

# THE REACHOUT OF PUBLIC HEALTHCARE FINANCING OF INFANT HEALTHCARE: A STUDY OF BARAK VALLEY OF ASSAM, INDIA

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**Abstract**— Healthcare expenditure is a major concern in developing and less-developed countries with majority of the population residing in rural areas and/or deprived of accessibility to basic health services. In rural areas, government provisioning is the only way out as profit-earning private parties do not usually invest in such areas where possibility of return is almost zero. The main issue regarding public fund is that it is too scarce to meet unlimited wants. To meet healthcare needs and to achieve the MDG goals, government had initiated the NRHM in 2005. Since then, almost fifteen years have lapsed and quite a significant amount of expenditure has been made in this aspect from public exchequer. This paper makes an attempt to explore the utilization of fund allocated for infant healthcare provisioning and its actual reach out to the target group. The paper studies the various channels through which the fund flows and the trend of expenditure over the years in the area of study. The paper studies the impact of the healthcare expenditure on some selective infant healthcare parameters to assess what has been the effect of healthcare financing and provisioning on infant health.

**Keywords:** Healthcare Expenditure, Healthcare Beneficiaries, Health Schemes, India, , Infant Healthcare, NRHM

## I. INTRODUCTION

In developing and less-developed countries predominated by the rural economy, it is very essential to provide the basic life amenities to its majority of rural population. Apart from food, cloth and shelter, the two other basic requirements to ensure a decent and healthy life are health and education. Talking about the former, health is a major contributor to the formation of human capital. It also determines the potentiality of the nation's labour resource and the quality of future workforce. The future of a nation lies on its children who make up the future generation. This aspect signifies the importance of infant health. Though the children being born and brought up in urban areas are exposed to medical services (public and private healthcare providers) to quite a good extent, the case is not same with the rural ones. Private healthcare providers being guided by profit motive are least interested to serve in the economically backward rural areas. This leaves the entire responsibility on public shoulders.

Schultz (1999) stated that good health leads to increase in not only individual income but also increases aggregate national income. Looking at child health it was stated that health and nutrition has the possibility of increasing a child's learning capacity and promotes his or her capacity building. From macroeconomic studies, he confirmed the view that, sustained growth in national output per unit of input is closely associated with population's nutrition and health. Illness contributes to household poverty which in turn slows down national economic growth. Islam and Gerdtham (2006) in their study made a systematic review of the estimation of the cost of illness, specifically related to maternal and newborn ill-health. It was found that cost of illness causes annual productivity losses. For the two countries studied the loss was of US\$95 million for Ethiopia and about US\$85 million for Uganda. Hitiris and Posnett (1992) also showed that there exist relationships between lower mortality rates and increased per capita health expenditure. According to Rao (2006), there is a need for active role of the government to promote health care services as well as improve the health status to achieve the goal, HFA 2000. Investment in different

dimensions of the social sector like education, health and skill of people enable them to participate in the growth process as well as to share its benefits, principally through remunerative employment.

Thus government's initiatives towards the provisioning of healthcare services are the only dependable resource in the rural areas. With this realization and to meet with the MDG goals, government had initiated the NRHM in 2005. After the elapse of almost fifteen years, it's high time to make an assessment of whether the healthcare initiatives have been effective in fulfilling its primary objective which was to make healthcare services accessible and achievable to the rural masses

Assam is in the north-eastern region of India. Located south of the eastern Himalayas, with an area of 30,285 square miles (78,438 km<sup>2</sup>), the state comprises broadly of two valleys with a hill range in between separating them. The Brahmaputra and the Barak river valleys along with the Karbi Anglong and the North Cachar Hills Its capital is Dispur, located within the municipal area of Guwahati city.

The economy of Assam today represents a unique contradiction of backwardness and plenty. Despite its rich natural resources, and supplying of up to 25% of India's petroleum needs, Assam's growth rate has not kept pace with that of India; the difference has increased rapidly since the 1970s

Growth of population in Assam has experienced a very high trajectory since the mid-decades of the 20th century. Population grew steadily from 3.29 million in 1901 to 6.70 million in 1941, while it has increased to 14.63 million in 1971 and 22.41 million in 1991 to reach the present level. The growth in the western and southern districts was extremely high primarily due to the rapid influx of people from East Pakistan, now Bangladesh.

Among the three major physical divisions of the state of Assam, first, the Brahmaputra Valley which forms the northern part is the largest in size comprising of 71.7 per cent of total geographical area of the state. On the other hand, Barak Valley, the second part falls in the southern region of the state and is comparatively much smaller in size. The third is the hill region of Karbi Anglong and North Cachar Hills which stand amidst the two valleys separating them.

The Barak Valley, located in the southern region of Assam, is named after the Barak River. It is geographically the part of Surma valley of the pre-partition days, consisting of the old districts of Sylhet (now in Bangladesh) and Cachar. It consists of three districts of Cachar, Karimganj and Hailakandi. Barak Valley is located in between Longitude 92' 15 and 93' 15 East and Latitude 24'8 and 25'8 North. The total geographical area of the Valley is 6922 sq. km. This constitutes 8.9 percent of the total geographical area of Assam. The region is surrounded by Manipur in the East, Tripura and Bangladesh in the west, Mizoram in the south and North -Cachar Hills and Meghalaya in the North. Barak valley witnessed fluctuating growth rate of population. It showed the highest demographic growth rate in 1941-51 (2.23 per cent), which marginally reduced to 2.13 per cent in 1951-61. Again it increased to 2.20 per cent in 1961-71 and fell to 1.8 per cent in 1971-91 (census was not conducted in 1981).

## **II.OBJECTIVE OF THE STUDY**

The study aims to explore the public expenditure made particularly in case of infant health (specifically in form of preventive vaccination and immunization of the new-born) over the years and analyse the trend of expenditure. The study shall aim to find the reach out of the public healthcare provisions through studying the infant healthcare schemes. The impact of healthcare expenditure of the government in form of the changes in infant healthcare parameters is also studied.

## **III.METHODOLOGY**

The study uses data collected by author from the accounts section of the NRHM offices of the three districts of Barak Valley. Data has been collected from the Government Civil hospital and medical college of the district. The year-wise data on infant healthcare parameter is accessed from the HMIS website. The

collected data is then analyzed using simple statistics. Since data could be obtained on yearly basis, trend analysis has been done.

**IV. RESULTS AND DISCUSSION**

Table I Child Health Expenditure as Percentage of RCH Expenditure in Barak Valley (2005-06 to 2015-16).

BARAK VALLEY						
YEAR	CACHAR		HAILAKANDI		KARIMGANJ	
	Child Health Expenditure	% of total RCH expenditure	Child Health expenditure	As % of RCH Expenditure	Child Health expenditure	As % of RCH expenditure
2005-06	NA	NA	507388	34.02	-	
2006-07	112064*	0.74	467540	10.59	-	
2007-08	9584023	27.54	1532150	10.03	-	
2008-09	4900986	12.14	2100998	14.83	42950	0.21
2009-10	6914199**	9.68	1786900	6.69	75000	0.30
2010-11	6471261**	8.97	3541770	14.59	94150	0.22
2011-12	7777193**	4.74	1408143	1.88	53650	0.13
2012-13	11467294**	4.99	348830	0.49	2400523	2.05
2013-14	11784726	5.46	5052324	5.89	8138550	6.44
2014-15	14951286**	6.65	4214454	4.78	7130921	55.97
2015-16	5688744**	2.37	1372651	1.62	1602650	1.24

Source: NRHM Cachar, Karimganj, Hailakandi

\*Routine immunization expenditure

\*\*immunization expenditure + child health expenditure

Table I show that child healthcare expenditure had been a very small part of the total RCH (Reproductive and Child Health) expenditure. Under RCH, the funds for healthcare expenditures are allocated by the government. Not only had child expenditure been a meager part of the RCH expenditure, but also the proportion is found to further decrease with time during the ten year period studied. The data of Table 1 is represented by the following Chart 1:

Chart 1 Child Health Expenditure as Percentage of RCH

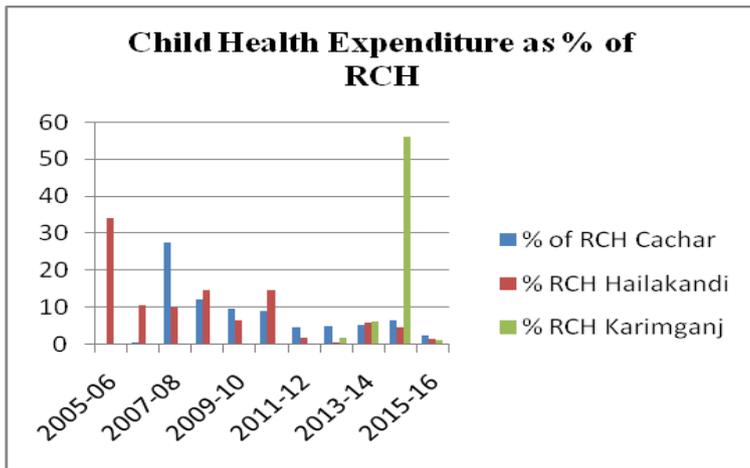


Chart 2 Child Health Expenditure Trend in Barak Valley:

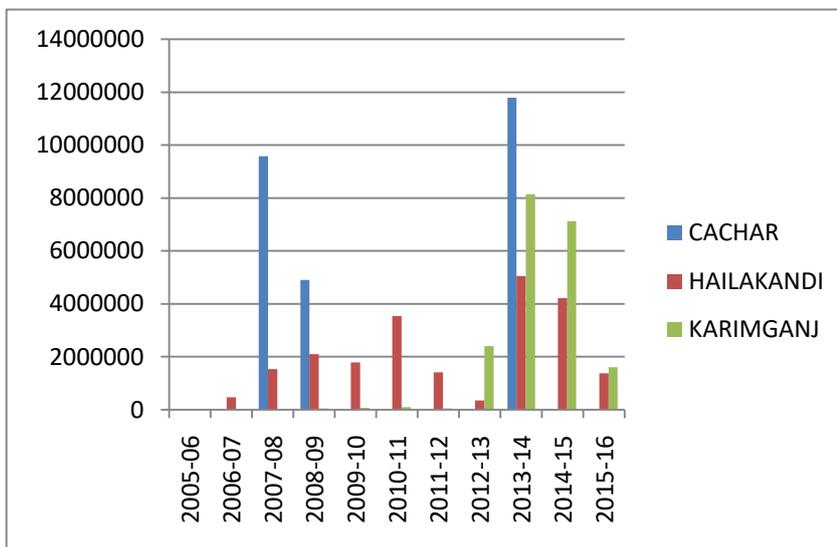


Chart 2 shows the child healthcare expenditure in Barak Valley in absolute terms. The expenditure has been high during 2013-14 but since then has shown a decreasing trend.

The overall percentage of RCH fund utilization for child health activities is very low. One of the reason behind can be the fact that immunization expenditure is made a part of Universal Immunization Program (UIP), which is separate from RCH (though a part of NRHM, now NHM), and for which fund allocation and utilization comes under separate head.

Now moving focus towards UIP, as an integral part of child health and child development

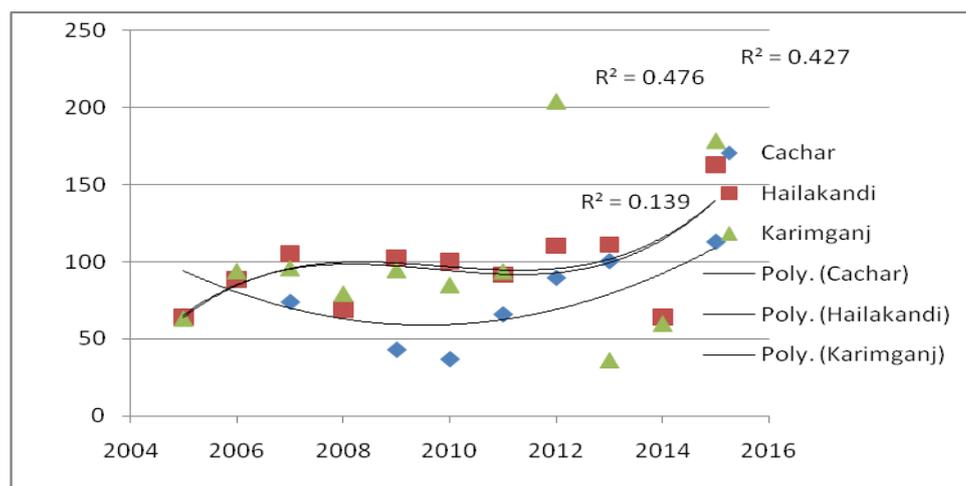
Table 2 Percentage Utilization of UIP Fund in Barak Valley

BARAK VALLEY UIP Expenditure Details						
YEAR	CACHAR		HAILAKANDI		KARIMGANJ	
	Fund Utilized	% Utilization	Fund Utilized	% Utilization	Fund Utilized	% Utilization
2005-06			222795	64.22	1129397	63.40
2006-07			5446293	88.6	8332473	94.11
2007-08	9584023	74.06	4224948	105.5	5811199	96.11
2008-09	9801972	73.82	4262670	69.13	5073934	79.52
2009-10	6852199	43.03	3574998	102.6	5545919	94.94
2010-11	6150894	36.91	3686042	100.4	4868512	85.17
2011-12	7049037	65.99	3864132	91.88	5143540	93.94
2012-13	10037647	89.75	6665269	110.5	7493785	204.1
2013-14	15481019	100.59	8912339	111.2	5546133	36.45
2014-15	11521044	64.47	5673239	64.46	7768812	60.18
2015-16	20103145	113.15	9588851	163.2	17893644	178.6

Source: NRHM Cachar, Karimganj, Hailakandi

Universal Immunization Program (UIP) deals with the provisioning of vaccination to infants for protection against life-threatening and body-deforming diseases. The first vaccine BCG (Bacille Calmette Guerin) is given within a few days after birth. It provides immunization against tuberculosis. Oral Polio Vaccines (OPV) is given in three doses to prevent polio which deforms the body of the child. Another important vaccine is MMR given at the age of nine months as protection against measles, mumps and rubella. Apart from these major vaccines, there are more improvised and advanced once providing immunization from many forms of sicknesses. The vaccines are followed by booster doses which continue throughout the childhood. The major vaccines are administered by the government through its UIP program. These vaccines are administered free of cost and with a wide coverage especially in rural areas accompanied by awareness campaigns and door-to-door vaccination. The trend of UIP expenditure in Barak Valley is presented in Chart 3.

Chart 3 UIP Expenditure Trend in Barak Valley



The UIP fund utilization presents a much brighter picture of the work being done in the field of child immunization. Though the trend presents a very irregular picture as all the districts follow polynomial trend for the ten-year time period taken with a low R-square value, still in the recent years, post 2013-14, there has been an upsurge in UIP expenditure in all the three districts. It’s worth mentioning here that, UIP was given the status of one of the five, ‘National Technology Missions’ in 1986. Subsequently in 1992 UIP became a part of Child Survival and Safe Motherhood Program, and then of Reproductive and Child Health (RCH) program in 1997. A specific Immunization Strengthening Program (ISP) was designed to run from 2000-2003 which included three main components, polio eradication, strengthening routine immunization and strategic framework of development. Over the years, various service packages have been developed around the RCH program that have tended to function independently, in order to bring about greater impact of the program and create a synergy between the various packages. Immunization is one of the most cost effective intervention to prevent sickness, disability and death, and its benefit are not only restricted to improvement of health and life expectancy but also have social and economic impact both at community and national level.

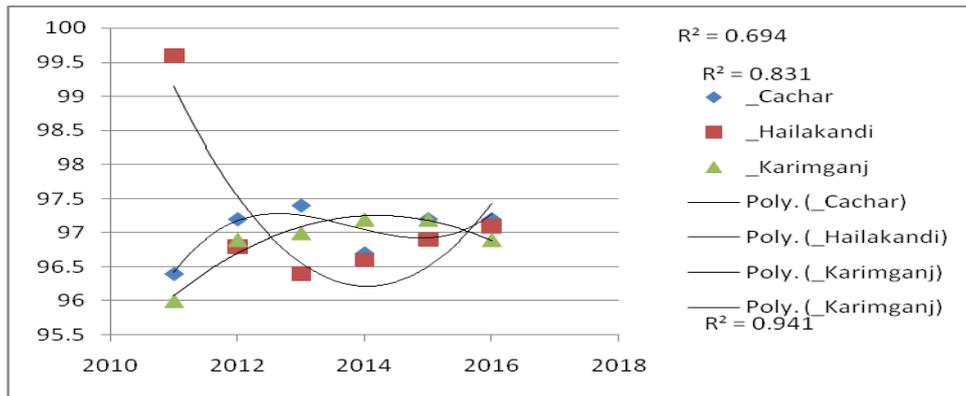
For studying child health, the indicators taken is the percentage of live births to total reported deliveries (an inverse reflection of child still birth, thus showing the rate of infant survival during birth .

Table III Percentage of live births to total reported deliveries in Cachar, Hailakandi, Karimganj (2011-12 to 2016-17):

Districts	2011	2012	2013	2014	2015	2016
Cachar	96.4	97.2	97.4	96.7	97.2	97.2
Hailakandi	99.6	96.8	96.4	96.6	96.9	97.1
Karimganj	96	96.9	97	97.2	97.2	96.9
Barak Valley (average)	96.96	96.96	96.93	96.8	97.1	97.07

Source: HMIS Reports, various years

Chart 4 Trend showing percentage of live births to total reported deliveries in Cachar, Hailakandi, Karimganj (2011-12 to 2016-17):



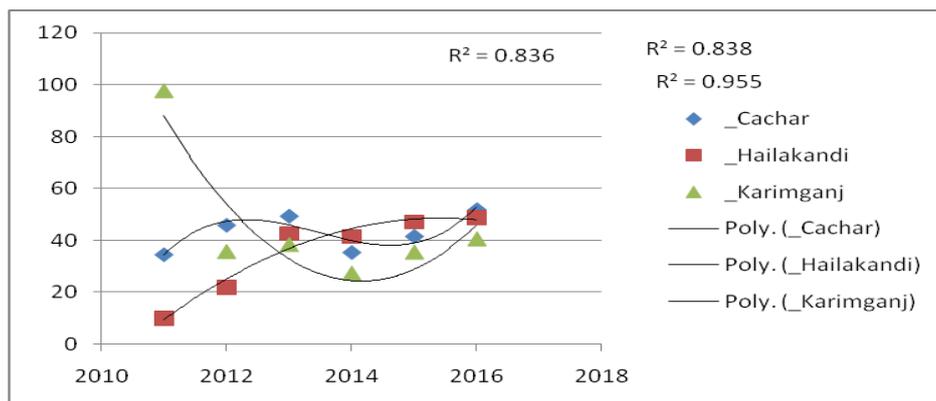
For the district of Hailakandi, the percentage of live births show a decline till 2014-15, beyond which, it increased. For Karimganj, the percentage of live birth is increasing at a decreasing rate. Cachar follows a polynomial trend of the third order showing high fluctuation in data. It is evident from Table 3 that the percentage of live births has increased in Barak Valley over the years. This shows a successful maternal healthcare provisioning which leads to successful deliveries and increment in the percentage of live births.

Table IV Percentage of infants given OPV0 dose at birth to total live births in Cachar, Hailakandi, Karimganj (2011-12 to 2016-17):

Districts	2011	2012	2013	2014	2015	2016
Cachar	34.63	46	49.5	35.5	41.7	52
Hailakandi	9.85	21.8	42.5	41.4	47.1	48.8
Karimganj	97.6	35.7	38.4	27.4	35.5	40.6
Barak Valley (average)	47.4	34.5	43.5	34.8	41.4	47.1

Source: HMIS Reports, various years

Chart 5 Trend showing percentage of infants given OPV0 dose at birth to total live births in Cachar, Hailakandi, Karimganj (2011-12 to 2016-17):



The data shows lot of fluctuations over the years and all the three districts follow polynomial trend, with Hailakandi and Karimganj following second order polynomial function whereas Cachar shows a better

value of adjusted R-square in third order. All the trends show a positive slope, though for Karimganj, it is initially declining and increasing beyond 2014-15.

The performance of the other two vaccinations namely BCG and MMR show a much brighter picture where coverage has been hundred per cent in most districts over the years. So overall, it can be stated that public healthcare expenditure has a positive role in improving infant healthcare indicators. The government also reaches out to the healthcare service receivers through various schemes. One of such schemes targeting new mothers and new-born is Mamata (operational in the state of Assam). Mamata scheme seeks to reduce IMR and MMR by insisting on a post-delivery hospital stay of 48 hours of the mother and the new-born infant. Any complication that may arise during this period can be thus dealt with skilled hands. To encourage such stay, the mother receives a gift hamper for the baby at the time of discharge. This gift hamper is called the Mamata Kit, and contains baby care products like baby powder, baby oil, a mosquito net, a flannel cloth etc. only after this stay of 48 hrs, the mother is given this hamper. According to government statistics, between 2010-11 to 2013-14 period 10,01,923 Mamata Kits have been distributed. There are also schemes like Mamoni, encouraging ante-natal check-ups of pregnant women and Janani Suraksha Yojana (JSY) encouraging institutional deliveries that implicitly improves the healthy birth and health of the new-born.

#### V. CONCLUSION

Thus, from the study it can be summarized that governmental expenditure in absolute value on infant healthcare provisioning has been consistently increasing. Though as a percentage of RCH expenditure its proportion has decreased over the years. This may be due to diversion of resources in RCH fund towards other healthcare related schemes other than child health. Looking at UIP expenditures targeting mainly immunization of children, the fund has shown positive utilization over the years. The result of which is evident in the performance of the child healthcare indicators studied. Percentage of live births have shown an increment in the years studied. The coverage of vaccines like MMR and BCG show a very optimistic picture though the same cannot be said about polio vaccine coverage. The coverage of polio vaccine shows a low value in each district especially due to the bad performance of its first dose. Interviews with medical practitioners have revealed that the first dose of polio vaccine is usually not given to the infant if he/she is suffering from any sickness. As new born infants are very susceptible to cold, fever, mild jaundice, it becomes one of the common reasons why the first dose is often missed by the infants.

The government often channels its fund through various incentive-based schemes to encourage the would-be mothers to avail government healthcare facilities. Some of these schemes prevalent in Assam (as well as the rest of India) are Janani Suraksha Yojana (which gives a cash incentive of 1400 INR for every institutional delivery up to two children per mother), Mamoni (which gives cash incentive for dietary supplements by providing two cheques of 500 INR each for each TT injection taken by the pregnant mother during her pregnancy term), Mamata (an encouragement to post-delivery hospital stay of 48 hours for post-natal care through the provision of a baby care kit), Majoni (incentive to new-born girl child through provision of a bank fixed deposit of 5000 INR to be encased on attaining eighteen years of the girl. This financial assistance is provided to only those families who restrict to two children. So it implicitly facilitates family planning too) and a few more such schemes. The aim is to reach-out to the economically weak section of the rural population with the healthcare services so as to reduce mortality and morbidity. But what should be thought upon now is the fact whether the improvements achieved are self sustaining or limited to the period of financial assistance provided by the government? In developing and less-developed countries where resources are scarce, it is very important to make the achievements of every field self-sustaining in the long-run to ease the burden on the public exchequer. Therefore it is very essential at this stage to assess the self-sustaining potentiality of the healthcare indicators. One way to make the healthcare achievements self-sustaining is through the spread of education and awareness. Once

the pregnant women and her family know and realize the importance of ante-natal check-ups during pregnancy and the benefits of institutional delivery, they shall come by themselves for their safe health rather than been lured by cash-incentives. If this level of awareness can be achieved, much of the financial burden of the government can be released. As every social sector, like health and education, are interlinked, an all-round and holistic approach is needed to develop the nation as well as reach a higher level of human development.

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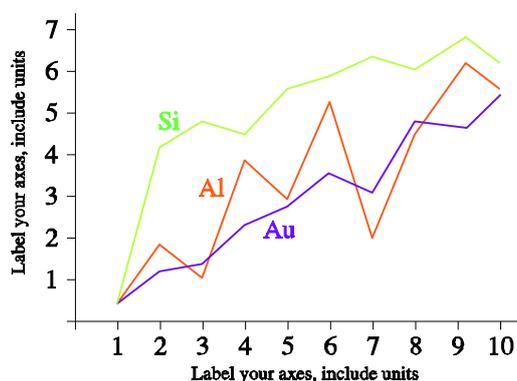


Fig. 1 A sample line graph using colors which contrast well both on screen and on a black-and-white hardcopy

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Fig. 2 Example of an unacceptable low-resolution image



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