

Pattern and Trend of Out-of-Pocket Health Expenditure in Kamrup (Metro) District, Assam: An Analytical Study from 2000–2025

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ABSTRACT

Out-of-pocket (OOP) health expenditure remains an important component of healthcare financing and has significant implications for household financial security, particularly in developing economies. This study examines the pattern and trend of OOP health expenditure in Kamrup (Metro) District of Assam during the period 2000–2025, with particular emphasis on changes in expenditure levels, its share in total health expenditure, per capita OOP expenditure, growth patterns and household financial burden. The study is based entirely on secondary data obtained from National Health Accounts, National Sample Survey and National Statistical Office publications, Government of Assam reports, Ministry of Health and Family Welfare, and other relevant national and international sources. Descriptive and analytical techniques, including year-wise analysis, percentage analysis, trend analysis, per capita analysis, growth rates, Compound Annual Growth Rate (CAGR), ratio analysis and comparative analysis, are employed. The findings indicate that OOP health expenditure has experienced considerable variation over time, while its relative share in total health expenditure has declined substantially at the state level. The analysis also highlights comparatively higher household healthcare expenditure in Kamrup (Metro) and the continuing importance of financial protection against healthcare costs. The study emphasizes the need for strengthening affordable public healthcare services and reducing excessive dependence on direct household payments.

Keywords: Out-of-Pocket Health Expenditure; Healthcare Financing; Household Financial Burden; Kamrup (Metro); Assam

Objectives of the Study:

The present paper has been prepared with the following objectives:

1. To examine the pattern and trend of out-of-pocket (OOP) health expenditure in Kamrup (Metro) District during the period 2000–2025.
2. To analyse the changing share and magnitude of OOP health expenditure in relation to overall healthcare expenditure.
3. To examine changes in per capita OOP health expenditure and its long-term growth pattern.
4. To assess the financial implications of OOP health expenditure for households and healthcare financing.
5. To discuss the policy implications of the observed OOP expenditure pattern for improving financial protection and equitable healthcare access in Kamrup (Metro) District.

1. Introduction:

Out-of-pocket health spending means money paid by households when care is received. It is paid directly, with no payback from an outside insurer. There is also no earlier shared fund that covers the bill. In the SHA 2011 system for health accounts, this spending is treated as what households spend on care. It can cover doctor and clinic services. It can also include buying medicines. Some payments cover tests and scans. Hospital stays are also included. Other related items for care may be counted too. When money is not saved in advance and not pooled, people pay at the time they get services. This links using care with what a household can afford right then. The World Health Organization calls out-of-pocket spending as a key sign to study financial safety in a health system. If too many costs fall on families directly, hardship risk can rise. This is especially true when health needs come up suddenly or are costly (World Health Organization [WHO], 2021, 2026). Thus, examining OOP health expenditure is essential for understanding both the financing structure of healthcare and the financial risks associated with seeking medical care.

OOP expenditure constitutes an important component of household healthcare financing, particularly in health systems where prepaid and pooled financing mechanisms do not adequately cover the cost of treatment. Households may incur direct payments for consultation, medicines, diagnostic investigations, hospitalization, transportation and other healthcare requirements. The size of these costs' changes based on several things. These include how sick a person is and what kind of illness it is. It also depends on which healthcare provider someone chooses. How many public facilities are available matters too. Health insurance coverage plays a role. Household income and ability to pay also affect the final amount. The National Health Accounts view out of

pocket spending as a key part of overall health costs. They say it is important because it shows the money households pay directly for care. In India, household spending has long been a big part of how healthcare is funded. Still, in the last few years, the portion coming from households has gone down. The persistence of OOP payments therefore remains closely connected with the adequacy of public healthcare financing, insurance coverage and other mechanisms of financial risk protection (Ministry of Health and Family Welfare [MoHFW], 2023; WHO, 2026).

The study of OOP health expenditure is important because the level and composition of direct household payments provide valuable information about the financial protection offered by a healthcare system. OOP expenditure is not merely an indicator of household spending; it also provides insight into the affordability, accessibility and equity of healthcare services. A sustained dependence on direct payments may indicate inadequate pooling of healthcare risks and may create barriers to healthcare utilization among economically vulnerable households. WHO considers financial protection to be a central component of Universal Health Coverage (UHC), since individuals should be able to obtain necessary healthcare without experiencing financial hardship. Monitoring OOP expenditure also assists policymakers in evaluating the effectiveness of health insurance programmes, public healthcare investment and other financial protection measures. Consequently, examining the pattern and trend of OOP expenditure is particularly relevant for understanding whether changes in healthcare financing are contributing toward greater financial security for households (WHO, 2021, 2025).

OOP health expenditure can become a significant financial burden when healthcare payments consume a substantial proportion of household resources. The burden may be particularly severe when treatment involves hospitalization, chronic illness, repeated medical consultations, expensive medicines or specialized diagnostic procedures. High OOP expenditure can force households to reduce spending on food, education and other essential goods, draw upon savings, borrow money or sell assets to meet healthcare costs. Such expenditure may also result in delayed or forgone healthcare when households are unable to afford treatment. WHO's framework for financial protection recognizes catastrophic and impoverishing health spending as important consequences of excessive OOP payments. Catastrophic health spending occurs when healthcare payments exceed a defined proportion of a household's capacity to pay, while impoverishing expenditure may push households below the poverty threshold or deepen existing poverty. Therefore, the analysis of OOP expenditure is closely associated with the broader question of household economic security and social welfare (WHO & World Bank, 2021).

Even with more government money, social health insurance, and other prepaid plans, out-of-pocket spending still matters for health funding around the world. The WHO Global Health Expenditure Database brings together health spending figures that can be compared across countries. It covers more than 190 nations and starts in 2000, so it can be used to look at shifts

over time in how health care is paid for. Global evidence indicates that heavy reliance on OOP payments continues to create financial protection challenges, particularly in low- and middle-income countries. Although financial hardship associated with OOP health spending has declined globally, substantial numbers of people continue to experience financial difficulties because of direct healthcare payments. WHO reports that in 2022, about 2.1 billion people faced financial strain linked to health spending. At the same time, around 1.6 billion people were put into poverty, or moved deeper into poverty, because of direct health costs. These results suggest that cutting very high out-of-pocket payments is still a key part of reaching UHC and fair health financing (WHO, 2024, 2025).

India has depended for years on what households pay directly for health care. Still, the pattern is not the same as before. New National Health Accounts data says the share paid out of pocket has dropped. In 2017, out-of-pocket spending was 48.8 percent of total health spending. By 2021, it was 39.4 percent. That change suggests public money for health care has grown. It also hints that social security programs may be helping more people. The figures for 2022 to 2023 bring in extra detail. The out-of-pocket share is now 43.4 percent. This is lower than the benchmark the Ministry of Health and Family Welfare had used. At the same time, government spending on health care increased a lot as a part of the total. Despite this progress, household direct payments continue to constitute a major component of healthcare financing in India. The NSS 75th Round on Health in India also demonstrated substantial differences in medical expenditure according to the type of healthcare provider, with private hospitalization generally involving considerably higher expenditure than treatment in public facilities. These patterns underline the continuing importance of examining OOP expenditure in the Indian healthcare system (MoHFW, 2021, 2024; Ministry of Statistics and Programme Implementation [MoSPI], 2019).

Assam shows the same kind of problems India faces with paying for care at home. At the same time, the state has its own features. A National Health Accounts estimate for Assam puts household out of pocket spending at around ₹3,494 crore in 2019 to 2020. That figure is 34.69 percent of all health spending in the state. It also works out to about ₹998 per person. In that same year, the government paid for 58.10 percent of total health spending. This points to a larger role for the state government in Assam than in places where households carry more of the load. Older National Health Accounts numbers also suggested that out of pocket spending in Assam stayed as a big part of health spending. Evidence from Assam further indicates that treatment in private facilities can involve substantially higher household expenditure than treatment in public facilities. A study of OOP health expenditure in Assam also found that households could face considerable financial consequences associated with healthcare utilization, including catastrophic expenditure (Devi, 2019). These findings highlight the importance of examining the changing

pattern of OOP expenditure at a more geographically specific level, particularly in an economically and administratively important district such as Kamrup (Metro).

Kamrup (Metro) occupies a distinctive position within Assam because of its concentration of urban population, economic activities, administrative institutions and healthcare facilities. The district, with Guwahati as its principal urban centre, represents an important setting for examining household healthcare expenditure and the changing financial burden associated with healthcare utilization. However, state-level estimates may conceal substantial variations in healthcare expenditure arising from differences in healthcare availability, provider choice, household characteristics and urbanization. Existing evidence from Assam demonstrates the importance of OOP expenditure in household healthcare financing, while available studies have also identified financial insecurity associated with healthcare costs in the state. A district-level examination of Kamrup (Metro) can therefore provide a more focused understanding of how OOP expenditure has evolved over time and how its magnitude and share have changed within an important urban and healthcare centre of Assam. The present study consequently seeks to examine the pattern and trend of OOP health expenditure in Kamrup (Metro) during 2000–2025 using available secondary data, thereby contributing evidence that can support discussions on financial protection, healthcare financing and equitable access to healthcare services.

2. Review of Literature:

(a) International Studies on OOP Health Expenditure:

Research teams around the world often point to out-of-pocket (OOP) health spending as a key driver of financial safety in health care. The World Health Organization (WHO) and World Bank (2021) note that when families pay directly at the point of care, many can face stress and even fall into poverty. This is more likely when the system does not use strong prepaid plans or risk pooling. Xu et al. (2003) also showed how heavy OOP use can push families into severe financial trouble. They called for better ways to share risk across people. Later studies kept coming back to the same message. They argue that tracking OOP spending matters for goals linked to Universal Health Coverage (UHC). The WHO (2024) reports that a very large number of people still suffer hardship due to health payments, so OOP spending remains a major issue for health financing. Taken together, the work suggests OOP spending is not only about how much care is used. It also helps show how fair, sufficient, and protective a health system is. This set of studies supports a closer look at OOP spending in a place like Kamrup (Metro).

(b) Studies on OOP Expenditure and Household Financial Burden:

Many papers have looked at how OOP spending connects to household risk. Wagstaff et al. (2009) stressed the need to study how health payments are distributed. They focus on how those

payments can affect family welfare and poverty outcomes. In the Indian context, Selvaraj and Karan (2012) observed that healthcare payments could impose substantial financial insecurity on households because of the high dependence on direct payments. Kastor and Mohanty (2018), using nationally representative Indian data, examined the economic burden, impoverishment effects and coping mechanisms associated with OOP expenditure and found considerable interstate variation in the financial consequences of healthcare payments. Their findings indicate that the economic burden of OOP expenditure is not uniform across India and is influenced by differences in healthcare systems and socioeconomic conditions. Similarly, recent systematic evidence by researchers reviewing Indian OOP studies has identified economic status, place of residence, source of care, disease conditions, age, education, health insurance and coping mechanisms among the major factors associated with OOP expenditure. These findings establish that the financial consequences of healthcare payments extend beyond the immediate cost of treatment and may affect household consumption, savings and economic security (Kastor & Mohanty, 2018; Sharma et al., 2025).

(c) Indian Studies on OOP Health Expenditure:

Indian studies have repeatedly demonstrated that OOP expenditure has historically constituted a major component of healthcare financing. Selvaraj and Karan (2012) examined the changing health-financing situation in India and argued that increasing healthcare costs and dependence on private healthcare could deepen health-related financial insecurity. Pandey et al. (2018), using national survey data covering the period from 1993 to 2014, examined trends in OOP payments and catastrophic health expenditure and found that the incidence of catastrophic expenditure increased substantially over the study period. Their analysis further demonstrated that poorer households experienced a greater increase in catastrophic expenditure than richer households. Yadav et al. (2021) examined disease-specific OOP payments and found substantial variation in expenditure according to the type of morbidity, with serious diseases generating particularly high financial burdens. More recent research has continued to confirm the importance of OOP expenditure in India while identifying changes in its determinants and composition. A 2025 systematic review of Indian studies found that source of care, disease or health condition, economic status, residence, age, education and health insurance were recurring determinants of OOP expenditure.

(d) Studies on Catastrophic Health Expenditure:

Catastrophic health expenditure (CHE) represents one of the most important consequences of excessive OOP health spending and has therefore received considerable attention in the literature. Wagstaff and van Doorslaer (2003) laid out a key way to study catastrophic health spending and what it does to welfare. In India, Pandey et al. (2018) reported that the share of

people facing catastrophic health costs rose a lot from 1993 to 2014. They also saw that the rise hit poorer households more and that households with older members felt the impact more strongly. Yadav Yadav et al. (2018) showed that when hospital care is linked to a specific disease, people may face big out of pocket costs. They also found that distress borrowing can come up in these cases. The financial hit was especially severe for illnesses like cancer and heart disease. More recently, Reddy (2024), through a systematic review and meta-analysis, identified considerable variation in the reported incidence of CHE across Indian studies, partly because researchers use different thresholds, definitions, recall periods and measures of household capacity to pay. The literature therefore demonstrates both the seriousness of catastrophic expenditure and the methodological challenge of comparing CHE estimates across studies. This is important for the present study because the interpretation of OOP expenditure in Kamrup (Metro) must distinguish between the magnitude of expenditure and its potential financial consequences.

(e) Studies on Healthcare Utilization and OOP Expenditure:

The relationship between healthcare utilization and OOP expenditure has also been widely examined. Healthcare utilization is influenced by the type of illness, choice of provider, availability of services and socioeconomic characteristics, while the resulting expenditure varies considerably between public and private providers. Yadav et al. (2021) showed that disease-specific patterns of hospitalisation were closely associated with variations in OOP expenditure and financial distress. Similarly, analysis of National Sample Survey data has demonstrated that households using private healthcare facilities are more likely to experience higher financial burdens than those using public facilities. Research on multimorbidity has further shown that repeated or complex healthcare requirements can generate substantial OOP payments and increase the likelihood of catastrophic expenditure. Mohanty et al. (2022), using national survey data, found that multimorbidity was associated with considerable OOP expenditure and that the catastrophic consequences were particularly pronounced for households dealing with multiple non-communicable diseases. Thus, the literature suggests that OOP expenditure cannot be examined independently of healthcare utilization patterns; the type of service used, disease burden and provider choice are important factors shaping household expenditure.

(f) Studies on Public-Private Healthcare Financing and OOP Expenditure:

The structure of healthcare financing and the relative roles of public and private providers have significant implications for OOP expenditure. Indian evidence generally indicates that households using private healthcare facilities tend to incur higher direct payments than those relying on public facilities. The National Sample Survey's *Health in India* report showed substantial differences in medical expenditure according to the type of healthcare provider,

highlighting the financial implications of private-sector healthcare utilization (MoSPI, 2019). Similarly, studies examining catastrophic expenditure have found that households using private facilities have higher odds of experiencing catastrophic healthcare spending than those receiving treatment from public providers. Kastor and Mohanty (2018) also demonstrated that differences in healthcare financing arrangements contribute to considerable variation in the economic burden of OOP expenditure across Indian states. More recent evidence has reinforced the need to strengthen public healthcare systems, expand risk-pooling mechanisms and improve health insurance coverage in order to reduce excessive dependence on direct household payments. Thus, the public-private composition of healthcare provision is an important contextual factor when analysing OOP expenditure and financial protection.

(g) Studies Related to Northeast India and Assam:

Although OOP health expenditure has been extensively studied at the national level, relatively fewer studies have focused specifically on Northeast India and Assam. Devi (2019) examined OOP health expenditure in Assam using household survey data from Nagaon and Nalbari districts and found that inpatient healthcare was an important contributor to increasing OOP expenditure and catastrophic healthcare spending. The study demonstrated the relevance of household-level socioeconomic and healthcare factors in determining the financial consequences of medical expenditure in Assam. More recently, Neog et al. (2024) examined catastrophic healthcare expenditure among households in four districts of Assam and identified OOP payments as an important source of healthcare financing, with household characteristics and healthcare-related factors influencing the likelihood of catastrophic expenditure. These studies are particularly relevant because they demonstrate that the financial burden of healthcare is also significant within Assam. However, much of the existing evidence is based on cross-sectional household surveys covering selected districts and specific periods. Consequently, there remains limited longitudinal evidence examining the changing pattern and trend of OOP health expenditure specifically in Kamrup (Metro) District over an extended period.

(h) Critical Analysis of Existing Literature:

The reviewed literature establishes several important dimensions of OOP health expenditure. First, international evidence demonstrates that excessive reliance on direct healthcare payments can undermine financial protection and contribute to household impoverishment. Second, Indian studies consistently identify OOP expenditure as a major source of healthcare financing and demonstrate its association with socioeconomic status, disease characteristics, provider choice, insurance coverage and healthcare utilization. Third, the literature on catastrophic health expenditure shows that the financial consequences of OOP payments are disproportionately experienced by economically vulnerable households. Fourth, studies on public-private healthcare

financing indicate that private healthcare utilization is generally associated with higher household expenditure. Finally, studies from Assam confirm the presence of substantial OOP-related financial burden, but the available evidence is predominantly cross-sectional and geographically limited. A recent systematic review of Indian OOP literature also indicates substantial heterogeneity in study designs, indicators, data sources and definitions, making direct comparison across studies difficult. Thus, while the existing literature provides a strong conceptual and empirical basis for understanding OOP expenditure, it does not adequately capture the long-term district-level evolution of OOP health expenditure in Kamrup (Metro).

(i) Identification of Research Gap:

The review identifies a clear gap in the existing literature. A considerable proportion of previous research has focused either on India as a whole or on selected household samples, while comparatively limited attention has been given to the long-term pattern and trend of OOP health expenditure at the district level in Assam. Studies conducted in Assam, including Devi (2019) and Neog et al. (2024), provide valuable evidence concerning catastrophic expenditure and household-level determinants, but their cross-sectional nature limits their ability to explain changes in OOP expenditure over an extended period. Furthermore, there is inadequate systematic evidence concerning the evolution of OOP expenditure in Kamrup (Metro), one of the most important urban and healthcare centres of Assam. The present study seeks to address this gap by examining the available secondary evidence on the pattern, magnitude, share, per capita level and growth of OOP health expenditure in Kamrup (Metro) during 2000–2025. By adopting a longitudinal and district-focused perspective, the study aims to complement existing household-level and state-level research and provide evidence relevant to healthcare financing and financial-risk protection policies in Assam.

3. Research Methodology:

3.1 Research Design:

This work uses a descriptive and analytical plan. It looks at how out-of-pocket (OOP) health spending changes in Kamrup (Metro) District, Assam. The focus years are 2000 to 2025. In the descriptive part, the study shows the level of OOP health spending. It also looks at how the spending is made up. In addition, it tracks how the pattern shifts across the whole period. The analytical part is used for comparisons. It checks for differences and growth in OOP spending. It also studies how much OOP spending matters in total health care funding. This means the study looks at the relative share over time. The study is set up as a long-run view. It helps measure change in OOP health spending across many years. It does not stop at a single year only. The research also places the observed expenditure pattern within the broader context of healthcare

financing, household financial burden and financial protection. Wherever appropriate and where reliable data are available, the findings for Kamrup (Metro) are discussed in comparison with the corresponding situation in Assam and India. The design is therefore considered appropriate for achieving the objective of examining the long-term pattern and trend of OOP health expenditure in the study area.

3.2 Study Area:

The work looks at Kamrup (Metro) District in Assam. This district is a key urban area for the state's administration, economy, and health services. It also covers Guwahati, which is the main city in Assam. In this area, there are many hospitals, diagnostic labs, pharmacies, doctors, and other kinds of health facilities. The presence of both public and private healthcare providers makes the district particularly relevant for examining household healthcare expenditure and the role of OOP payments in healthcare financing. The concentration of economic activities and healthcare infrastructure also creates a distinctive environment in which households may have access to a wider range of healthcare services while simultaneously facing differences in treatment costs according to provider and type of service. Kamrup (Metro) is chosen so the study can track how OOP health spending changes across years. It also helps explain what this means for how well families can avoid heavy financial stress from health costs and how health care is funded. Looking at the district level gives extra context to the state picture. State averages can hide differences that come from how fast areas urbanize, how easy it is to get health care, what type of provider people use, and local economic conditions.

3.3 Period of Study:

This research looks at 2000 through 2025, which gives a span of 25 years to study how OOP health spending shifts over time. We chose this long window to track steady movement in health finance and spending, not just quick ups and downs. During these years, there were key shifts in health funding in both India and Assam. Public health schemes grew over time, and the focus on Universal Health Coverage became stronger. Health insurance also developed, along with tools meant to protect people from high medical costs. At the same time, the way care was organised and how people used health services changed. A relatively extended study period also permits the identification of phases of increase, decline or variation in OOP expenditure and facilitates the calculation of growth indicators such as annual growth rates and Compound Annual Growth Rate (CAGR), wherever the required data are available. However, since district-level secondary data are not uniformly available for every indicator for every year between 2000 and 2025, the analysis will use the longest consistent series available from reliable and comparable sources and will clearly indicate the corresponding years and sources in the tables.

3.4 Nature and Sources of Data:

The study is based entirely on secondary data obtained from reliable government, national and international sources. The principal sources include the National Health Accounts (NHA), National Sample Survey (NSS/NSSO) reports, National Family Health Survey (NFHS), publications of the Ministry of Health and Family Welfare (MoHFW), Government of Assam, Economic Survey of Assam, Statistical Handbooks of Assam, Reserve Bank of India (RBI), Ministry of Statistics and Programme Implementation (MoSPI), World Health Organization (WHO) and World Bank, along with other relevant official statistical publications and reports. These sources are used selectively according to the availability, geographical coverage, periodicity and comparability of the required indicators. Particular attention is given to identifying secondary sources that provide information relevant to OOP health expenditure, household healthcare spending, healthcare financing and related financial-protection indicators. Data obtained from different sources are carefully examined before comparison so as to minimise inconsistencies arising from differences in definitions, survey periods, estimation methods or geographical coverage. The study does not use primary household survey data at this stage, as the analysis is specifically designed around available secondary evidence.

3.5 Variables and Indicators:

The principal variable of the study is out-of-pocket (OOP) health expenditure, which is examined through a set of related expenditure and financing indicators, subject to the availability of reliable district-level secondary data. The analysis considers the magnitude of OOP health expenditure, its proportion in relation to total health expenditure, per capita OOP expenditure and changes in its share over time. Where comparable information is available, total health expenditure, public health expenditure and private health expenditure are also considered to provide a broader understanding of the healthcare financing structure within which OOP payments occur. Population-related indicators are used where necessary for estimating or interpreting per capita expenditure. Indicators related to catastrophic health expenditure may also be examined if suitable secondary data with appropriate geographical and temporal coverage are available. The selection of indicators is therefore guided by the approved research objective and by the reliability and comparability of the available secondary data. This approach ensures that the analysis remains focused on the pattern and trend of OOP expenditure without introducing indicators for which adequate evidence is unavailable.

3.6 Analytical Techniques:

A combination of descriptive and analytical techniques is employed to examine the pattern, trend and financial implications of out-of-pocket (OOP) health expenditure during the study period.

Year-wise analysis is used to examine changes in OOP health expenditure over the available years and to identify major increasing, decreasing and fluctuating phases. Percentage and ratio/share analysis is applied to assess the contribution of OOP expenditure to total health expenditure and to examine changes in different healthcare-financing indicators. Per capita analysis is undertaken to examine OOP expenditure in relation to population, wherever the required population and expenditure data are available. Annual growth rate is calculated to identify year-to-year changes in OOP expenditure, while Compound Annual Growth Rate (CAGR) is used to assess the average rate of growth over selected periods. Period-wise comparative analysis is employed to examine changes across different time periods and to identify variations in the long-term expenditure pattern. In addition, comparative analysis is used to place the available Kamrup (Metro) evidence in relation to the corresponding situation in Assam and, where comparable indicators are available, national trends. The study also examines the relationship between OOP expenditure and household financial burden using relevant secondary indicators, without making causal claims where appropriate district-level evidence is unavailable. The findings are presented through tables and graphical representations to facilitate systematic comparison and interpretation. All calculations and interpretations are based on available and verified secondary data, and the source and reference year are clearly indicated below the respective tables to ensure transparency, consistency and reproducibility of the analysis.

4. Analysis and Interpretation:

4.1 Trend of OOP Health Expenditure:

The available secondary evidence provides an important indication of the magnitude of household healthcare expenditure in Kamrup (Metro). According to the Assam Human Development Report, based on the HDR Survey 2013, aggregate household healthcare expenditure in Kamrup (Metro) was ₹12,585, compared with ₹4,517 for Assam as a whole. The substantially higher expenditure recorded for Kamrup (Metro) indicates that households in the district incurred considerably greater healthcare expenses than the average household represented in the state-level evidence. The difference is also visible when expenditure is examined according to the type of healthcare utilisation. In 2013, inpatient healthcare expenditure in Kamrup (Metro) was ₹45,375, compared with ₹23,784 for Assam, while outpatient healthcare expenditure was ₹4,182, compared with ₹1,898 for Assam. These figures establish that household healthcare expenditure was an important financial component in Kamrup (Metro), particularly in relation to inpatient treatment.

The available 2013 evidence further demonstrates that the magnitude of household expenditure varied according to the nature of healthcare services utilized. Inpatient treatment involved

considerably higher expenditure than outpatient treatment in both Kamrup (Metro) and Assam. In Kamrup (Metro), inpatient expenditure of ₹45,375 was more than ten times the reported outpatient expenditure of ₹4,182. This difference indicates the potentially high financial implications associated with hospitalization and intensive medical treatment. Assam shows the same overall trend. Inpatient care in Assam comes to ₹23,784, and outpatient care is ₹1,898. Even so, the amounts are smaller than what was seen in Kamrup (Metro). So the evidence points to a heavier hit from out of pocket health spending when families need inpatient care or other specialized treatment.

Kamrup (Metro) does not spend the same on health as Assam. In 2013, household spending in Kamrup (Metro) was close to 2.8 times the Assam amount. You can also see this difference in the way people cover the cost of treatment. On hospital stays, Kamrup (Metro) spent about 1.9 times what Assam spent for inpatient care. For care done outside the hospital, the numbers are higher too. Outpatient spending in Kamrup (Metro) was roughly 2.2 times the Assam state average. These differences demonstrate that the healthcare expenditure situation in Kamrup (Metro) cannot necessarily be represented by the aggregate Assam average. The relatively higher expenditure observed in the district may be associated with its role as a major urban and healthcare centre, with greater concentration of hospitals, specialised medical facilities, diagnostic centres and private healthcare providers. However, because the available evidence is secondary and descriptive, these factors should be regarded as possible explanations rather than established causal determinants.

The evidence presented above indicates that Kamrup (Metro) experienced relatively high household healthcare expenditure in comparison with the Assam average during the period for which district-specific data are available. The particularly high inpatient expenditure demonstrates the potential financial significance of hospital-based healthcare utilisation. At the same time, the available data do not provide a continuous annual series of Kamrup (Metro)-specific OOP expenditure covering 2000–2025. Therefore, it would not be methodologically appropriate to calculate a continuous district-level trend or annual growth rate using unavailable observations. Instead, the 2013 district-level evidence is used as a benchmark for understanding the magnitude and regional characteristics of household healthcare expenditure, while the subsequent sections examine the broader OOP financing pattern of Assam using available official secondary data. This approach allows the study to retain its focus on Kamrup (Metro) while avoiding unsupported estimation of district-level values.

Table 4.1: Available Evidence on Household Healthcare Expenditure in Kamrup (Metro) and Assam, 2013:

Type of Healthcare Expenditure	Kamrup (Metro) (₹)	Assam (₹)	Kamrup (Metro) as % of Assam
Aggregate household healthcare expenditure	12,585	4,517	278.5
Inpatient healthcare expenditure	45,375	23,784	190.8
Outpatient healthcare expenditure	4,182	1,898	220.4

Source: Compiled by the researchers from Government of Assam, *Assam Human Development Report 2014: Managing Diversities, Achieving Human Development*, based on HDR Survey 2013.

Note: The table presents the available comparable district-level evidence for 2013. Continuous Kamrup (Metro)-specific OOP expenditure data for every year from 2000 to 2025 were not available from the identified secondary sources; therefore, no unsupported annual district-level values have been estimated.

Table 4.1 points to a gap in household spending on health in 2013. In Kamrup (Metro), households paid far more than the state average. The total health spend in Kamrup (Metro) comes to ₹12,585. For Assam overall, the total is ₹4,517. This makes the Kamrup (Metro) figure around 2.8 times the Assam level. The split by care type shows the same trend. In Kamrup (Metro), inpatient spending is ₹45,375. Outpatient spending there is ₹4,182. In Assam, both amounts are lower. Inpatient spending for Assam is ₹23,784. Outpatient spending is ₹1,898. Across both areas, inpatient spending forms the bigger share of total health spending. This points to higher costs tied to hospital care. It also means Kamrup (Metro) does not match the state average in health use and spending levels. One more point to keep in mind. These figures cover only 2013. They do not confirm that spending kept rising from 2000 to 2025. Instead, they provide an important district-level benchmark against which the broader changes in OOP healthcare financing in Assam can be interpreted.

4.2 OOP Expenditure as a Component of Health Expenditure:

Out-of-pocket expenditure represents the direct financial contribution made by households towards healthcare and therefore constitutes an important component of the overall healthcare financing structure. At the district level, the Assam Human Development Report based on the

HDR Survey 2013 provides evidence of substantial household healthcare expenditure in Kamrup (Metro). The survey reported aggregate household healthcare expenditure of ₹12,585 in Kamrup (Metro), compared with the Assam average of ₹4,517. The corresponding inpatient expenditure was ₹45,375, while outpatient expenditure was ₹4,182, indicating considerable variation in expenditure according to the type of healthcare service utilised. Although the aggregate healthcare expenditure reported in the district-level table should not be treated automatically as an OOP measure, the report separately establishes that OOP financing was the dominant method of meeting healthcare costs in Assam. This provides an important basis for interpreting household healthcare expenditure in Kamrup (Metro) within the broader OOP-financing environment of the state.

The share of OOP expenditure is an important indicator because it shows the extent to which healthcare costs are directly financed by households rather than through government expenditure, insurance or other pooled financing mechanisms. The Assam Human Development Report observed that, across income groups, the dominant form of financing healthcare costs in Assam was out-of-pocket, with household self-income accounting for 71.4% of healthcare financing, followed by borrowing from relatives and neighbours at 19.0% and loans from moneylenders at 7.3%. The evidence therefore indicates that direct household resources constituted the principal source of healthcare financing during the period covered by the HDR Survey. At the state level, more recent State Health Accounts estimates for 2019–20 show that OOP expenditure accounted for 34.7% of total health expenditure in Assam, compared with 47.1% for India. These findings demonstrate that although Assam's OOP share had declined relative to earlier patterns, direct household payments continued to represent a significant component of healthcare financing.

The relative contribution of OOP expenditure has changed over time as the structure of healthcare financing in India and Assam has evolved. Earlier evidence from the Assam Human Development Report indicates a strong dependence on household resources for financing healthcare, with self-income alone accounting for 71.4% of healthcare financing in the HDR Survey 2013. The report also noted that formal financial-risk protection mechanisms were inadequately developed and that households sometimes relied on borrowing or other financially risky mechanisms to meet healthcare costs. In subsequent years, the expansion of government healthcare programmes, health insurance and other financial-protection initiatives has altered the composition of healthcare financing. The State Health Accounts estimate for Assam for 2019–20 indicates that OOP expenditure represented 34.7% of total health expenditure, while social-security expenditure on health accounted for 3.2% and private health insurance expenditure for 0.6%. At the national level, National Health Accounts estimates show a substantial decline in the OOP share over the longer period, from 62.6% of total health expenditure in 2014–15 to 39.4% in 2021–22, accompanied by an increase in the government contribution.

The changing share of OOP expenditure suggests a gradual movement towards greater involvement of government and pooled financing mechanisms in healthcare, although household direct payments remain important. In Assam, the reduction of the OOP share to 34.7% of total health expenditure by 2019–20 indicates that the financing structure had become less dependent on direct household payments than the earlier situation documented by the HDR Survey. Nevertheless, the persistence of OOP expenditure means that households continue to bear a significant portion of healthcare costs, particularly where services are obtained from private providers or where treatment involves substantial expenditure on medicines, diagnostics and hospitalisation. The district-level evidence for Kamrup (Metro) is especially important because the reported aggregate household healthcare expenditure was substantially higher than the Assam average in the 2013 survey. Therefore, the changing OOP share should be interpreted not only in terms of the percentage contribution to total health expenditure but also in terms of the absolute expenditure borne by households. A declining OOP share is desirable from the perspective of financial protection, but its policy significance ultimately depends on whether households experience improved access to affordable and quality healthcare.

Table 4.2: Household/OOP Health Expenditure Indicators in Kamrup (Metro) and Assam:

Indicator	Kamrup (Metro)	Assam	Reference Year
Aggregate household healthcare expenditure (₹)	12,585	4,517	2013
In-patient healthcare expenditure (₹)	45,375	23,784	2013
Out-patient healthcare expenditure (₹)	4,182	1,898	2013
Self-income as source of healthcare financing (%)	—	71.4	2013
Borrowing from friends/relatives/neighbours (%)	—	19.0	2013
Loans from moneylenders (%)	—	7.3	2013
OOP expenditure as percentage of Total Health Expenditure	Not available	34.7	2019–20
Social Security Expenditure on Health as percentage of Total Health Expenditure	Not available	3.2	2019–20

Private Health Insurance Expenditure as percentage of Total Health Expenditure	Not available	0.6	2019–20
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Source: Compiled by the author from Government of Assam, *Assam Human Development Report: Managing Diversities, Achieving Human Development* (HDR Survey, 2013), Table 5.11 and Table 5.12; and National Health Systems Resource Centre, *State Health Accounts Estimates for Assam, 2019–20*.

Table 4.2 lists a few indicators on household spending and OOP health costs for Kamrup (Metro) and for Assam. The numbers are taken from secondary sources that were available. In 2013, Kamrup (Metro) households spent ₹12,585 on healthcare. This is much more than the Assam value of ₹4,517. The same gap shows up in inpatient and outpatient spending. For Kamrup (Metro), inpatient costs were ₹45,375 and outpatient costs were ₹4,182. For Assam, inpatient costs were ₹23,784 and outpatient costs were ₹1,898. In Assam, the way health care was funded in 2013 relied mostly on household income. Self-income made up 71.4% of the financing. Support from friends, relatives, and neighbours was 19.0%. Loans from moneylenders were 7.3%. The State Health Accounts estimates for 2019–20 indicate that OOP expenditure constituted 34.7% of Total Health Expenditure in Assam, while social security expenditure on health and private health insurance expenditure accounted for 3.2% and 0.6%, respectively. Taken together, the available evidence indicates that household payments remained an important source of healthcare financing, although the relative contribution of OOP expenditure in Assam had declined considerably by 2019–20. The substantially higher household healthcare expenditure observed in Kamrup (Metro) also highlights the importance of examining district-level expenditure patterns separately from aggregate state-level indicators. However, because the Kamrup (Metro) and Assam figures are derived from different datasets and reference years, the values should be interpreted as contextual evidence rather than as a strictly contemporaneous comparison.

4.3 Per Capita OOP Health Expenditure:

Per capita out-of-pocket (OOP) health expenditure provides an important measure of the average direct healthcare expenditure attributable to each person and facilitates comparison across different population sizes. For the present study, the availability of district-level secondary data for Kamrup (Metro) is limited, and therefore a continuous annual per capita OOP series for 2000–2025 cannot be established from a single official source. The Assam Human Development Report based on the HDR Survey 2013 provides district-specific household healthcare expenditure information and reports aggregate healthcare expenditure of ₹12,585 for Kamrup (Metro), but this figure is not presented as a per capita OOP estimate. At the state level, National Health Accounts estimates provide comparable per capita OOP indicators; for example, Assam

recorded per capita OOP expenditure of ₹883 in 2017–18. Thus, the available evidence is used to place the Kamrup (Metro) expenditure situation within the broader state-level OOP financing context without converting non-comparable district expenditure figures into unsupported per capita estimates.

Per capita OOP spending helps show if direct healthcare payments rose or fell. It also accounts for changes in population size. In Assam, the National Health Accounts show ₹883 per person in 2017–18. The State Health Accounts for 2019–20 put the figure at around ₹998 per person. So, direct healthcare spending per person seems to have gone up over this period. Still, the years do not match exactly, and the methods used to estimate the numbers are not the same. These points should be kept in mind when comparing the two values. The available Kamrup (Metro) evidence from the 2013 HDR Survey also indicates a relatively high level of aggregate household healthcare expenditure of ₹12,585 compared with the Assam average of ₹4,517. However, because the district-level source does not provide the corresponding denominator required for a per capita calculation, the Kamrup figure is retained in its original form rather than being converted into an estimated per capita value.

The growth of per capita OOP expenditure is useful for assessing whether direct household healthcare payments have expanded over time independently of population growth. However, a meaningful growth-rate or CAGR calculation requires comparable per capita OOP observations for at least two reference years for the same geographical unit and based on consistent definitions. Such a continuous district-level series is not available for Kamrup (Metro) from the identified secondary sources. Consequently, the present study does not calculate an artificial growth rate for Kamrup (Metro). Instead, the available Assam-level evidence is used as a contextual indicator of the changing magnitude of per capita OOP expenditure, while the district-level Kamrup (Metro) observations are presented separately. This approach preserves the geographical and methodological integrity of the analysis and avoids treating state-level estimates as district-level observations.

The available evidence indicates that per capita OOP expenditure remains an important indicator of healthcare-financing pressure in Assam, while the relatively high aggregate household healthcare expenditure observed in Kamrup (Metro) highlights the importance of examining the district separately. The per capita OOP estimate of ₹883 for Assam in 2017–18 demonstrates that households continued to make substantial direct contributions towards healthcare despite the expansion of government health programmes and financial-protection mechanisms. The subsequent estimate of approximately ₹998 per capita for Assam in 2019–20 suggests a further increase in the nominal amount of direct household healthcare spending. However, an increase in per capita OOP expenditure should not automatically be interpreted as a deterioration in financial protection, since it may also reflect inflation, increased healthcare utilisation, changes in

treatment patterns or higher medical costs. Therefore, per capita expenditure should be interpreted together with the OOP share of total health expenditure, healthcare utilisation and the availability of alternative financing mechanisms.

Table 4.3: Available Evidence on Per Capita OOP/Household Health Expenditure:

Year	Geographical Area	Indicator	Expenditure (₹)	Nature of Indicator
2013	Kamrup (Metro)	Aggregate household healthcare expenditure	12,585	District-level household healthcare expenditure
2013	Assam	Aggregate household healthcare expenditure	4,517	State-level household healthcare expenditure
2017–18	Assam	Per capita OOP health expenditure	883	State-level OOP expenditure
2019–20	Assam	Per capita OOP health expenditure	998	State-level OOP expenditure

Source: Compiled by the author from *Assam Human Development Report 2014*, based on HDR Survey 2013; National Health Accounts Estimates for India, 2017–18; and *State Health Accounts Estimates for Assam, 2019–20*.

Table 4.3 presents the available comparable evidence on household and per capita healthcare expenditure. The Kamrup (Metro) aggregate household healthcare expenditure of ₹12,585 in 2013 was considerably higher than the corresponding Assam figure of ₹4,517, indicating a substantial level of household healthcare spending in the district. However, the Kamrup (Metro) figure cannot be directly compared numerically with the Assam per capita OOP estimates because the indicators have different denominators and definitions. At the state level, per capita OOP expenditure increased from ₹883 in 2017–18 to approximately ₹998 in 2019–20, indicating an increase in the nominal direct expenditure borne by households.

4.4 Growth Pattern of OOP Health Expenditure:

Out-of-pocket health spending growth is a quick way to see how household direct payments change from one year to the next. For Assam, the official values for 2014–15 to 2021–22 do not follow a steady pattern. At first, per person costs went up slightly. They moved from ₹1,293 in 2014–15 to ₹1,315 in 2015–16. After that, the figure increased again, reaching ₹1,378 in 2016–

17. Then the trend broke. In 2017–18, per person out-of-pocket spending fell to ₹883. After the drop, the numbers improved. They rose to ₹949 in 2018–19, then to ₹998 in 2019–20. The rise kept going in the next two years too. It reached ₹1,064 in 2020–21 and ₹1,180 in 2021–22. Taken as a whole, the changes across years were not even. The biggest drop was in 2017–18. After that, the increases looked more regular.

CAGR, or compound annual growth rate, is a way to estimate the mean yearly change in OOP health spending between two time points. Looking at the Assam data, per person out-of-pocket spending moved from ₹1,293 in 2014–15 to ₹1,180 in 2021–22. That span gives a seven-year CAGR close to -1.24% each year. This suggests only a slight drop when you view the whole period at once. Still, a negative CAGR does not mean the figure fell every single year. In fact, spending dropped sharply in 2017–18 and then rose again in the years after that. So CAGR is mainly a high-level summary from start to finish. The year-by-year growth rates show what happened inside the period, including the ups and downs.

A period-wise comparison provides a clearer understanding of the changing growth pattern of OOP expenditure. From 2014–15 to 2016–17, the per person OOP spending rose slowly. It moved from ₹1,293 to ₹1,378. This looks like a steady climb. Then things changed in 2016–17 to 2017–18. The spending fell fast. It dropped from ₹1,378 to ₹883. After that, the numbers went up again in 2017–18 to 2019–20. Expenditure increased from ₹883 to ₹998. This period reversed the earlier drop. Next, 2019–20 to 2021–22 showed another rise. It went from ₹998 to ₹1,180. So overall, there are three main stages. First, a mild rise. Second, a big fall in 2017–18. Third, a longer recovery after that. These swings could be linked to changes in health care use. They may also relate to how care is paid for. Other points include how the figures are estimated and how treatment is carried out. Structural factors in household health spending can also play a role.

The data suggest that OOP spending in Assam did not move in a smooth line over time. Instead, it rose and fell a lot across the years. In 2021 to 2022, the per capita OOP amount was still under the level seen in 2014 to 2015. Even so, the rebound after the very low point in 2017 to 2018 stands out. The same official records also point to a big drop in the OOP share of Total Health Expenditure. It fell from 63.1% in 2014 to 2015 to 27.6% in 2021 to 2022. This implies that households relied less on direct payments. Still, it is worth separating two ideas when thinking about financial protection. A rise in the nominal OOP spending number does not always mean families are depending more on OOP. That conclusion can change if total health spending and government funding grow faster.

Table 4.4: Growth Rate of Per Capita OOP Health Expenditure in Assam, 2014–15 to 2021–22:

Year	Per Capita OOP Expenditure (₹)	Annual Growth Rate (%)	OOP Share in Total Health Expenditure (%)
2014–15	1,293	—	63.1
2015–16	1,315	1.70	55.1
2016–17	1,378	4.79	53.8
2017–18	883	–35.92	35.9
2018–19	949	7.47	36.7
2019–20	998	5.16	34.9
2020–21	1,064	6.61	33.2
2021–22	1,180	10.90	27.6
CAGR (2014–15 to 2021–22)	—	–1.24%	—

Source: Compiled by the researcher from Government of India, Ministry of Health and Family Welfare, official state-wise statement of per capita Out-of-Pocket Expenditure (OOPE) and OOPE share in Total Health Expenditure, 2014–15 to 2021–22.

Note: Annual growth rates are calculated by the researcher from the reported per capita OOP expenditure values. CAGR is calculated for the seven-year interval between 2014–15 and 2021–22.

The data in Table 4.4 suggests that Assam's per person OOP spending for health rose in a slow way from 2014–15 through 2016–17. It climbed to ₹1,378, then dropped fast. In 2017–18, it fell to ₹883. After that drop, spending moved up again each year. It went from ₹949 in 2018–19 to ₹998 in 2019–20. Next, it rose to ₹1,064 in 2020–21 and then to ₹1,180 in 2021–22. Looking at annual change, the best jump during the recovery period was in 2021–22, with 10.90% growth. The biggest fall happened in 2017–18, at –35.92%. Even with the rise in the per person amount, the share of OOP in total health spending fell a lot. It dropped from 63.1% down to 27.6% across the same span.

4.5 OOP Expenditure and Household Financial Burden:

When people pay for healthcare out of their own pocket, it often hits household budgets right away. These payments are made at the time of care. They are usually paid from earnings, savings, or other funds the family has. Because of this, OOP spending can raise the economic strain on families. The pressure grows if a household needs a hospital stay. It also rises with long treatment periods, tests, or ongoing medicines. In such cases, costs can climb quickly. The Assam Human Development Report uses data from the HDR Survey 2013 to show this pattern. In Kamrup (Metro), household healthcare spending was much more than the state average. For Kamrup (Metro), the total was ₹12,585. For Assam as a whole, it was ₹4,517. This gap suggests that families in the district faced higher health costs during the survey time. The report also points to big costs for inpatient care. Kamrup (Metro) recorded ₹45,375 for inpatient spending. Assam recorded ₹23,784. Payments at these levels can squeeze household money. This is especially true when a health need comes up without warning or when treatment is expensive. So, OOP spending is more than a sign that care is being used. It also reflects how exposed households are to financial risk when health issues occur.

How much OOP spending there is tends to track what kind of financial safety households get. If a health system has more public funds, wider insurance, and better risk sharing, then families often pay less directly out of pocket. On the other hand, when OOP payments dominate, households can feel strong financial pressure. This is especially true when health costs are high compared with what the household earns or has. The Assam Human Development Report looked at this in its HDR Survey 2013. It found that self-income made up 71.4% of health financing in Assam. Borrowing from relatives, friends, and neighbors was 19.0%. Loans from moneylenders were 7.3%. These figures suggest that many households relied on their own money. In some cases, they borrowed to cover treatment costs. More recent National Health Accounts point to a shift. In Assam, the share of total health spending that came from OOP fell from 63.1% in 2014 to 2015 down to 27.6% in 2021 to 2022. This drop can mean that other ways of paying for health care got stronger. It also hints at better financial protection across the state. Still, the burden from direct payments is not gone.

High OOP health expenditure can have consequences that extend beyond the immediate payment for medical treatment. When households have to finance substantial healthcare costs directly, they may reduce expenditure on food, education, housing and other essential consumption, draw down savings or resort to borrowing. When families have to stay in a hospital, or when they need care many times, the costs can hit them hard. Studies that look at how health systems are paid for often treat out of pocket spending as a key driver of catastrophic health spending and of health-related poverty. (Wagstaff & van Doorslaer, 2003; Xu et al., 2003). In India, Pandey et al. (2018) reported that catastrophic health spending is still a major worry. They also noted that poorer

families face these medical bills with less room to cope. In Assam, the higher household health spending seen in Kamrup (Metro) points to a related issue. It matters less only to ask if spending has gone up. It is also important to ask how the spending gets paid for, and whether households have enough buffers for sudden medical expenses. Because of this, steps to cut out of pocket costs should not stay at the surface level. They should work on stronger public health services. They should also help people reach low-cost medicines and diagnostics. In addition, families need better protection from financial shocks linked to illness.

The available district-level evidence indicates that OOP-related household healthcare spending deserves particular attention in Kamrup (Metro). The district's aggregate household healthcare expenditure of ₹12,585 in 2013 was substantially higher than the Assam average of ₹4,517, while inpatient healthcare expenditure was also considerably higher than the state average. These figures should not be interpreted as evidence that every household in Kamrup (Metro) experienced financial hardship, since household expenditure alone cannot establish catastrophic or impoverishing expenditure without information on household capacity to pay. Nevertheless, the magnitude of expenditure indicates that healthcare payments represented an important financial consideration for households in the district. Kamrup (Metro)'s concentration of hospitals, specialised medical facilities, diagnostic centres and private healthcare providers may also influence healthcare utilisation and expenditure patterns. At the same time, the substantial decline in Assam's OOP share of total health expenditure between 2014–15 and 2021–22 indicates a broader movement towards greater financial protection. Thus, the Kamrup (Metro) evidence should be understood within this wider state-level transition: while the relative dependence on OOP financing may have declined, the absolute cost of healthcare and the financial implications of high-cost treatment remain important areas for further investigation.

Table 4.5: Selected Indicators of Household Healthcare Financing and Financial Burden:

Indicator	Kamrup (Metro)	Assam	Reference Year
Aggregate household healthcare expenditure (₹)	12,585	4,517	2013
In-patient healthcare expenditure (₹)	45,375	23,784	2013
Out-patient healthcare expenditure (₹)	4,182	1,898	2013
Self-income as source of healthcare financing (%)	Not available	71.4	2013
Borrowing from friends/relatives/neighbours (%)	Not available	19.0	2013

Loans from moneylenders (%)	Not available	7.3	2013
OOP expenditure as % of Total Health Expenditure	Not available	63.1	2014–15
OOP expenditure as % of Total Health Expenditure	Not available	27.6	2021–22

Source: Compiled by the researcher from Government of Assam, *Assam Human Development Report: Managing Diversities, Achieving Human Development* (HDR Survey, 2013); and Government of India, Ministry of Health and Family Welfare, National Health Accounts/official state-wise estimates of OOP expenditure (2013 – 22).

Table 4.5 shows two key parts of what health care costs for households. In Kamrup (Metro), the district data points to higher spending in 2013. Total household health expenses in the district came to ₹12,585. This is close to three times the Assam average, which was ₹4,517. Money spent on inpatient care was even bigger, at ₹45,375. At the state level, the pattern is different. The portion paid out of pocket in total health spending dropped a lot. It went from 63.1% in 2014–15 to 27.6% in 2021–22. The combined evidence suggests that financial protection at the aggregate level has improved, but substantial household healthcare expenditure can still exist at the district level. Therefore, reducing the OOP burden requires attention not only to the percentage share of OOP expenditure but also to the actual amount households spend, the type of healthcare services utilized and their capacity to meet medical expenses.

4.6 Comparative Analysis of OOP Expenditure:

District level data suggest that people in Kamrup (Metro) spent more on health at home than the state average in Assam, based on the years where like for like data exist. From the HDR Survey 2013, total household health spending in Kamrup (Metro) was ₹12,585. In Assam it was ₹4,517. Inpatient spending was also much higher in Kamrup (Metro) at ₹45,375. Assam reported ₹23,784. For outpatient care, Kamrup (Metro) spent ₹4,182, while Assam spent ₹1,898. Taken together, these figures point to higher health spending by households in Kamrup (Metro) than what Assam reports overall for the survey period. A possible reason is that Kamrup (Metro) has more public and private health facilities in one place. It also has more specialized medical services and diagnostic services. This may lead to more use of formal care. Even so, the gap in spending should not be treated as proof of higher financial stress. The data given here do not show household income, how much households can afford, or whether spending becomes catastrophic, for this same period. Still, the figures show that Kamrup (Metro) is a key area to study household health spending across Assam.

Looking at national patterns helps explain where Kamrup (Metro) sits in India's shifting way of paying for health services. Across the country, people are spending less from their own pockets

as time goes on. This matches two developments: more funding from the government and wider use of ways that reduce financial risk for households. The Government of India states that out-of-pocket spending fell from 62.6% in 2014-15 to 39.4% in 2021-22. In Assam, the drop was sharper. There, the out-of-pocket share went from 63.1% down to 27.6% during the same years. Thus, Assam's aggregate OOP share was lower than the national level by 2021-22. The available Kamrup (Metro) evidence from 2013, however, reflects considerably higher household healthcare expenditure than the Assam average, demonstrating that state-level improvement in financial protection does not necessarily imply uniform expenditure patterns across individual districts. Kamrup (Metro)'s position must therefore be interpreted as a district-level phenomenon within the wider national transition towards greater public and pooled financing of healthcare.

A comparison across selected periods shows a significant transformation in the relative importance of OOP financing in Assam and India. In the HDR Survey 2013 period in Assam, people paid for health mainly from their own funds. About 71.4% of health spending came from self-income. Some money also came from borrowing, like help from relatives, friends, or neighbours. Loans from moneylenders were another channel. Later, the picture shifted. In 2014-15, spending from households out of pocket made up 63.1% of total health spending in Assam. That meant many costs were paid directly by families. After that, the out-of-pocket share fell. It dropped to 34.9% in 2019-20. It went further down to 27.6% in 2021-22. A similar drop happened across India. The out-of-pocket share went from 62.6% in 2014-15 to 39.4% in 2021-22. These changes indicate a gradual shift in healthcare financing away from direct household payments towards government and other pooled financing mechanisms. Nevertheless, the Kamrup (Metro) evidence of relatively high household healthcare expenditure in 2013 demonstrates that substantial expenditure at the household level can coexist with broader improvements in the financing structure. The comparison therefore highlights the importance of examining both relative OOP shares and absolute household expenditure.

The regional differences observed in the available evidence can be understood in relation to variations in healthcare infrastructure, provider availability, healthcare utilisation, socioeconomic conditions and the structure of healthcare financing. Kamrup (Metro), being a major urban and healthcare centre of Assam, has greater access to hospitals, specialised treatment, diagnostic facilities and private healthcare providers than many other parts of the state. Greater availability and utilisation of such services can contribute to higher household healthcare expenditure. At the same time, the lower OOP share recorded for Assam in recent years suggests that the state's overall healthcare-financing structure has undergone considerable improvement. The national comparison further shows that Assam's OOP share in 2021-22 was below the Indian average, although this aggregate state-level improvement cannot be assumed to apply equally across all districts. The Kamrup (Metro) evidence therefore points towards the importance of intra-state

variations in healthcare expenditure. Regional differences should consequently be incorporated into health-financing policies so that improvements in financial protection are not limited to aggregate state-level outcomes but also reach households facing high healthcare costs at the district level.

Table 4.6: Comparative Indicators of OOP/Household Healthcare Expenditure — Kamrup (Metro), Assam and India:

Indicator	Kamrup (Metro)	Assam	India	Reference Year
Aggregate household healthcare expenditure (₹)	12,585	4,517	—	2013
In-patient healthcare expenditure (₹)	45,375	23,784	—	2013
Out-patient healthcare expenditure (₹)	4,182	1,898	—	2013
OOP share of Total Health Expenditure (%)	Not available	63.1	62.6	2014–15
OOP share of Total Health Expenditure (%)	Not available	34.9	—	2019–20
OOP share of Total Health Expenditure (%)	Not available	27.6	39.4	2021–22

Source: Compiled by the researchers from Government of Assam, *Assam Human Development Report: Managing Diversities, Achieving Human Development* (HDR Survey, 2013); and Government of India, Ministry of Health and Family Welfare, National Health Accounts/official state-wise estimates of OOP expenditure (2013 – 22).

Table 4.6 shows how district spending compares with OOP shares at the state and national level. In 2013, homes in Kamrup (Metro) spent ₹12,585 on health care overall. This is much more than the Assam average of ₹4,517. The gap also shows up when looking at inpatient and outpatient spending. On the financing side, Assam's OOP share fell from 63.1% in 2014–15 to 27.6% in 2021–22. Over the same years, India's OOP share dropped from 62.6% to 39.4% during the same period. So, Assam saw a bigger drop in the share coming from OOP than the national figure. The findings suggest that Assam's healthcare-financing structure has improved in terms of reducing the relative dependence on OOP payments, but Kamrup (Metro)'s relatively high household healthcare expenditure indicates that substantial expenditure at the household level remains an important issue requiring district-specific attention.

5. Discussion of Results:

The analysis indicates that out-of-pocket (OOP) health expenditure remains an important component of healthcare financing, while its relative contribution has changed considerably over time. District data point to higher household spending on health in Kamrup (Metro). In 2013, the figure was ₹12,585. For Assam as a whole, it was ₹4,517. The split also looks similar. Both inpatient and outpatient spending in Kamrup (Metro) sit above the state averages. At the state level, the out-of-pocket part of total health spending moved down a lot. It fell from 63.1% in 2014–15 to 27.6% in 2021–22. Over the same period, Assam's per person out of pocket spending did not move in a smooth line. It dropped from ₹1,378 in 2016–17 to ₹883 in 2017–18. After that, it rose to ₹1,180 by 2021–22. Taken together, the results suggest two things. Higher overall household spending does not always match the change in the out-of-pocket share. The two patterns can shift differently. Thus, although the declining OOP share suggests an improvement in the overall healthcare-financing structure, the persistence of direct household expenditure remains important for understanding the financial burden associated with healthcare.

The results match what other studies have said about how health care is funded in India. They point to out-of-pocket spending as a key way households pay for care. That spending also raises the risk that families will face financial strain. Earlier work by Xu and colleagues in 2003 highlighted how out-of-pocket payments can lead to financial catastrophe in poorer countries. Wagstaff and van Doorslaer in 2003 also showed that health payments can push people into poverty. In India, Pandey and colleagues in 2018 found that even with some progress in health financing and insurance coverage, catastrophic health spending still hurt households. In this study, we look at the district level. Kamrup (Metro) shows much higher total household health spending than the overall Assam average in the 2013 data available. At the same time, the subsequent decline in Assam's OOP share is consistent with the broader national trend towards greater government participation in healthcare financing. The findings therefore complement previous studies by demonstrating that improvements in aggregate financial-protection indicators may coexist with relatively high household healthcare expenditure in particular geographical areas.

Several factors may contribute to the observed pattern of OOP health expenditure. The relatively high healthcare expenditure recorded in Kamrup (Metro) may partly be associated with the district's concentration of hospitals, specialised medical facilities, diagnostic centres and private healthcare providers. Greater availability of healthcare services can increase utilisation and, consequently, household expenditure, particularly when patients seek specialised or private treatment. In addition, expenditure on medicines, diagnostics, inpatient treatment and other medical services can contribute substantially to household OOP payments. Changes in the OOP pattern at the state level may also reflect the expansion of publicly financed healthcare

programmes, health insurance and other financial-protection mechanisms. The sharp decline in per capita OOP expenditure observed in Assam in 2017–18, followed by a gradual recovery, further demonstrates that household healthcare expenditure can be influenced by changes in utilisation, financing arrangements and healthcare-service patterns. However, the available secondary evidence does not permit each individual factor to be quantitatively isolated for Kamrup (Metro). Therefore, these factors should be understood as plausible explanations supported by the broader healthcare-financing literature rather than as independently estimated causal determinants.

The findings have important implications for household financial protection. A decline in the OOP share of total health expenditure indicates a movement towards greater reliance on public and pooled healthcare financing, which can potentially reduce the direct financial responsibility of households. However, the relatively high aggregate healthcare expenditure observed in Kamrup (Metro) demonstrates that a lower OOP share at the state level does not necessarily mean that individual households are fully protected from substantial healthcare costs. When a household has to stay in hospital, needs long care, or pays a lot for drugs and tests, the costs can be severe. Earlier studies report that when medical bills get too high, families may cut back on other basics, tap their savings, or take out loans to cover care (Xu et al., 2003; Wagstaff & van Doorslaer, 2003). Because of this, better financial safety means more than just lowering the OOP portion. It also means making sure people can actually get public services and medicines, pay for diagnostics, and use insurance and other ways to share risk. For Kamrup (Metro), particular attention should be given to households exposed to high-cost healthcare services.

The economic and healthcare implications of OOP expenditure extend beyond individual household budgets. When families pay a lot out of pocket for health care, they have less cash left for food, school, rent, and other needs. If people must borrow again and again for treatment, they can end up more at risk over time. At the wider health system level, relying too much on OOP money can also change how people seek care. When money is tight, some households wait longer before going for treatment. Others may pick options that cost less. In Assam, the share of OOP spending fell from 63.1% in 2014–15 to 27.6% in 2021–22. This drop shows a clear shift in how health care is paid for. Nevertheless, the evidence from Kamrup (Metro) indicates that substantial household expenditure continues to warrant attention. The policy objective should therefore be to achieve a healthcare system in which increased utilisation of necessary healthcare services does not translate into disproportionate financial hardship. Expanding accessible public healthcare, strengthening financial-risk protection, improving affordability of medicines and diagnostics, and ensuring effective implementation of health insurance and publicly funded healthcare programmes can contribute to both improved health outcomes and greater household economic security.

Taken together, the findings reveal an important distinction between the magnitude of household healthcare expenditure and the relative dependence on OOP financing. Kamrup (Metro) recorded considerably higher aggregate household healthcare expenditure than the Assam average in the available district-level evidence, whereas Assam subsequently experienced a substantial decline in the OOP share of total health expenditure. The results therefore suggest that progress in healthcare financing should be evaluated through multiple indicators rather than through the OOP share alone. The combination of absolute expenditure, per capita expenditure, OOP share and household financial-protection indicators provides a more comprehensive understanding of healthcare-financing conditions. For Kamrup (Metro), the evidence highlights the need for district-sensitive healthcare policies that combine improved healthcare accessibility with stronger financial protection for households. This interpretation is particularly relevant to the broader objective of achieving equitable and financially sustainable healthcare in Assam.

6. Major Findings:

- (a) Fluctuating Pattern of Per Capita OOP Health Expenditure:** In Assam, per person OOP spending did not rise in a steady way over the years. In 2014–15 it was ₹1,293. By 2016–17 it reached ₹1,378. After that, it fell fast, hitting ₹883 in 2017–18. Then it went back up, reaching ₹1,180 in 2021–22. Overall, the trend shows a rise at first, a big drop later, and then a recovery.
- (b) Substantial Decline in the Relative Share of OOP Expenditure:** Another key point from the study is the drop in how much OOP spending mattered within total health spending in Assam. The OOP share moved from 63.1% in 2014–15 to 27.6% in 2021–22. This indicates a considerable reduction in the relative dependence on direct household payments and suggests an increasing role of alternative healthcare-financing mechanisms.
- (c) Recovery in Per Capita OOP Expenditure after 2017–18:** Per capita OOP spending fell hard in 2017–18. After that, it began to rise again in a steady way. In 2018–19, it reached ₹949, up from ₹883. The figure then went to ₹998 in 2019–20. It rose further to ₹1,064 in 2020–21 and to ₹1,180 in 2021–22. Overall, the years after 2017–18 showed continuous growth in the per person nominal OOP amount.
- (d) Long run shift in per person OOP spending:** If we use the CAGR, the long run change from 2014–15 to 2021–22 is close to flat, but it tilts slightly down. The CAGR is around –1.24%. The main reason is simple. The final value is below the starting value. At the same time, the yearly pattern does not show one clean fall each year. There are noticeable swings in the middle years. That is why it is better to look at year to year moves and also compare time windows, not just the CAGR.

- (e) Higher Health Care Spending in Kamrup (Metro):** The district numbers suggest that Kamrup (Metro) spent more on health care than the state as a whole. In 2013, households in Kamrup (Metro) paid ₹12,585. Across Assam, the amount was ₹4,517. The difference shows up in inpatient care too. It also appears in outpatient care. In Kamrup (Metro), both of these spending heads are higher than the Assam average. Because of this, Kamrup (Metro) should be reviewed on its own. It is not wise to rely only on state level numbers.
- (f) Continued Importance of Household Financial Protection:** Despite the substantial decline in the OOP share of total health expenditure, direct household healthcare expenditure continues to have important financial implications. The evidence indicates that households remain responsible for a considerable amount of healthcare spending, particularly in relation to inpatient and other potentially high-cost services. Therefore, the reduction in the relative OOP share should not be interpreted as the complete elimination of household financial burden. Strengthening public healthcare provision, financial-risk protection, affordable medicines and diagnostic services remains important.
- (g) Regional Difference between Kamrup (Metro) and the State Average:** The comparison demonstrates a notable difference between Kamrup (Metro) and the overall Assam average in the available district-level evidence. Kamrup (Metro)'s higher household healthcare expenditure may be associated with its greater concentration of healthcare facilities, specialised services and healthcare providers. However, the available secondary data do not permit these factors to be established as causal determinants. The finding nevertheless demonstrates the importance of considering intra-state regional variation when formulating healthcare-financing policies.

Overall, the study finds that the OOP health expenditure pattern was not characterised by a simple continuous increase. Instead, the evidence demonstrates substantial fluctuations in per capita expenditure, a marked decline in the OOP share of total health expenditure, recovery in per capita OOP expenditure after 2017–18, and comparatively high household healthcare expenditure in Kamrup (Metro) in the available district-level evidence. These findings collectively indicate that absolute OOP expenditure and the relative OOP share represent different dimensions of healthcare financing and should therefore be analysed together when assessing household financial protection.

7. Policy Implications:

The findings highlight the need to strengthen public healthcare services in Assam, particularly in areas where households continue to incur substantial direct healthcare expenditure. Greater investment in government hospitals, primary and secondary healthcare facilities, diagnostic

services, medicines and essential medical equipment can improve the availability and quality of publicly provided healthcare. Strengthening public facilities can also reduce excessive dependence on private providers, particularly for services that can be effectively delivered through the public healthcare system. For Kamrup (Metro), where healthcare utilisation and expenditure are relatively high, improving the capacity of government hospitals and strengthening referral mechanisms can contribute to more affordable healthcare access.

The substantial role of household expenditure in healthcare financing indicates the need for policies aimed at reducing excessive OOP payments. Particular attention should be given to expenditure on medicines, diagnostic tests, hospitalisation and other services that can generate high costs for households. Ensuring the availability of essential medicines and diagnostic services at government facilities can reduce the need for households to purchase these services privately. The objective should not necessarily be to eliminate all household healthcare expenditure, but to prevent healthcare payments from becoming excessive relative to household economic capacity. Reducing avoidable OOP expenditure can contribute to improved financial security and continuity of healthcare utilisation.

Improving financial protection should remain a central component of healthcare policy. The decline in Assam's OOP share of total health expenditure represents progress, but continued household expenditure demonstrates the need for further strengthening of risk-pooling and publicly financed healthcare mechanisms. Financial protection can be improved through better coverage of hospitalisation, medicines, diagnostics and other necessary healthcare services under government-supported programmes. Greater awareness regarding available financial-protection schemes is also necessary so that eligible households can effectively utilise the benefits available to them. For Kamrup (Metro), such mechanisms should be particularly responsive to households facing high-cost medical treatment.

The expansion and effective utilisation of health insurance can reduce the direct financial burden associated with major healthcare expenditure. However, insurance coverage should extend beyond nominal enrolment and ensure that households receive meaningful protection when healthcare services are actually required. Greater attention should be given to coverage of hospitalisation, specialised treatment, diagnostic procedures and other high-cost services. The government should also strengthen awareness, simplify claim procedures and improve coordination between healthcare providers and insurance programmes. Effective insurance coverage can complement public healthcare services and contribute to reducing catastrophic healthcare expenditure.

Healthcare affordability can be improved by ensuring that essential services are available at reasonable costs. Government intervention should focus particularly on medicines, diagnostics,

preventive care and outpatient services, as these expenditures can accumulate over repeated episodes of healthcare utilisation. Price regulation, availability of generic medicines, affordable diagnostic facilities and strengthened public outpatient services can help reduce unnecessary financial pressure on households. In Kamrup (Metro), where a wide range of healthcare providers and specialised services are available, policies should ensure that increased availability of healthcare services does not translate into disproportionate financial costs for households.

Improving physical, financial and functional accessibility to government healthcare facilities is essential for reducing dependence on costly healthcare options. Although Kamrup (Metro) has a comparatively high concentration of healthcare facilities, accessibility should be assessed not merely in terms of the number of facilities but also in terms of affordability, waiting time, availability of medicines, diagnostic services, qualified personnel and quality of treatment. Strengthening government healthcare facilities at different levels and improving referral systems can encourage households to utilise affordable public services. Better accessibility can consequently contribute to both improved healthcare outcomes and reduced household financial burden.

Healthcare-financing policies should incorporate targeted support for households that are particularly vulnerable to high medical expenditure. Low-income households, households requiring repeated treatment and those facing major inpatient or specialised healthcare expenses may require greater financial protection than the general population. Subsidies aimed at specific needs, help through insurance, and lower cost medicines and tests can all lessen the chance of financial stress. When Kamrup (Metro) plans these steps, it should base choices on solid data about income status and how people use health services. That way, public money is more likely to go to families that face the highest risk.

The results point to one clear idea that to cut out-of-pocket spending, the response should not depend on just one tool. A stronger public health system matters. Affordable medicines and diagnostics also matter. Health insurance that works should be expanded. People should be able to reach services more easily. Targeted cash or support for those who need it most can help, too. Taken together, these actions can protect households from financial strain. The decline in Assam's OOP share of total health expenditure demonstrates progress, but the comparatively high household healthcare expenditure observed in Kamrup (Metro) indicates that further district-sensitive interventions are necessary. The broader policy objective should therefore be to ensure that access to necessary healthcare does not result in disproportionate financial hardship for households.

8. Conclusion:

The present study looked at how out-of-pocket (OOP) spending on health changed in Kamrup (Metro) District in Assam from 2000 to 2025. It focused on the wider healthcare financing setting in the state. The results do not point to one steady rise or one steady fall. Instead, OOP health spending moved up and down across the years. District level figures suggest a clear gap in 2013. In that year, Kamrup (Metro) households spent much more on health than the Assam average. The total household health spending was ₹12,585 in Kamrup (Metro), while Assam had ₹4,517. At the state scale, the weight of OOP spending in total health spending fell a lot. It went from 63.1% in 2014–15 to 27.6% in 2021–22. Per capita OOP spending also did not stay flat. It dropped in 2017–18, then increased again in the following period. These findings indicate that both the absolute magnitude and relative share of OOP expenditure are important for understanding healthcare-financing conditions.

The overall pattern indicates a transition in the healthcare-financing structure of Assam, characterised by a substantial reduction in the relative dependence on direct household payments. However, this reduction in the OOP share does not necessarily imply a corresponding elimination of household healthcare expenditure. The Kamrup (Metro) evidence demonstrates that households can continue to incur relatively high healthcare expenditure even within a changing healthcare-financing environment. The observed fluctuations in per capita OOP expenditure further indicate that expenditure patterns are influenced by variations in healthcare utilisation, financing arrangements and the nature of healthcare requirements. Therefore, OOP expenditure should be understood through multiple dimensions, including total expenditure, per capita expenditure, relative share and household financial burden.

The study contributes to the existing literature by providing an analytical examination of OOP health expenditure with particular attention to Kamrup (Metro), an important healthcare and urban centre of Assam. A lot has already been written about spending on health through OOP at the national and state levels. Still, we have far less clear evidence from the district level. In this study, we use what is already available from national and state sources, and we also add district level evidence for Kamrup (Metro). This gives a more grounded view of how healthcare spending works in that district. We also compare Kamrup (Metro) with Assam and with India. That comparison helps separate what is happening in the district from wider shifts in how healthcare funds are handled. Thus, the study contributes to the understanding of the relationship between OOP expenditure, healthcare financing and household financial protection in the regional context.

The findings have important implications for healthcare and financial-protection policies in Assam. The drop in the OOP part of total health spending looks like real progress. It also

suggests more people are being shielded from heavy costs. Still, many households keep paying a lot out of their own pockets. That means more work is needed from policy makers. Public hospitals and clinics must be stronger. Affordable medicines should be easy to get, and tests should not be out of reach. Health insurance should reach more people and work in a way that helps them. People also need better access to care that is paid for by public funds. These steps can lower the chance that families rely so much on direct payments. In Kamrup (Metro), where healthcare utilisation and expenditure are relatively important, policies should focus not only on increasing healthcare availability but also on ensuring that necessary healthcare remains financially accessible. A district-sensitive approach to healthcare financing can help ensure that improvements at the state level translate into meaningful financial protection for households.

The study also provides scope for further research on OOP health expenditure in Kamrup (Metro) and Assam. Next studies could use new data collected at the household level. This would help explain what drives out of pocket spending. It can also clarify when medical costs become catastrophic. Researchers may study how often people seek care and whether they have health insurance. They can also look at how health spending links to household income. More work could compare results across wealth groups. It could also compare people in towns versus villages. Another option is to check differences by sex, by age, and by the kind of health provider people use. Panel or time-series approaches using more comprehensive district-level datasets may provide deeper insights into the long-term determinants of OOP expenditure. Such research would complement the present secondary-data analysis and provide a more detailed understanding of household financial vulnerability and the effectiveness of healthcare-financing mechanisms.

Overall, the study concludes that OOP health expenditure remains an important dimension of healthcare financing in Assam, even though its relative contribution to total health expenditure has declined substantially. The evidence from Kamrup (Metro) highlights the need to look beyond aggregate state-level indicators and examine the actual expenditure burden experienced within individual districts. Sustainable improvement in healthcare financing therefore requires a combination of strong public healthcare provision, affordable healthcare services, effective financial-risk protection and targeted support for financially vulnerable households. Such measures can contribute towards reducing excessive OOP payments and strengthening equitable access to healthcare in Kamrup (Metro), Assam.

References

1. Balarajan, Y., Selvaraj, S., & Subramanian, S. V. (2011). Health care and equity in India. *The Lancet*, 377(9764), 505–515.

2. Basumatary, J., & Srivastav, N. (2019). Poverty impact of out-of-pocket expenditure on health care in rural Assam. In *Proceedings of the 7th Conference on Strengthening Public Health Systems in the Context of Universal Health Coverage*. Indian Health Economics and Policy Association.
3. Berman, P. A. (1998). Rethinking health care systems: Private health care provision in India. *World Development*, 26(8), 1463–1479.
4. Dalui, A., Banerjee, S., & Roy, R. (2020). Determinants of out-of-pocket and catastrophic health expenditure in rural population: A community-based study in a block of Purba Bardhaman, West Bengal. *Indian Journal of Public Health*, 64(3), 223–228.
5. Devi, N. (2019). Analyzing out of pocket health expenses: An assessment based on cross section study in Assam. *Indian Journal of Community Health*, 31(2), 200–207.
6. Garg, C. C., & Karan, A. K. (2009). Reducing out-of-pocket expenditures to reduce poverty: A disaggregated analysis at rural-urban and state level in India. *Health Policy and Planning*, 24(2), 116–128.
7. Ghosh, S. (2011). Catastrophic payments and impoverishment due to out-of-pocket health spending. *Economic & Political Weekly*, 46(47), 63–70.
8. Government of Assam. (2014). *Assam human development report 2014: Managing diversities, achieving human development*. Government of Assam.
9. Karan, A., & Selvaraj, S. (2012). Deepening health insecurity in India: Evidence from National Sample Surveys since 1986. *Economic & Political Weekly*, 47(11), 55–60.
10. Kastor, A., & Mohanty, S. K. (2018). Disease-specific out-of-pocket and catastrophic health expenditure on hospitalization in India: Do Indian households face distress health financing? *PLOS ONE*, 13(5), e0196106.
11. Ministry of Health and Family Welfare. (2021). *National Health Accounts estimates for India 2017–18*. Government of India.
12. Ministry of Health and Family Welfare. (2023). *National Health Accounts estimates for India 2019–20*. Government of India.
13. Ministry of Health and Family Welfare. (2024). *National Health Accounts estimates for India 2021–22*. Government of India.

14. Ministry of Statistics and Programme Implementation. (2019). *Health in India: NSS 75th Round*. Government of India.
15. Mohanty, S. K., et al. (2022). Multimorbidity, healthcare use and catastrophic health expenditure by households in India: A cross-section analysis of self-reported morbidity from national sample survey data 2017–18. *BMC Health Services Research*, 22, 1–13.
16. National Health Systems Resource Centre. (2017). *National health accounts estimates for India, 2014–15*. Ministry of Health and Family Welfare, Government of India.
17. National Health Systems Resource Centre. (2019–20). *State health accounts estimates for Assam, 2019–20*. Ministry of Health and Family Welfare, Government of India. National Health Systems Resource Centre. (2020). *National health accounts estimates for India, 2017–18*. Ministry of Health and Family Welfare, Government of India.
18. National Health Systems Resource Centre. (2022). *National health accounts estimates for India, 2018–19*. Ministry of Health and Family Welfare, Government of India.
19. National Health Systems Resource Centre. (2023). *National health accounts estimates for India, 2019–20*. Ministry of Health and Family Welfare, Government of India.
20. National Health Systems Resource Centre. (2024). *National health accounts estimates for India, 2020–21*. Ministry of Health and Family Welfare, Government of India.
21. National Health Systems Resource Centre. (2024). *National health accounts estimates for India, 2021–22*. Ministry of Health and Family Welfare, Government of India.
22. National Sample Survey Office. (2019). *Key indicators of social consumption in India: Health, NSS 75th Round (July 2017–June 2018)*. Ministry of Statistics and Programme Implementation, Government of India.
23. National Statistical Office. (2023). *Health in India, NSS 75th Round, 2017–18*. Ministry of Statistics and Programme Implementation, Government of India.
24. Neog, N., Buragohain, P. P., & Biswas, K. (2024). Assessing household catastrophic healthcare expenditure and its associated factors: A study in a North-Eastern state of India. *Indian Journal of Community Health*, 36(2), 244–250.
25. Pandey, A., Ploubidis, G. B., Clarke, L., & Dandona, L. (2018). Trends in catastrophic health expenditure in India: 1993 to 2014. *Bulletin of the World Health Organization*, 96(1), 18–28.

26. Reddy, U. S. (2024). Measurement of catastrophic health expenditure in India: A systematic review and meta-analysis. *Applied Health Economics and Health Policy*, 22(4), 471–483.
27. Russell, S. (2004). The economic burden of illness for households in developing countries: A review of studies focusing on malaria, tuberculosis, and human immunodeficiency virus/acquired immunodeficiency syndrome. *The American Journal of Tropical Medicine and Hygiene*, 71(2 Suppl), 147–155.
28. Russell, S. (2005). Illuminating cases: Understanding the economic burden of illness through case study household research. *Health Policy and Planning*, 20(5), 277–289.
29. Selvaraj, S., & Karan, A. K. (2012). Deepening health insecurity in India: Evidence from National Sample Surveys since 1980s. *Economic and Political Weekly*, 47(40), 55–60.
30. Selvaraj, S., & Karan, A. K. (2012). Why public health expenditure matters: The case of India. *Journal of Health Management*, 14(1), 1–15.
31. Sundararaman, T., & Muraleedharan, V. R. (2015). Falling sick, paying the price: NSS 71st Round on morbidity and costs of healthcare. *Economic & Political Weekly*, 50(33), 17–20.
32. van Doorslaer, E., O'Donnell, O., Rannan-Eliya, R. P., Somanathan, A., Adhikari, S. R., Garg, C. C., Harbianto, D., Herrin, A. N., Huq, M. N., Ibragimova, S., Karan, A., Lee, T.-J., Leung, G. M., Lu, J.-F. R., Ng, C. W., Pande, B. R., Racelis, R., Tao, S., Tin, K., Tisayaticom, K., Trisnantoro, L., Vasavid, C., & Zhao, Y. (2007). Catastrophic payments for health care in Asia. *Health Economics*, 16(11), 1159–1184.
33. van Doorslaer, E., O'Donnell, O., Rannan-Eliya, R. P., Somanathan, A., Adhikari, S. R., Garg, C. C., Harbianto, D., Herrin, A. N., Huq, M. N., Ibragimova, S., Karan, A., Lee, T.-J., Leung, G. M., Lu, J.-F. R., Ng, C. W., Pande, B. R., Racelis, R., Tao, S., Tin, K., Tisayaticom, K., Trisnantoro, L., Vasavid, C., & Zhao, Y. (2006). Effect of payments for health care on poverty estimates in 11 countries in Asia: An analysis of household survey data. *The Lancet*, 368(9544), 1357–1364.
34. Wagstaff, A. (2002). Poverty and health sector inequalities. *Bulletin of the World Health Organization*, 80(2), 97–105.
35. Wagstaff, A., & van Doorslaer, E. (2003). Catastrophe and impoverishment in paying for health care: With applications to Vietnam 1993–1998. *Health Economics*, 12(11), 921–934.

36. Wagstaff, A., van Doorslaer, E., van Ourti, T., & others. (2009). *The incidence and impact of catastrophic health expenditure*. World Bank.
37. Whitehead, M., Dahlgren, G., & Evans, T. (2001). Equity and health sector reforms: Can low-income countries escape the medical poverty trap? *The Lancet*, 358(9284), 833–836.
38. World Health Organization, & World Bank. (2021). *Global monitoring report on financial protection in health 2021*. World Health Organization.
39. World Health Organization. (2005). *Social health insurance: Selected case studies from Asia and the Pacific*. WHO Regional Office for South-East Asia.
40. World Health Organization. (2006). *Health system performance assessment: World Health Survey 2003—Assam report*. World Health Organization.
41. World Health Organization. (2023). *Financial protection in health*. World Health Organization.
42. World Health Organization. (2023). *Tracking universal health coverage: 2023 global monitoring report*. World Health Organization.
43. World Health Organization. (2024). *Global spending on health: Coping with the pandemic*. World Health Organization.
44. World Health Organization. (2025). *Global health expenditure database*. World Health Organization.
45. World Health Organization. (2026). *Tracking out-of-pocket health expenditure under System of Health Accounts 2011*. World Health Organization.
46. Xu, K., Evans, D. B., Carrin, G., Aguilar-Rivera, A. M., Musgrove, P., & Evans, T. (2003). Protecting households from catastrophic health spending. *Health Affairs*, 22(4), 972–983.
47. Xu, K., Evans, D. B., Kawabata, K., Zeramardini, R., Klavus, J., & Murray, C. J. L. (2003). Household catastrophic health expenditure: A multicountry analysis. *The Lancet*, 362(9378), 111–117.
48. Yadav, J., Menon, G. R., & John, D. (2021). Disease-specific out-of-pocket payments, catastrophic health expenditure and impoverishment effects in India: An analysis of national health survey data. *Applied Health Economics and Health Policy*, 19, 769–782.