health is directly influenced by the health of his parents, with healthy parents leading to positive childhood developments.[8]

The adoption of Seguro Popular (Popular Public Health Insurance Program) in Mexico, enabled massive growth in insurance coverage across the country, becoming the second largest health institution by coverage in few years (Urquieta-Salomon and Villarreal 2016. This program allowed for a five times increase in the proportion of insured poor families (Frenk et al, 2006). Consequently, the proportion of Mexican population with no insurance coverage remained very low, at 18 per cent in 2015 (Doubova (2015)).

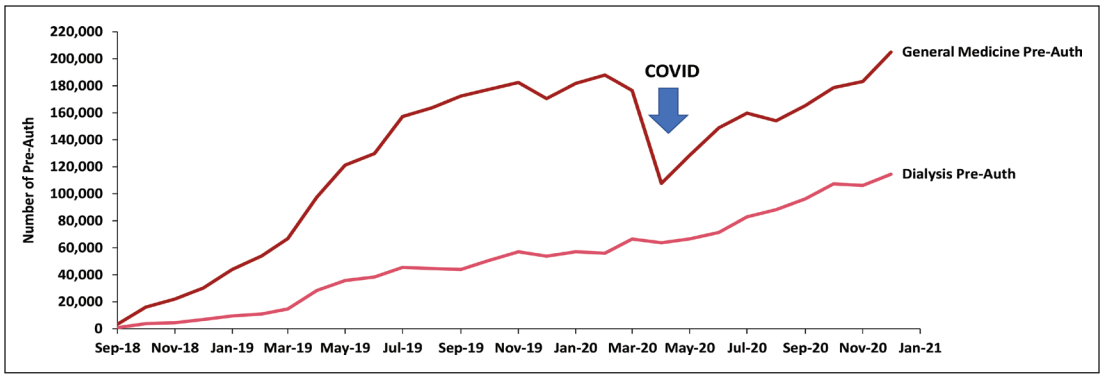
In 2001, Thailand became the first lower-middle income country to introduce universal health coverage reforms, replacing the old means-tested health care for low income households with a more comprehensive co-payment[9] insurance scheme, called the '30 Baht Project' (World Bank 2012). The 30 Baht scheme was later replaced with UHC with no co-payment While these reforms were criticised to a great extent, they proved popular among the poorer Thais, primarily in the rural areas.[10] As a result of its robust healthcare system, Thailand became the first Asian country to eliminate HIV transmission from mother to child in 2016 (CNN 2016).

PM-JAY AND COVID-19

9.17. Two key facts are worth noting. First, as we discussed before, dialysis is a common procedure availed under PM-JAY. Its use did not diminish at the onset of COVID-19 or during the lockdown (March-April 2020) even though we can observe a steep fall in claims under the overall general medicine category in the same period. This highlights the users' reliance on PM-JAY or the life-saving dialysis procedure. Thus, the critical, life-saving health procedures such as dialysis seem to have not been severely affected during the COVID-19 pandemic. Figure 3a presents the trends in the volume of pre-authorized claims starting July 2018.

[5]Center on Budget and Policy Priorities, "Medicaid Works for Children."
[6]Brooks and Whitener, "Medicaid and CHIP 101."
[7]Center on Budget and Policy Priorities, "Medicaid Works for Children," January 19, 2018, available at https://www.cbpp.org/research/health/medicaid-works-for-children
[8]Georgetown University Health Policy Institute Center for Children and Families, "Health Coverage for Parents and Caregivers Helps Children" (Washington: 2017), available at https://ccf.georgetown.edu/wp-content/uploads/2017/03/Covering-Parents-v2.pdf
[9]Co-payment mechanism was abolished in 2008
[10]The Universal Coverage Policy of Thailand: An Introduction Archived 2012-01-19 at the Wayback Machine

Figure 3a: Number of pre-authorised claims July 2018-January 2021



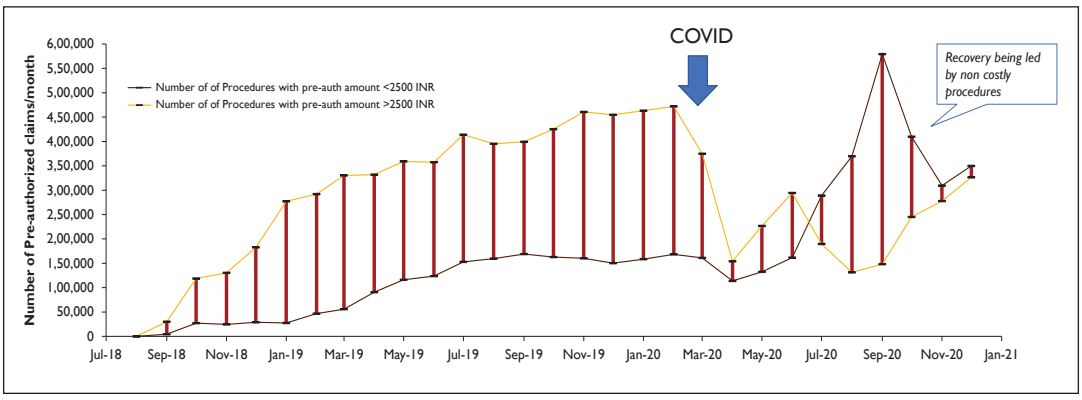
Source: NHA data secured from PMJAY. Data for January 2021 is till 13-Jan-2021.

9.18 Second, the number of dialysis claims have only been growing. This fact highlights that the National Dialysis Mission could be merged with PM-JAY.

9.19 Third, while access to medical services were classified as essential services during the lockdown, care-seeking exhibited a V-shaped behaviour during the lockdown and unlock phases with the pre-COVID-19 levels being reached in December 2020.[11] The V-shaped behaviour is likely to be due to both demand and supply side effects. On the supply side, health care workers might have cut back on services out of initial fear of infection or it is possible that pre-authorization processes were skipped. Further, many private hospitals were not providing services for fear of infection and government hospitals were reserved for COVID-19 patients. On the demand side, patients avoided hospitals due to fear of contracting the virus, or their access to medical services could have been impeded by lack of transport or finances during the lockdown. Both the demand and supply side factors seem to have since recovered completely during the unlock phase. Further, recovery in private sector hospitals in much better than the public empaneled healthcare providers (EHCP).

9.20 Next, figure 3b plots the gap between volume of pre-authorised claims which are <2500 INR and >2500 INR.

Figure 3b: Gap between volume of pre-authorised claims and the pre-authorised amount of INR 10,000



Source: NHA data secured from PMJAY

[11]PM-JAY policy brief: https://pmjay.gov.in/sites/default/files/2020-06/Policy-Brief-8_PM-JAY-under-Lock-down-Evidence_12-06-20_NHA_WB.pdf

9.21 It is interesting to note that pre-authorized volumes of claims >INR 2500 significantly exceeded the pre-authorised volumes of claims < INR 2500 before COVID-19. This gap suggests a strong preference for costly procedures and tertiary care early into the adoption cycle of PM-JAY up until the distruption caused by the COVID-19 pandemic. After the COVID-19 pandemic distruption, there is a reversal of this trend with the number of pre- authorised claims which are <2500 INR exceeding the the number of pre-authorised claims claims >2500 INR. This is indicative of an increase in the utilization of PM-JAY for non-costly procedures and PM-JAY even being used as a substitute for primary care.

PM-JAY AND HEALTH OUTCOMES: DIFFERENCE-IN-DIFFERENCE CALCULATIONS

9.22 In this section we explore whether access to the PM-JAY scheme has had any significant impact on the health outcomes. We compare the health indicators measured by National Family Health Survey-4 (NFHS 2015-16) and the National Family Health survey 5 (NFHS 2019-20) to undertake this analysis. As PM-JAY was implemented in 2018, these two surveys provide before-after data to assess the impact of PM-JAY with the NFHS-4 serving as the baseline to compare the changes using NFHS-5. To mitigate the impact of various confounding factors, including but not limited to secular improvements in health indicators across the country, we undertake this analysis by estimating a difference-in-difference. The Economic Surveys of 2018-19 and 2019-20 have discussed the econometric benefits of this technique to account for various confounding factors and thereby assess the impact of a policy change on outcomes. We refer readers to these surveys for technical details. In essence, we compute the before-after difference in outcomes for a state or group of states that implemented PM-JAY and compare the same before-after difference in a state or group of states that did not implement PM-JAY. The latter difference provides an estimate for the counter-factual: what would have been the before-after difference in outcomes for the state or group of states that implemented PM-JAY if they had not implemented PM-JAY. Thus, by comparing the former difference with the latter difference, we can reasonably attribute the difference-in-difference to be the impact of PM-JAY.

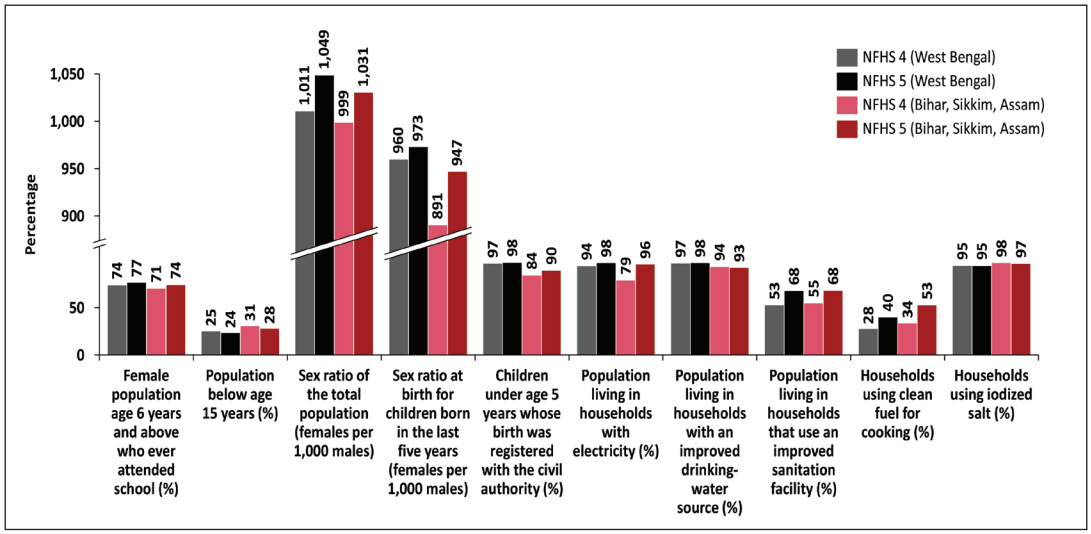
9.23 We undertake this analysis in two parts. In the first part, we use West Bengal as the state that did not implement PM-JAY and compare the before-after difference in health outcomes to its neighbouring states that have implemented PM-JAY – Bihar, Sikkim and Assam. Apart from all these states being contiguous to each other and therefore being similar on socio-economic dimensions, we show that the baseline characteristics of these two groups of states were similar.

9.24 In the second part, we repeat the same analysis for all states that did not implement PM-JAY vis-à-vis all states that implemented PM-JAY. Of course, the heterogeneity across the entire group of states in the country is large. The second analysis is less of a like-for-like comparison than the first one. Combining the findings from both these comparisons ensures that the findings are robust not only to a more localised, and therefore, more careful comparison but also to a comparison that spans all the major states in the country.

Comparing West Bengal versus its neighbours (Bihar, Sikkim, Assam)

9.25 We first compare West Bengal with its neighbours in key demographic and household characteristics across the time span of NFHS 4 and NFHS 5. Figure 4 presents this comparison.

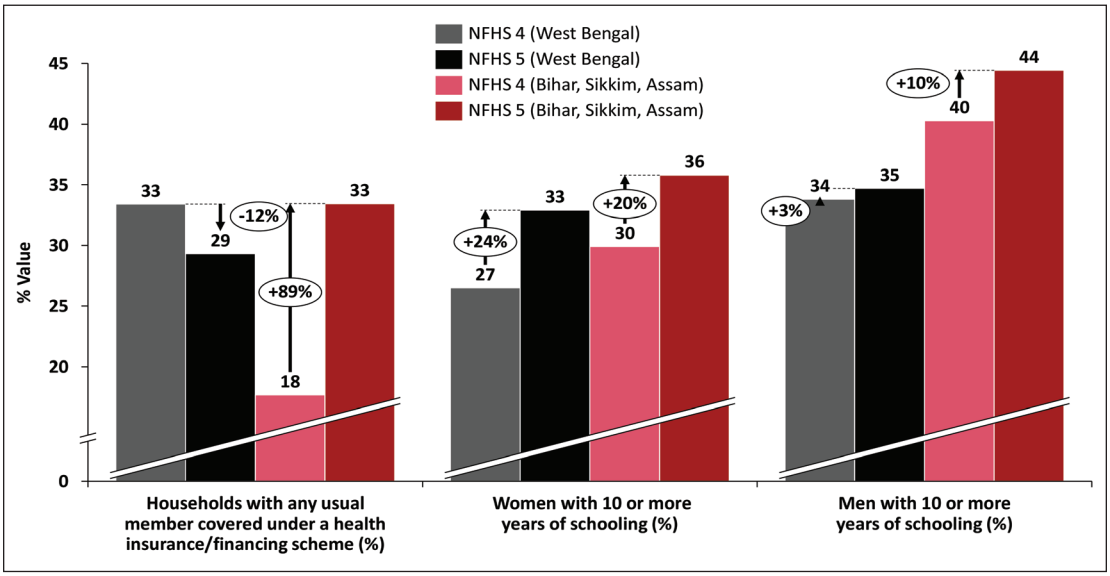
Figure 4: Population and Household trends: West Bengal versus Adjoining States (Bihar, Sikkim, Assam)



Source: National Family Health Survey (NFHS) 4 and 5

9.26 West Bengal, Bihar, Assam and Sikkim share similar demographic characteristics. The only noteworthy difference emerges in the sex ratios at birth. While both West Bengal and the neighbouring three states improved on this front, the rise was higher for the neighbours than for West Bengal. From NHFS 4 to NFHS 5, West Bengal's sex ratio at birth improved by 1.35 per cent while the corresponding improvement for the three neighbours was 6.28 per cent. Among the other characteristics, Figure 5 shows that women with 10 or more years of schooling increased in all four states with the increase in West Bengal being higher at 24 per cent than that in Bihar, Assam and Sikkim at 20 per cent. In contrast, while men with 10 or more years of schooling increased in all four states, the increase in West Bengal was lower at 3 per cent than that in Bihar, Assam and Sikkim at 10 per cent.

Figure 5: Characteristics of adults (15-49 years): West Bengal versus Adjoining States (Bihar, Sikkim, Assam)

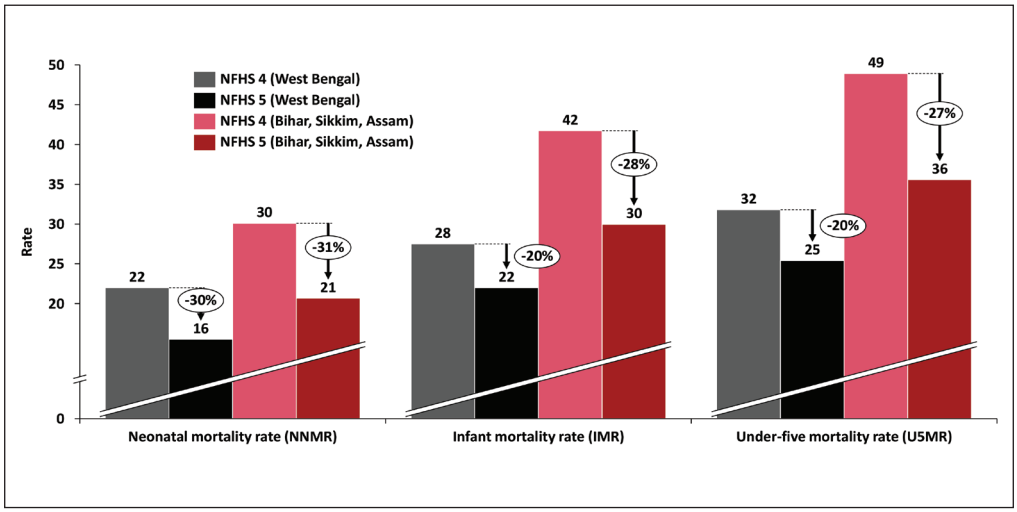


Source: National Family Health Survey (NFHS) 4 and 5

9.27 Crucially, the proportion of population that had health insurance increased from NHFS 4 to NFHS 5 in Bihar, Assam and Sikkim by 89 per cent. The corresponding change in West Bengal was -12 per cent. As the PM-JAY was launched in 2018 and NHFS 4 and NFHS 5 cover the pre- and post-PM-JAY periods respectively, the significant increase in health insurance coverage in Bihar, Assam and Sikkim can be attributed to the effect of PM-JAY.

9.28 Figure 6 compares in West Bengal with its adjoining states (Bihar, Assam and Sikkim). Important differences emerge here. While infant and child mortality declined for all states, the decline has been sharper for states that implemented PM-JAY. While infant mortality rates declined by 20 per cent for West Bengal, the decline for the three neighbours was higher at 28 per cent. Similarly, while Bengal saw a fall of 20 per cent in its Under-5 mortality rate, the neighbours witnessed a 27 per cent reduction. The reduction in neo-natal mortality rates were similar for the four states: 30 per cent for West Bengal and a marginally higher 31 per cent for the three neighbours.

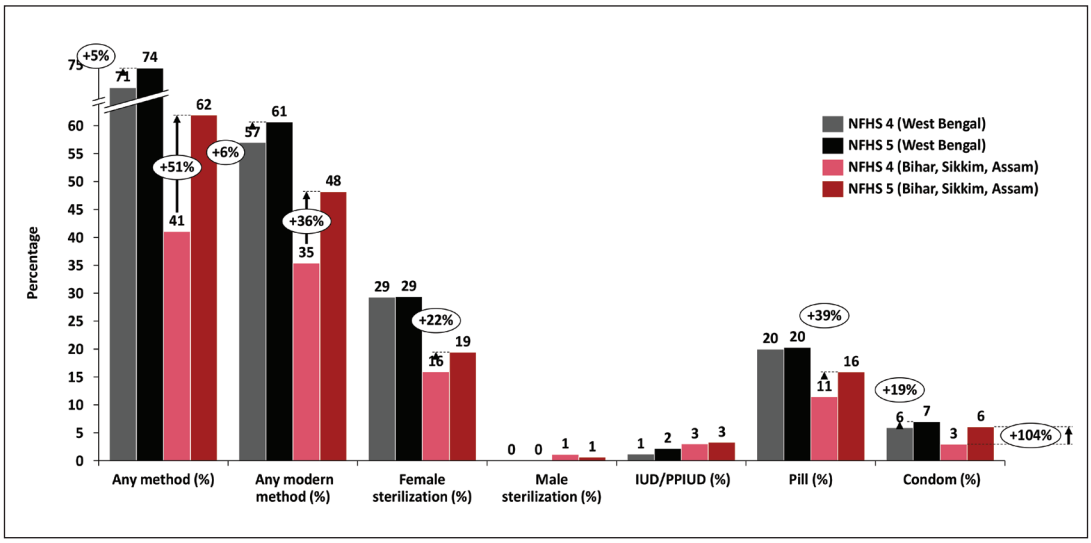
Figure 6: Infant and Child Mortality Rates (per 1,000 live births): West Bengal versus Adjoining States (Bihar, Sikkim, Assam)



Source: National Family Health Survey (NFHS) 4 and 5

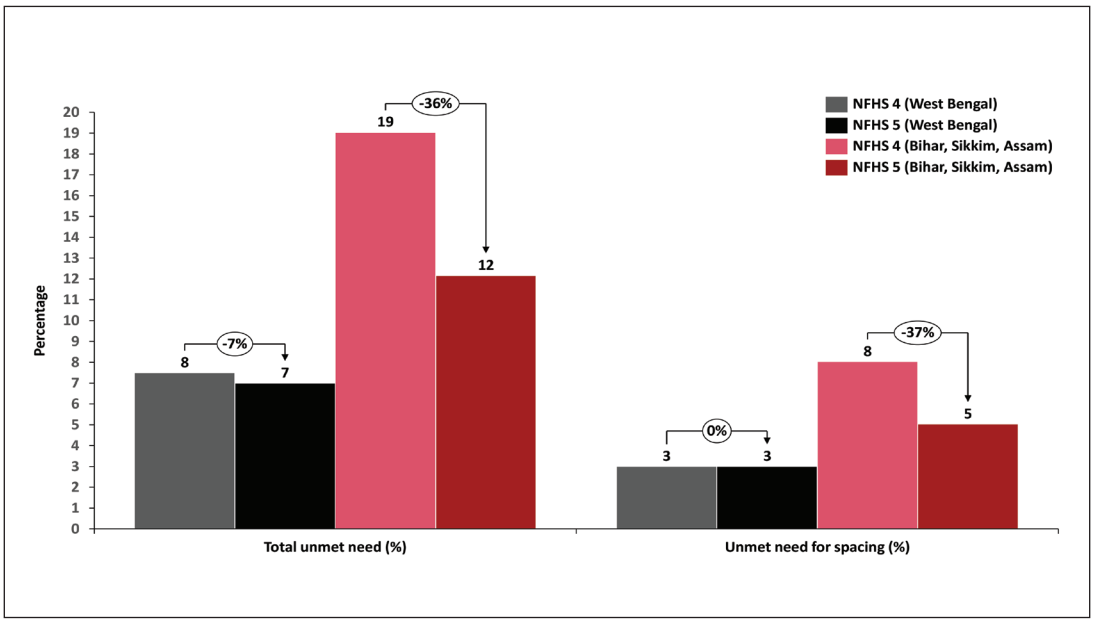
9.29 As seen in Figure 7, the use of at least one family planning method increased across all four states. However, similar to what we observed in the case of child mortality, the increase has been higher in states that have adopted PM-JAY. Modern methods of contraception went up by 36 per cent, female sterilization is up by 22 per cent, pill usage shot up by 28 per cent and condoms by 104 per cent in the 3 neighbouring states while the respective figures for West Bengal were 6 per cent, ~0 per cent, ~0 per cent and only 19 per cent.

Figure 7: Current Use of Family Planning Methods (currently married women age 15–49 years): West Bengal versus Adjoining States (Bihar, Sikkim, Assam)



Source: National Family Health Survey (NFHS) 4 and 5

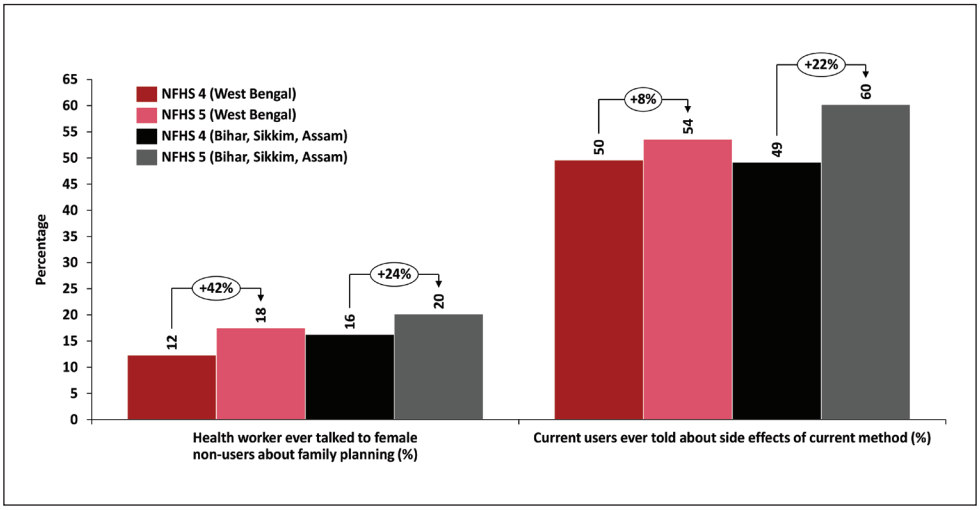
Figure 8: Unmet Need for Family Planning (currently married women age 15–49 years): West Bengal versus Adjoining States (Bihar, Sikkim, Assam)



Source: National Family Health Survey (NFHS) 4 and 5

9.30 The above findings are supported by the observations from Figure 8. The total unmet need for family planning methods shows a stark decline in states with PM-JAY when compared to West Bengal. While West Bengal did not witness any significant decline in unmet need for spacing between consecutive kids, the neighbouring three states in our analysis recorded a huge 37 per cent fall.

Figure 9: Quality of family planning services: West Bengal versus Adjoining States (Bihar, Sikkim, Assam)

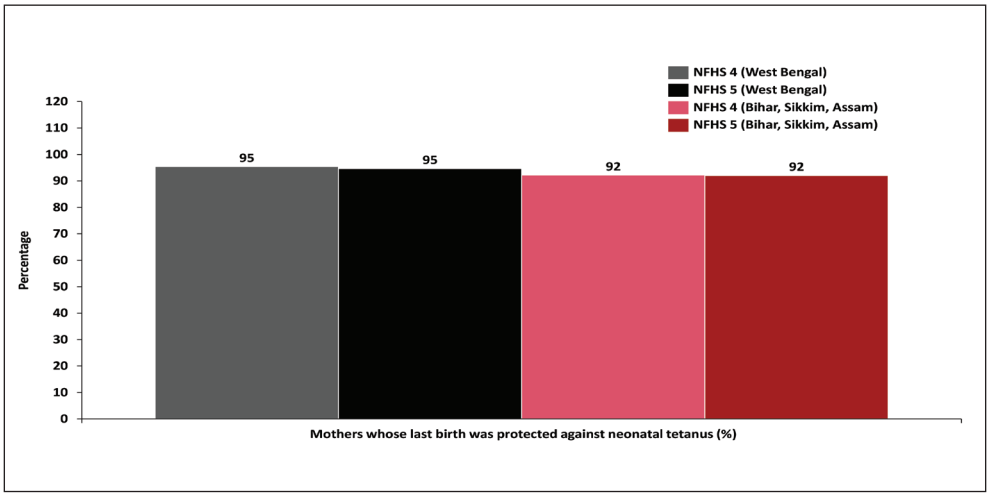


Source: National Family Health Survey (NFHS) 4 and 5

9.31 In tandem, the quality of family planning services has improved in all four states (Figure 9). Again, the impact has been felt more in states that implemented PM-JAY. The percentage who were informed by health care workers about family planning is higher in absolute terms in neighbouring states than in West Bengal though the improvement from a lower base was higher at 42 per cent in West Bengal than in the three states, where the improvement was 24 per cent. Also, the percentage of current users who were informed about side effects of the current method they were using is not only higher in neighbouring states in absolute terms post NHFS 5 but the increase of 22 per cent has been higher compared to what was observed in West Bengal of 8 per cent.

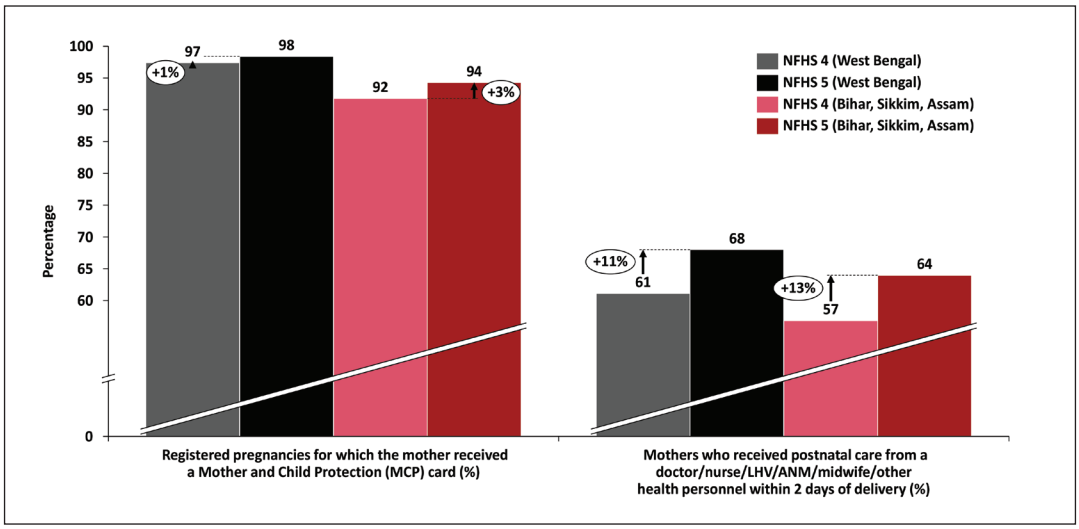
9.32 Next, we look at the difference in impacts on maternal and child health. Figure 10 shows no major improvements and differences in the four states. The high pecentage of women whose last birth was protected against neonatal tetanus in all four states is indicative of robust immunisation infrastructure.

Figure 10: Maternal and Child Health: West Bengal versus Adjoining States (Bihar, Sikkim, Assam)



Source: National Family Health Survey (NFHS) 4 and 5

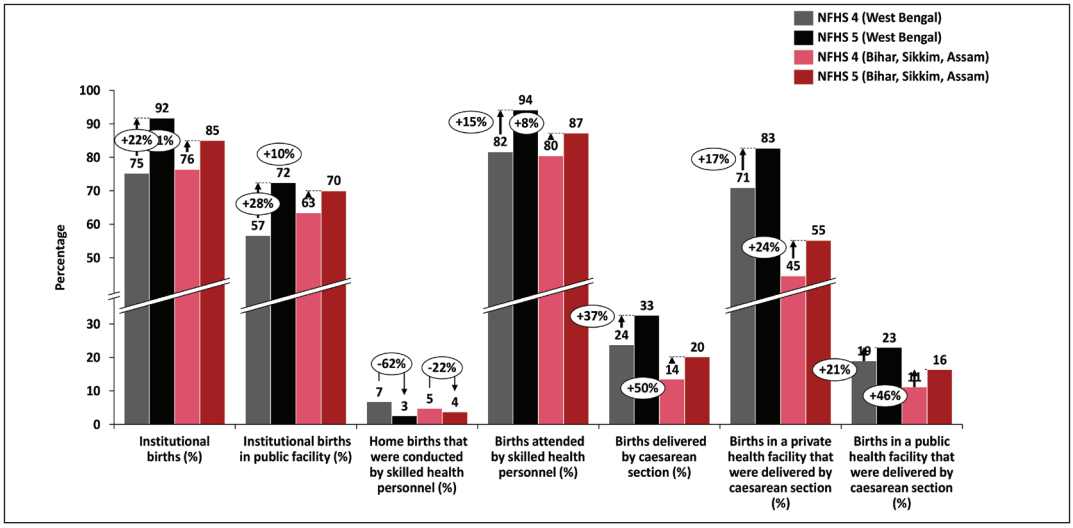
Figure 11: Maternal and Child Health



Source: National Family Health Survey (NFHS) 4 and 5

9.33 Figure 11 shows that the increase in registered pregnancies for which mother received a Mother Child Protection card was marginally higher in Bihar, Assam and Sikkim at 3 per cent when compared to West Bengal at 1 per cent. Similarly, we observe similar changes in the proportion of women who received postnatal care from health care personnel within two days of delivery in the four states. The three neighbouring states with PM-JAY witnessed slightly higher utilisation of maternal and child care services at 13 per cent when compared to West Bengal at 11 per cent.

Figure 12: Delivery Care (for births in the 5 years before the survey): West Bengal versus Adjoining States (Bihar, Sikkim, Assam)



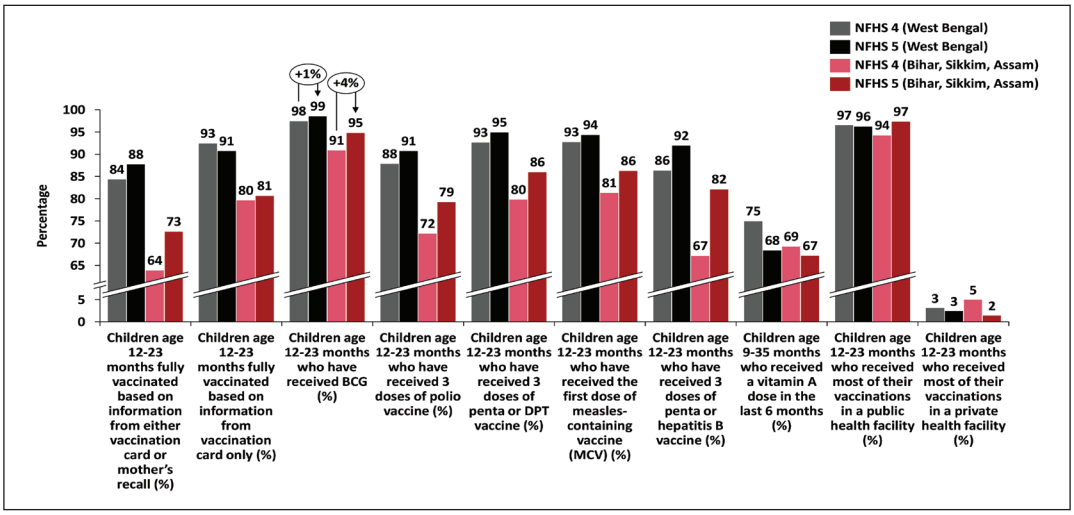
Source: National Family Health Survey (NFHS) 4 and 5

9.34 As per Figure 12, percentage of institutional births increased in all four states. However, the increase has been larger in West Bengal at 22 per cent when compared to the neighbouring states at 11 per cent. Percentage of births attended by a skilled personnel also increased more in West Bengal by 15 per cent and by 8 per cent in the three neighbouring states. While the

proportion of institutional births in a public facility went up by 28 per cent in West Bengal, the corresponding figure for the three states was 10 per cent. While share of births in a private health facility delivered via caesarean section went up for both private and public sector providers, the increase has been higher for public health facilities. This increase in public healthcare utilisation for births via caesarean section has also been higher in states with PM-JAY versus that in West Bengal. Bihar, Assam and Sikkim recorded a high 46 per cent jump from a lower base while this increase in West Bengal was 21 per cent but from a higher base. PM-JAY thus seems to have enabled citizens in these states to make greater use of the public healthcare infrastructure.

9.35 The adoption of PM-JAY in Bihar, Sikkim and Assam facilitated notable progress in health outcomes pertaining to child vaccinations and vitamin-A supplementation. Though improvement happened in all four states, the magnitude was greater in Bihar, Sikkim and Assam. For example, the proportion of children with age 12-23 months who have received BCG vaccine increased by 1 per cent in West Bengal as compared to 4 per cent increase in adjoining states; the proportion of children with age 12-23 months who have received three doses of penta or hepatitis B vaccine increased by 5 per cent in West Bengal in comparison to 19 per cent increase in the adjoining states. The only indicator which worsened was the proportion of children in the age group of 9-35 months who received a vitamin-A dose in the last six months, though the decline was sharper in West Bengal (-6 per cent) vis-à-vis the adjoining states (-2 per cent) (Figure 13).

Figure 13: Child Vaccinations and Vitamin A Supplementation: West Bengal versus Adjoining States (Bihar, Sikkim, Assam)

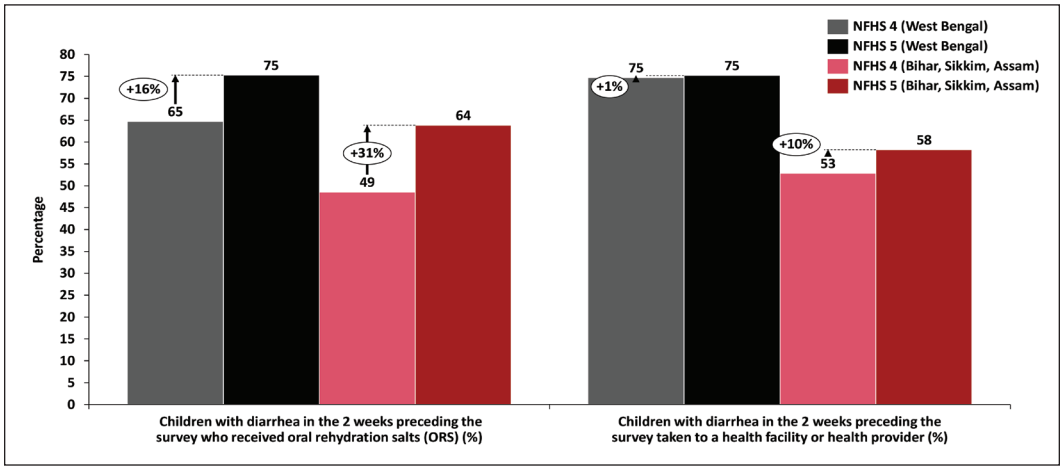


Source: National Family Health Survey (NFHS) 4 and 5

9.36 The data for the treatment of childhood diseases for children under the age of 5 years suggest improvement in all four states irrespective of the adoption of PM-JAY. However, the adjoining states (Bihar, Sikkim, Assam) registered greater improvements in comparison to West Bengal. While the proportion of children with diarrhea in the 2 weeks preceding the survey who received oral rehydration salts (ORS) increased by 16 per cent in West Bengal, it increased by 31 per cent in the adjoining states, an increase of almost double magnitude. Similarly, the proportion of children with diarrhea in the 2 weeks preceding the survey taken to a health

facility or health provider showed negligible improvement in West Bengal, with an increase of 10 per cent in the adjoining states (Figure 14).

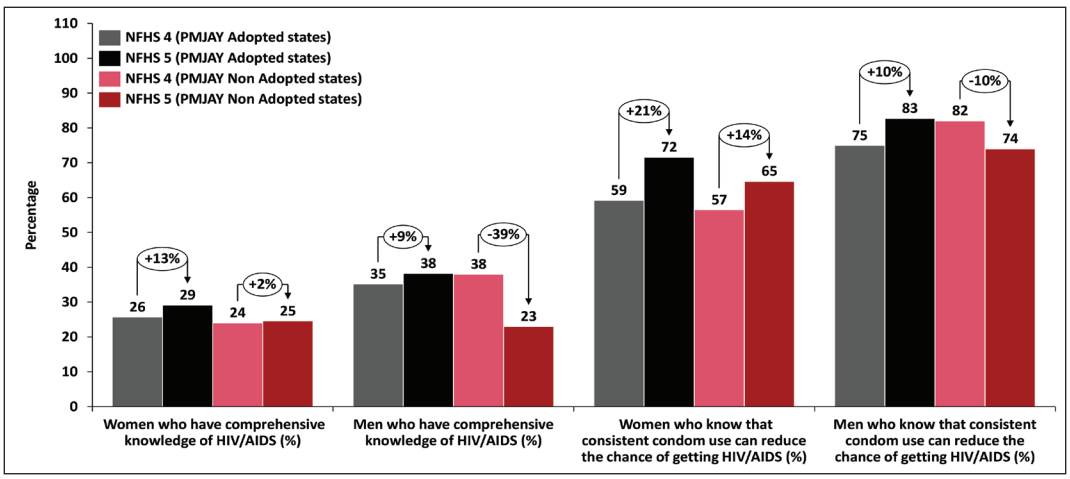
Figure 14: Treatment of Childhood Diseases (children under age 5 years) : West Bengal versus Adjoining States (Bihar, Sikkim, Assam)



Source: National Family Health Survey (NFHS) 4 and 5

9.37 Analysing the implications of the adoption of PM-JAY on the spread of knowledge and awareness about HIV/AIDS, we find that while the proportion of women who have comprehensive knowledge of HIV/AIDS increased significantly in the three states which adopted PM-JAY (Bihar, Sikkim, Assam), the proportion declined by 1 per cent in West Bengal, which did not adopt PM-JAY. The same indicator for men recorded a decline in all four states, though the decline was much sharper in West Bengal (-40 per cent) as compared to other three states (-19 per cent) (Bihar, Sikkim, Assam). The differences amongst the states are even sharper if we consider the proportion of men and women who know that consistent condom use can reduce the chance of getting HIV/AIDS. For example, in West Bengal the proportion of women increased moderately by 12 per cent as compared to the sharp increase of 43 per cent in the three adjoining states. The similar figures for men indicate a decline of 12 per cent in West Bengal in contrast to a rise of 18 per cent in Bihar, Sikkim and Assam (Figure 15).

Figure 15: Knowledge of HIV/AIDS among Adults (age 15-49 years): West Bengal versus Adjoining States (Bihar, Sikkim, Assam)



Source: National Family Health Survey (NFHS) 4 and 5

9.38 On comparing health outcomes in West Bengal, which did not adopt PM-JAY with outcomes in the three neighbouring states – Bihar, Sikkim and Assam – some important differences emerge. Although the four states are not very different in terms of their demographics and household characteristics, the difference in improvements of certain maternal and child related health outcomes has been higher in states with PM-JAY. This can be attributed to the impact of PM-JAY which was implemented in 2018. People with some health insurance jumped by 89 per cent from 2015-16 to 2019-20 in the neighbouring states while this proportion declined by 1 per cent in West Bengal in the same period. Infant mortality rate and under-5 mortality rates witnessed sharper declines in the neighbouring states that implemented PM-JAY than in West Bengal that did not implement it. Positive developments on the usage of family planning methods used were also higher for these states. Unmet needs of family planning services declined sharply in Bihar, Assam and Sikkim indicating effective delivery of primary care under PM-JAY.

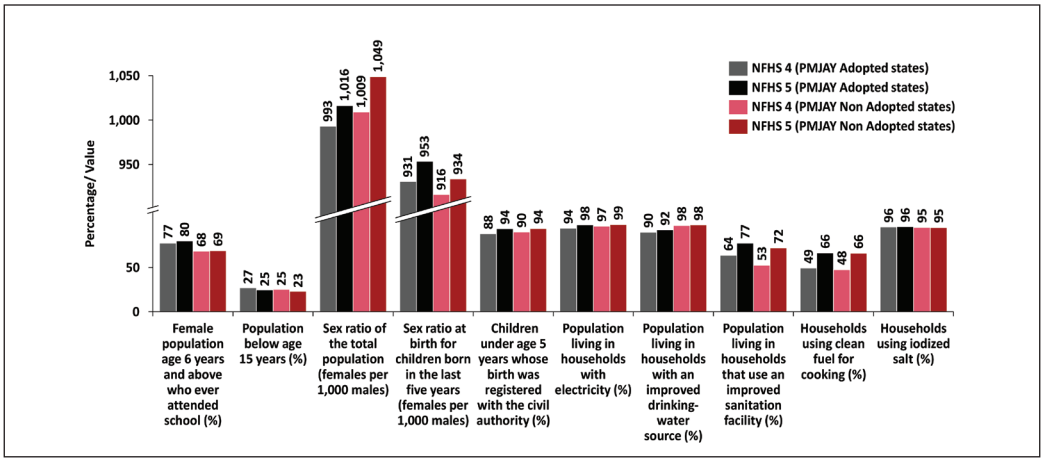
9.39 Differences were also observed in delivery of healthcare services. While the share of population who were made aware about family planning options and side effects increased in all four states, the improvements were higher for the three states under PM-JAY. Utilisation of public health care infrastructure for caesarean deliveries was also higher in these states indicating a higher section of population that now accessed these services. These three states also witnessed significantly higher improvements in child vaccination and vitamin supplementation, treatment of childhood diseases like diarrhoea, as well as awareness about HIV/AIDS especially among female adults. We thus infer than PM-JAY is likely to have led to greater health awareness, better delivery of healthcare services and improved maternal and child care outcomes.

Comparing all States that adopted PM-JAY versus those that did not

9.40 Having examined the impact of the PM-JAY on the health outcomes across the geographically adjacent states in the last section we now undertake this comparison for all states by distinguishing between those states that implemented PM-JAY versus those that did not.

9.41 An analysis of the population and household profiles across NFHS 4 and NFHS 5 suggests that the improvement in the various characteristics were similar in the states that implemented PM-JAY vis-à-vis states that did not (Figure 16).

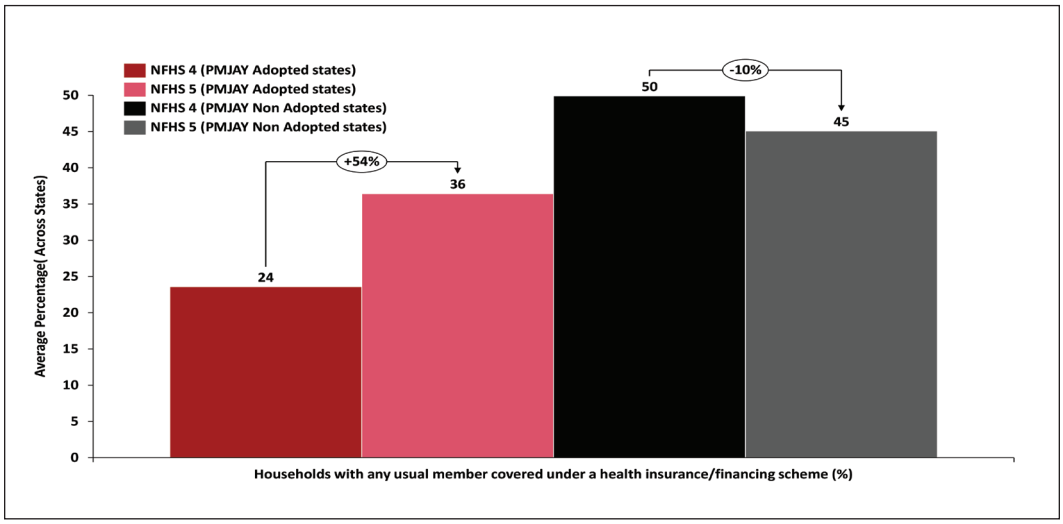
Figure 16: Population and Household Profile: All States



Source: National Family Health Survey (NFHS) 4 and 5

9.42 Crucially, while the proportion of households with any usual member covered under health insurance or financing scheme increased by 54 per cent from NFHS 4 to NFHS 5 in the states that adopted PM-JAY, it decreased by 10 per cent in the states that did not adopt PM-JAY, reflecting the success of PM-JAY in enhancing health insurance coverage (Figure 17).

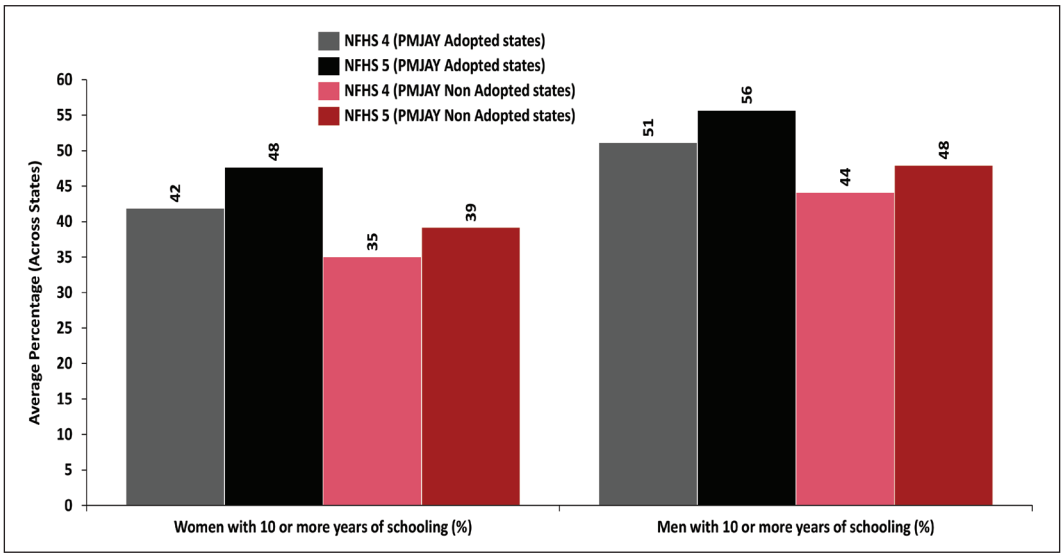
Figure 17: Households with any usual member covered under a health insurance/financing scheme (per cent): All States



Source: National Family Health Survey (NFHS) 4 and 5

9.43 Among the characteristics of adults, the average proportion of both women and men with 10 or more years of schooling improved similarly across the two groups of states (Figure 18).

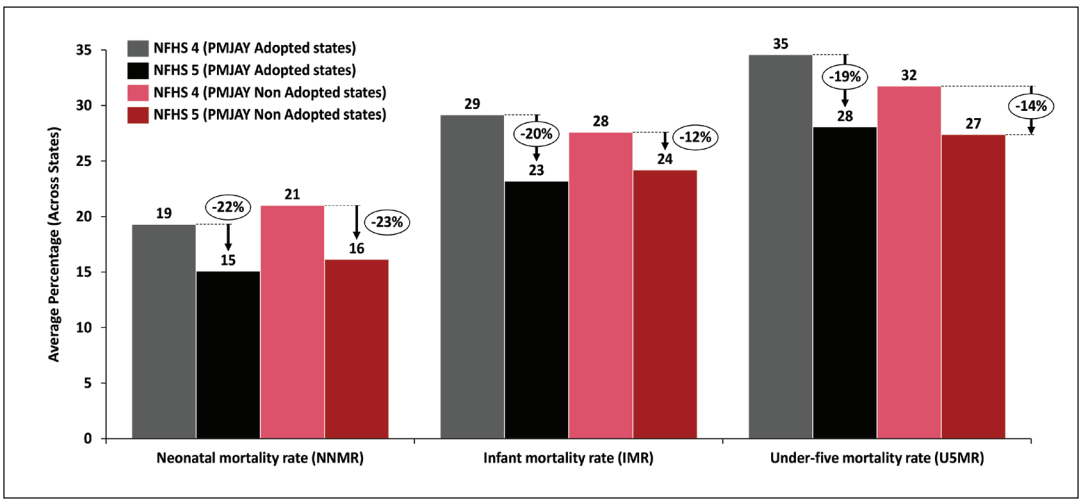
Figure 18: Characteristics of Adults (age 15-49 years): All States



Source: National Family Health Survey (NFHS) 4 and 5

9.44 PM-JAY has helped the Indian states in achieving reduced infant and child mortality rates (Figure 19). Neonatal mortality rate (NNMR) declined by 22 per cent in the states that adopted PM-JAY in comparison to a 16 per cent decline in states that did not adopt PM-JAY, an increment of 6 per cent for states that adopted PM-JAY versus those that did not. Similarly, the reduction in Infant mortality rate (IMR) was 20 per cent vis-à-vis 12 per cent in PM-JAY and non-PM-JAY states respectively, an increment of 8 per cent for states that adopted PM-JAY versus those that did not. While the Under-five mortality rate (U5MR) recorded a decline of 19 per cent in PM-JAY states, it reduced by 14 per cent in the non-PM-JAY states, an increment of 5 per cent for states that adopted PM-JAY versus those that did not.

Figure 19: Infant and Child Mortality Rates (per 1,000 live births): All States

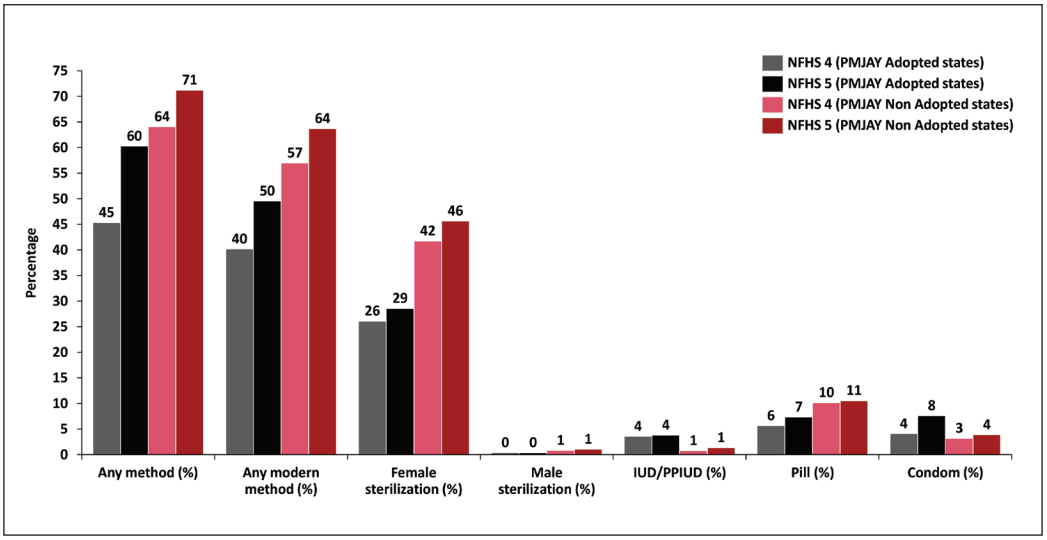


Source: National Family Health Survey (NFHS) 4 and 5

9.45 The data on the use of distinct family planning measures represents that PM-JAY has enabled an increased access to family planning in the Indian states. While the proportion of people ensuring family planning rose across all the states between the two surveys, the increase is much more significant in the states that adopted PM-JAY indicating its effectiveness. For example; the proportion of people currently using any method of family planning rose by 15 per cent in the PM-JAY adopted states and only by 7 per cent (less than half) in the other states (Figure 20).

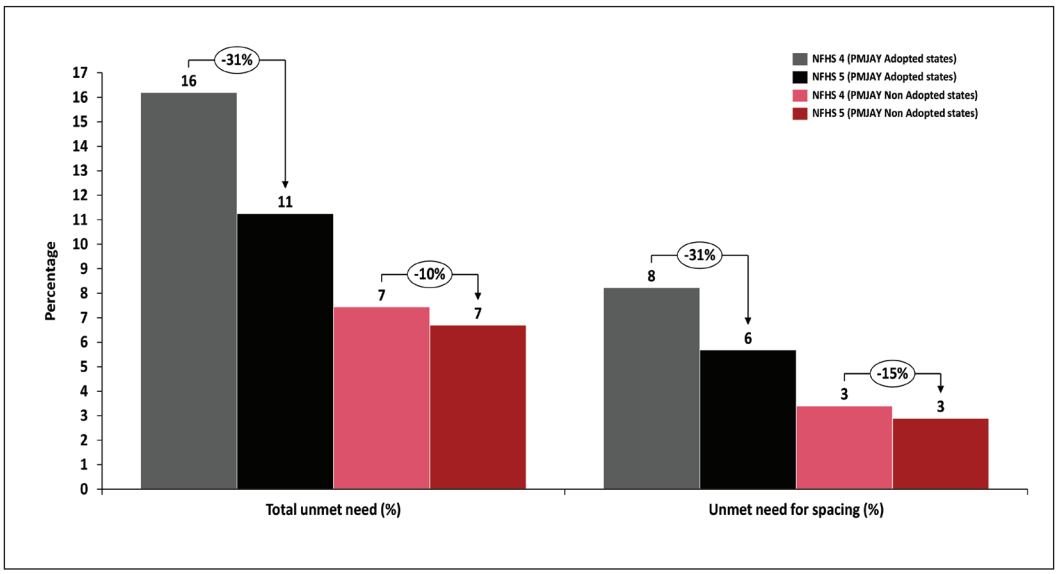
9.46 Further, the PM-JAY has warranted a notable reduction in the unmet need of family planning for the currently married women in the age group of 15-49 years. While the proportion of women with total unmet family planning needs i.e. the proportion of women who are fertile and desire to either terminate or postpone childbearing, but are not currently using any method of contraception decreased by 31 per cent in the PM-JAY states, the decline in the non-PM-JAY states was merely 10 per cent. Similarly, the proportion of women with unmet need for spacing i.e. women who wish to postpone their next birth by a specified length of time, reduced by 31 per cent in the PM-JAY states and by only 15 per cent in the non-PM-JAY states (Figure 21).

Figure 20: Current Use of Family Planning Methods (currently married women age 15–49 years): All States



Source: National Family Health Survey (NFHS) 4 and 5

Figure 21: Unmet Need for Family Planning (currently married women age 15–49 years): All States

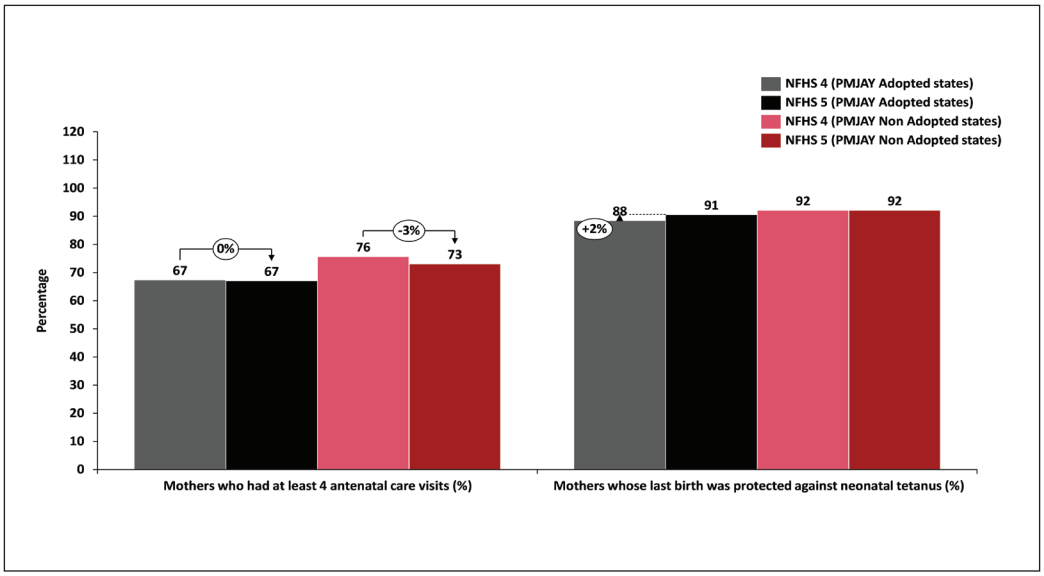


Source: National Family Health Survey (NFHS) 4 and 5

9.47 As far as the impact of the PM-JAY on maternal and child health is concerned, the benefits vary significantly across distinct indicators. While the proportion of mothers who had at least four antenatal care visits (per cent) remained constant between the NFHS surveys in the states which adopted PM-JAY, the proportion declined by 3 per cent among the non-PM-JAY states, suggesting non-effectiveness of the scheme. Also, the proportion of mothers whose last birth was protected against neonatal tetanus increased by two per cent in the PM-JAY states while remaining constant in the non-PM-JAY states between the two surveys (Figure 22a). On the contrary, the proportion of women with registered pregnancies for which they received a Mother and Child Protection (MCP) card registered an increase of 7 per cent in the PM-JAY states in comparison to 5 per cent

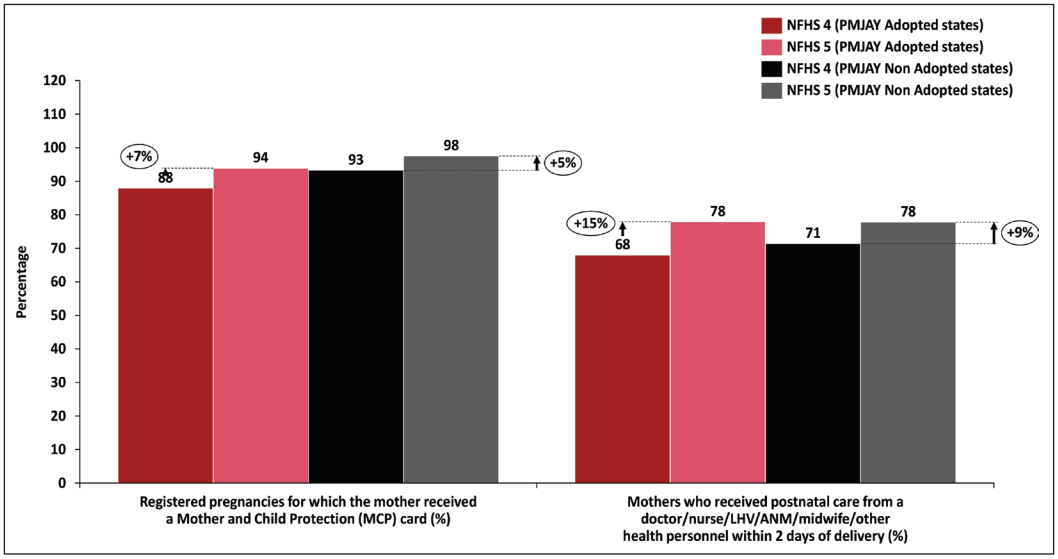
in the non-PM-JAY states. The percentage of mothers who received post-natal care within two days of delivery increased by 15 per cent in the PM-JAY states vis-à-vis an increase of only 9 per cent in the non-PM-JAY states, reflecting the positive impact of the PM-JAY on maternal health (Figure 22b).

Figure 22a: Maternal and Child Health: All States



Source: National Family Health Survey (NFHS) 4 and 5

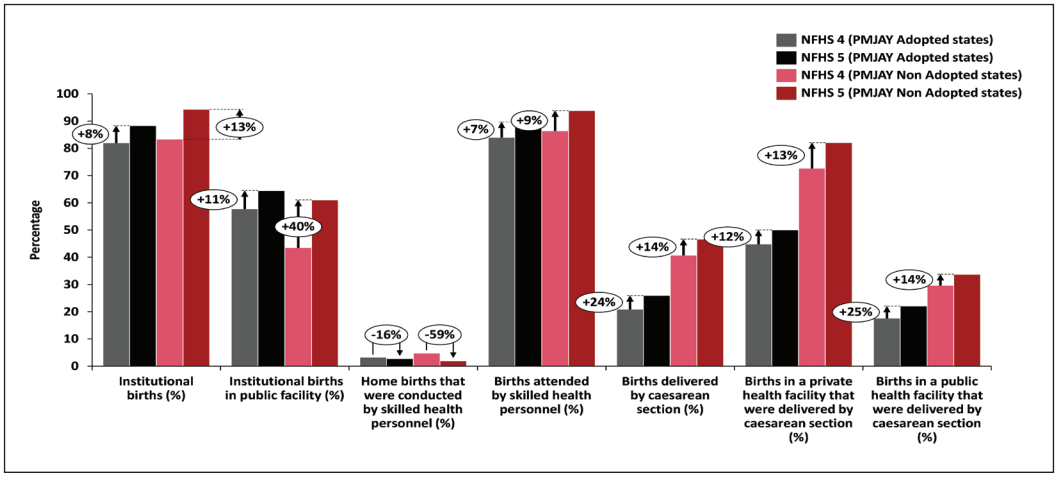
Figure 22b: Maternal and Child Health: All States



Source: National Family Health Survey (NFHS) 4 and 5

9.48 Considering the delivery care for births in the five years before the survey, we find that the PM-JAY has not been much fruitful. The improvement in the delivery care indicators, e.g. institutional births, institutional births in public facility, and home births are much higher in the states which did not adopt the PM-JAY. While there has been an overall increase in the caesarean deliveries, the percentage rise is higher among the PM-JAY states as compared to the non-PM-JAY states, barring caesarean deliveries in private health facilities (Figure 23).

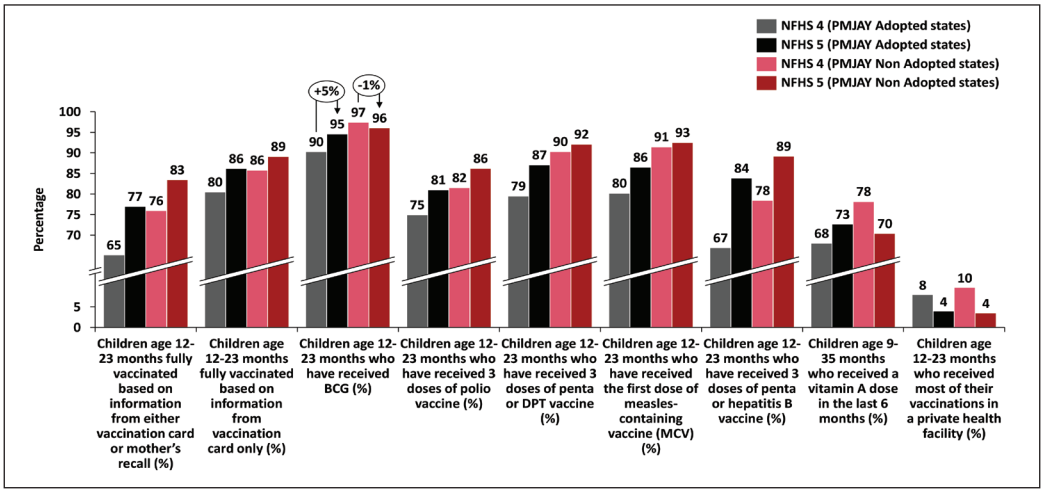
Figure 23: Delivery Care (for births in the 5 years before the survey): All States



Source: National Family Health Survey (NFHS) 4 and 5

9.49 Health outcomes pertaining to the vaccination of the child and vitamin-A supplementation improved remarkably in the states which adopted the PM-JAY as compared to the states which did not adopt the PM-JAY. For example: proportion of children in the age group of 12-23 months who have received BCG increased by 5 per cent in the PM-JAY states as compared to a decline of 1 per cent in the non-PM-JAY states. Similarly, proportion of children belonging to the age group of 9-35 months who received a vitamin A dose in the last six months increased by 5 per cent in the PM-JAY states in comparison to a reduction of 8 per cent in the non-PM-JAY states (Figure 24).

Figure 24: Child Vaccinations and Vitamin-A Supplementation: All States

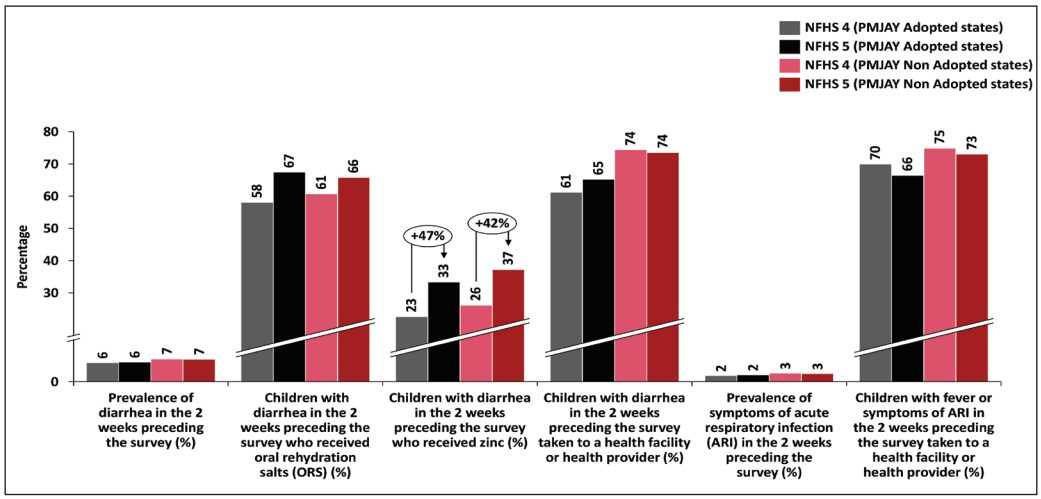


Source: National Family Health Survey (NFHS) 4 and 5

9.50 Even though minor, the PM-JAY also allowed for an improved treatment of the childhood diseases among the children under the age of 5 years. The proportion of children with diarrhea in the two weeks preceding the survey who received oral rehydration salts (ORS) increased by 9 per cent between the surveys in the PM-JAY states as compared to a 5 per cent increase in the non-PM-JAY states. The proportion of children in the same category which received zinc increased by 47 per cent and 42 per cent respectively. While the proportion of children taken to

health facility or health provider for improved (4 per cent) in case of diarrhea in the PM-JAY states, it remained constant in the non-PM-JAY states. However, the same indicator for illness like fever or ARI symptoms recorded a decline of 4 per cent in the PM-JAY states as compared to a fall of 2 per cent in the non-PM-JAY states (Figure 25).

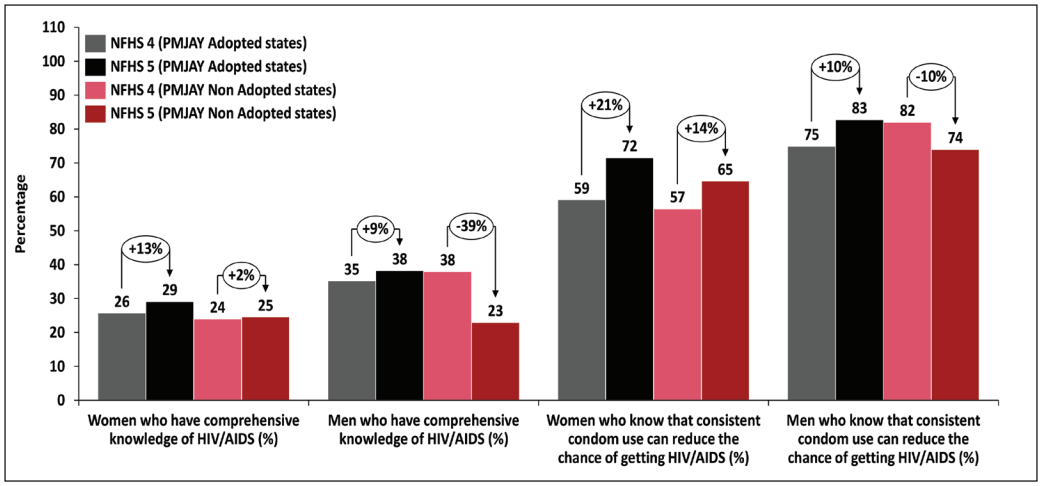
Figure 25: Treatment of Childhood Diseases (children under age 5 years): All States



Source: National Family Health Survey (NFHS) 4 and 5

9.51 PM-JAY has not only been successful in improving health outcomes across states, but has also accounted for the increase in the spread of knowledge and awareness regarding important health concerns like HIV/AIDS. The percentage of women who have comprehensive knowledge of HIV/AIDS (per cent) increased remarkably by 13 per cent in the PM-JAY states, vis-à-vis an increase of mere 2 per cent in the non-PM-JAY states. The difference in respective figures for men is even starker, at 9 per cent increase in the PM-JAY states and a decrease of 39 per cent in the non-PM-JAY states. Likewise, the percentage of women who know that consistent condom use can reduce the chance of getting HIV/AIDS increased by 21 per cent in the PM-JAY states as compared to 14 per cent in the no-PM-JAY states. The same indicator for men suggests an increase of 10 per cent in the PM-JAY states as opposed to a sharp decline of 10 per cent in the non-PM-JAY states (Figure 26).

Figure 26: Knowledge of HIV/AIDS among Adults (age 15-49 years): All States



Source: National Family Health Survey (NFHS) 4 and 5

CONCLUDING OBSERVATIONS

9.52 The health outcomes of the states that adopted PM-JAY improved when compared to the states that did not adopt it. Using difference-in-difference computations that control for confounding factors, this chapter shows that states adopting PM-JAY are able to improve their health outcomes. Relative to states that did not implement PM-JAY, states that adopted it experienced greater penetration of health insurance, experienced a reduction in infant and child mortality rates, realized improved access and utilization of family planning services, and greater awareness about HIV/AIDS. While some of these effects stemmed directly from enhanced care enabled by insurance coverage, others represent spillover effects due to the same. Even though only a short time has elapsed since its introduction, the effects that are identified by the Survey underscores the potential of the program to significantly alter the health landscape in the country, especially for the vulnerable sections.

CHAPTER AT A GLANCE

- This chapter demonstrates strong positive effects on healthcare outcomes of the Pradhan Mantri Jan Arogya Yojana (PM-JAY) – the ambitious program launched by Government of India in 2018 to provide healthcare access to the most vulnerable sections. This is despite the short time since the introduction of the program.
- PM-JAY is being used significantly for high frequency, low cost care such as dialysis and continued to be utilised without disruption even during the Covid pandemic and the lockdown. General medicine – the overwhelmingly major clinical specialty accounting for over half the claims - exhibited a V-shaped recovery after falling during the lockdown and reached pre-COVID-19 levels in December 2020.
- The final – but the most crucial – analysis in the chapter attempts to estimate the impact of PM-JAY on health outcomes by undertaking a difference-in-difference analysis. As PM-JAY was implemented in 2018, health indicators measured by National Family Health Surveys 4 (in 2015-16) and 5 (in 2019-20) provide before-after data to assess this impact. To mitigate the impact of various confounding factors that may be contemporaneously correlated with the adoption of PM-JAY, we compute a difference-in-difference by comparing states that implemented PM-JAY versus those that did not. We undertake this analysis in two parts. First, we use West Bengal as the state that did not implement PM-JAY and compare its neighbouring states that implemented PM-JAY – Bihar, Sikkim and Assam. Second, we repeat the same analysis for all states that did not implement PM-JAY vis-à-vis all states that did.

- PM-JAY enhanced health insurance coverage. The proportion of households that had health insurance increased in Bihar, Assam and Sikkim from 2015-16 to 2019-20 by 89 per cent while it decreased by 12 per cent over the same period in West Bengal. Across all the states, the proportion of households with health insurance increased by 54 per cent for the states that implemented PM-JAY while falling by 10 per cent in states that did not.

- From 2015-16 to 2019-20, infant mortality rates declined by 12 per cent for states that did not adopt PM-JAY and by 20 per cent for the states that adopted it. Similarly, while states that did not adopt PM-JAY saw a fall of 14 per cent in its Under-5 mortality rate, the states that adopted it witnessed a 19 per cent reduction. While states that did not adopt PM-JAY witness 15 per cent decline in unmet need for spacing between consecutive kids, the states that adopted it recorded a 31 per cent fall. Various metrics for mother and child care improved more in the states that adopted PM-JAY as compared to those who did not. Each of these health effects manifested similarly when we compare Bihar, Assam and Sikkim that implemented PM-JAY versus West Bengal that did not. While some of these effects stemmed directly from enhanced care enabled by insurance coverage, others represent spillover effects due to the same. Overall, the comparison reflects significant improvements in several health outcomes in states that implemented PM-JAY versus those that did not. As the difference-in-difference analysis controls for confounding factors, the Survey infers that PM-JAY has a positive impact on health outcomes.

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