



MATERNAL HEALTH

DEPARTMENT OF HEALTH & FAMILY WELFARE
GOVERNMENT OF KERALA

KERALA.HEALTH

Foreword

Kerala Health has taken an initiative to focus at Maternal health decades back. Shri Bharat Bhushan IAS took initiative to involve the private sector in an organized way by starting a partnership with KFOG, which later on got strengthened by the successive officers at State and field level resulted into one of the remarkable examples of shared vision, public private partnership and achieving results. Today Kerala stands at less than 30 MMR is because of the long-term thinking of successive governments and untiring efforts of the officers.

This documentation efforts have been taken In order to understand the program and its outcomes. It comprehensively documents Kerala's Maternal health programme, capturing its institutional arrangements, operational strategies, innovations, and performance.

While discussing the strategies to go forward a question was posed "what is the next program interventions we should plan?" After doing analysis the first priority set is "The last in line is the first for us". The second priority was to have a mechanism to track every anti natal case. Kerala health forged a partnership with Digital University of Kerala (DuK) to develop mother and child tracking system as a part of larger program of Digital Health. This tracking system will enable to track each mother and child and will give information of every ANC case. This will enable to identify high risk pregnancies and linking them to nearest Hospital either Government or Private Hospital empanelled in Karunya Arogya Suraksha Padhati. The other complementary support system will assist the objective of ensuring ZERO PREVENTABLE DEATHS of mother and child during and after giving birth to a baby.

Now, the field functionaries have been oriented to prioritize coverage of BPL population to understand their health status and do linkages with the services. This task would not have been possible without the efforts of the Family welfare State team headed by Dr Meenakshy and others along with the District RCH officers and all the field functionaries.

I am confident that the document will serve as an important reference for programme managers, policymakers, and development partners. It will support evidence-based decision-making, facilitate patient centric individualized care, and guide the next phase of Kerala's efforts to reduce the maternal mortality to achieve the target of 20 by 30 and improve population health outcomes.

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Chapter 1

Introduction

1.1 Overview of Maternal Health in Kerala

Kerala has achieved one of the lowest Maternal Mortality Ratios (MMR) in India, significantly outperforming the national average. As per the Government of Kerala's own SDG indicator reporting, Kerala's MMR (per 100,000 live births) is much lower than the Sustainable Development Goal target of <70 with near universal skilled birth attendance and high coverage of antenatal care - more than 99% of births are attended by trained health personnel.

This achievement reflects the state's strong public health system, sustained investments in maternal and child health services and effective implementation of safe motherhood programmes. Despite demographic challenges such as declining births and periodic increases in reported ratios due to factors like the COVID-19 pandemic, Kerala remains well positioned to meet and sustain global maternal health targets through continued emphasis on quality care, surveillance and equitable access across urban and rural areas.

Maternal health implementation in Kerala includes comprehensive antenatal care with early registration, high-risk pregnancy tracking, promotion of institutional deliveries with skilled birth attendants in both public and private sectors and strengthened emergency obstetric and newborn care services. Key initiatives such as Janani Shishu Suraksha Karyakram (JSSK), Surakshit Matritva Aashwasan (SUMAN) and LaQshya focus on free, respectful and quality maternity care. The state also conducts Maternal Death Surveillance and Response (MDSR) meetings, Confidential Reviews of Maternal Deaths, regular near-miss reviews, infrastructure strengthening of labour rooms and operation theatres, capacity building of healthcare staff and continuous monitoring to prevent all avoidable maternal deaths.

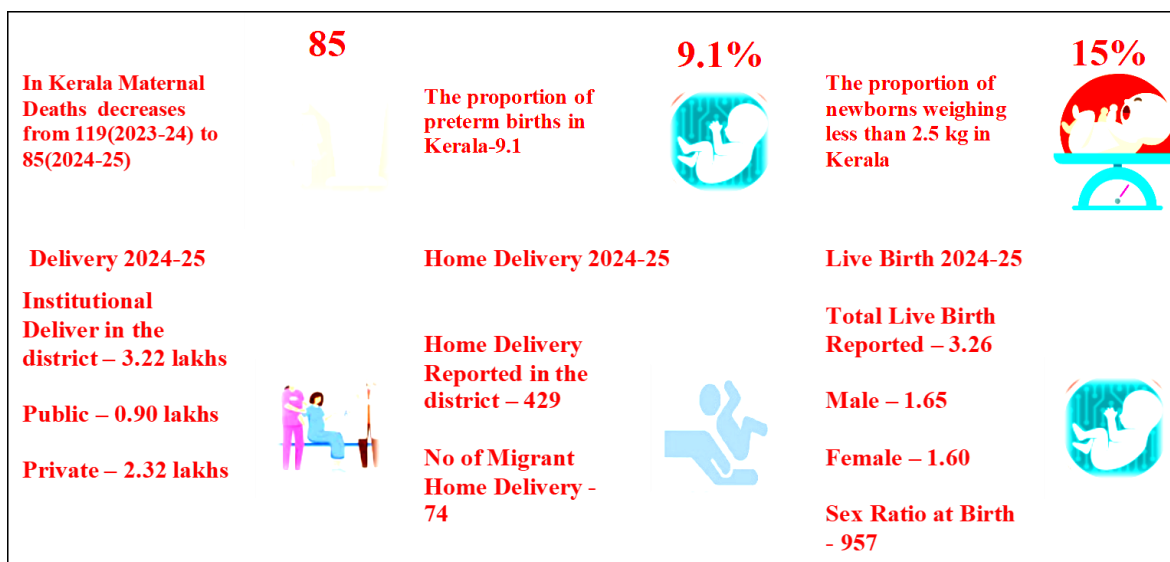
1.2 Rationale for a dedicated Maternal Health Document

This document aims to provide a comprehensive profile of maternal health in Kerala, highlighting achievements, trends and challenges. It serves as a tool for policymakers, healthcare providers and researchers to identify gaps, track progress toward SDG targets and inform future interventions.

1.3 Fact sheet of Key Maternal Health Indicators

District AT A GLANCE					
Administrative Divisions		Population		Area	
Thaluks –78 Villages –1670 Municipalities- 87 Corporations – 6 Block Panchayath- 152 Grama Panchayath - 1670		Population As per Census 2011 –33,406,061 Male – 16,027,412 Female - 17,378,649 Population Density (No per Sq K) - 860		Total Area (Sq. K)– 38863 Population Density (No per Sq K) - 860 Decadal Population Growth Rate – 4.91	
					
Healthcare Infrastructure under DHS					
District Level Hospitals		Sub District Level Hospitals		Community Health Centres	
DH – 18 GH – 17 W&C – 9 18 		THQH – 48 TH – 40 40 		Total CHC – 226 Converted to FHC - 41 226 	
Primary Health Centres		Janakeeya Arogya Kendram		Other Institutions	
Total PHC – 849 Converted to FHC – 844 849 		Janakeeya Arogya Kendram - 5415 5415 		School of Nursing – 15 Training Center – 9 PH Lab – 10 DVC Units – 14 Offset Press - 1 Blood Bank – 189 Public – 41 Private -148 Blood Storage Unit – 132	
Delivery Point		Care Unit			
DH-16 GH-15 W&C-9 GTSH-1 THQH-37 PH-15 CHC-1 Under DME-9 		SNCU-23 NBSU-63 NBCC-100			
Reproductive & Maternal Health					
Pregnant Women Registration: 2024-25		Pregnant Women- Anaemia 2024-25		Rising C-Section Rates 2024-25	
The number of pregnant women in Kerala shows a sharp decline trend. Highest PW Registration District – MLP Lowest PW Registration District- PTM 3.49 Lakhs 		27% pregnant women were identified as anaemic through VIVA testing. 27% 		Alappuzha reported high C-section rate in Kerala 45% 	
Maternal Deaths 2024-25		Preterm Births 2024-25		Underweight Newborns 2024-25	

Source: Census 2011, HMIS, DHS



1.4 Life-cycle and continuum of care approach

Kerala's maternal health strategy emphasizes a life-cycle approach, integrating services from adolescence through pregnancy, delivery, postnatal/newborn period and childhood. This continuum includes adolescent health programs, family planning services, antenatal care, safe delivery, postnatal/neonatal care, child care and management of complications.

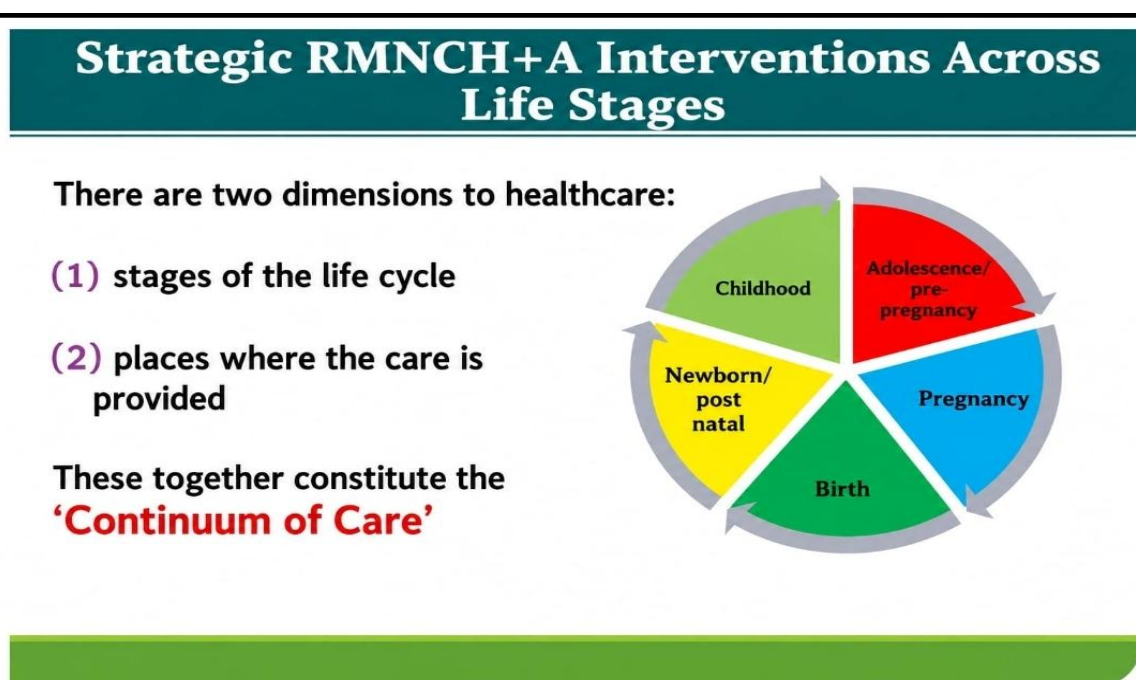


Fig 1.1: Life Cycle Approach

What is continuum of care in RMNCH+A

Stage	Key Interventions
Pre-pregnancy	Family planning, reproductive health education
Pregnancy	Antenatal check-ups, nutrition support, risk screening
Childbirth	Institutional delivery, essential newborn care
Postnatal	Breastfeeding, immunization, maternal check-ups
Infancy & Childhood	Growth monitoring, nutrition support, early interventions
Adolescence	Health education, anemia prevention, reproductive health

Fig 1.3: Continuum of Care

Chapter 2

Maternal Health Profile of Kerala

Introduction

Kerala has one of the most advanced maternal health profiles in India, marked by low maternal mortality, high service coverage and strong health infrastructure. The state has achieved near-universal institutional deliveries, widespread access to skilled birth attendants and high utilization of antenatal and postnatal care services. These achievements are largely attributed to high female literacy, effective primary healthcare systems, strong public health governance, and active community-level health workers. As a result Kerala consistently reports maternal health outcomes comparable to those of many developed regions. Despite this progress, emerging challenges such as increasing maternal age, lifestyle-related health conditions and the need to sustain quality care for high-risk pregnancies remain important areas of focus.

This chapter describes the maternal health profile of Kerala by examining key demographic and reproductive characteristics that influence maternal health outcomes. It focuses on the profile of currently married women, patterns in the mean age at marriage and mean age at first pregnancy and the long-term trends in Total Fertility Rate (TFR), which has declined to below-replacement levels reflecting delayed marriage, higher female education and changing reproductive preferences. The chapter also identifies high-risk communities, including socially and economically disadvantaged groups, women of advanced maternal age and those with underlying health conditions who continue to face greater maternal health risks despite the state's overall favourable indicators.

2.1 Married Women Aged 15–49 Years profile

The table 2.1 presents the distribution of currently married women aged 15–49 years across districts in Kerala, highlighting regional variations in marital status within the reproductive age group. At the state level, out of a total population of 33.4 million, the female population accounts for about 9.33 million women in the reproductive age group, of whom approximately 73 % are currently married. This indicates a high proportion of married women, reflecting the relatively stable marital structure and cultural norms influencing family formation in Kerala.

District-wise analysis reveals notable differences. Malappuram (8.93 lakh), Thiruvananthapuram (6.79 lakh), Kozhikode (6.69 lakh), Ernakulam (6.41 lakh), and Thrissur (6.34 lakh) report the highest numbers of currently married women, corresponding closely with their larger population sizes. In contrast, districts such as Wayanad (1.68 lakh), Idukki (2.18 lakh), and Pathanamthitta (2.30 lakh) show comparatively lower numbers, reflecting smaller

population bases and distinct demographic characteristics, including migration and lower fertility levels.

Table 2.1 Distribution of currently married women aged 15–49 years

State/District	Total Population	Female Population	Currently Married (15-49)
KSD	1,307,375	379440	265597
KNR	2,523,003	725545	530188
WYD	817,420	230227	167824
KKD	3,086,293	884077	668668
MLP	4,112,920	1189880	893016
PKD	2,809,934	788683	576734
TSR	3,121,200	871831	634419
EKM	3,282,388	873521	640830
IDK	1,108,974	300809	217960
KTM	1,974,551	505215	359264
ALP	2,127,789	580294	432233
PTA	1,197,412	320235	230333
KLM	2,635,375	747381	555349
TVM	3,301,427	935356	679260
Kerala	33406061	9332494	6851675

Source: Census 2011

The distribution also mirrors broader socio-demographic trends within the state. Districts with higher proportions of currently married women often exhibit earlier marriage patterns and higher fertility preferences, while districts with lower numbers tend to reflect delayed marriage, higher female education, and increased participation of women in non-domestic roles. From a maternal health perspective, the concentration of currently married women in certain districts implies a greater demand for reproductive, antenatal, and maternal healthcare services in those regions

2.2 Trend in Mean Age at Marriage



Source: SRS Report

Fig 2.1: Trend in Mean Age at Marriage

The Fig 2.1 clearly shows a gradual and consistent increase in the mean age at marriage in Kerala from 2006 to 2023, indicating a steady shift towards delayed marriage among women. In 2006, the mean age at marriage in Kerala was 22.6 years, which increased to 24.4 years by 2023.

This upward trend is observed uniformly across both urban and rural areas, highlighting a statewide transition rather than a localized phenomenon. Urban areas show a more pronounced increase, rising from 22.7 years in 2006 to 24.6 years in 2023. Similarly, rural areas also demonstrate a steady rise, from 22.5 years to 24.1 years during the same period.

The narrowing gap between urban and rural figures over time further indicates that the trend of delayed marriage is no longer confined to urban populations but is increasingly evident in rural regions as well. This reflects broader social transformation across the state.

This shift can be attributed to multiple interrelated factors, including increased female educational attainment, improved employment opportunities, and evolving social norms regarding marriage and women's autonomy.

Overall, the increasing age at marriage signifies positive progress in women's empowerment and has important implications for maternal and child health outcomes, including reduced teenage pregnancies and improved health indicators.

2.3 Fertility Trends (TFR)

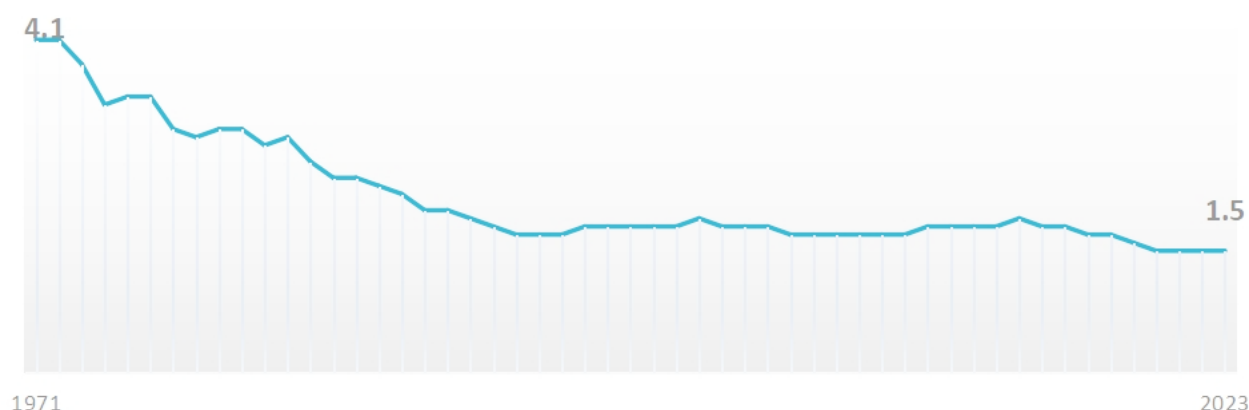


Fig 2.2: Trend in Total fertility Rate (1971-2023)

Source: SRS Report

Over the three decades, Kerala has witnessed consistently low and declining fertility levels. Total Fertility Rate (TFR) in Kerala, indicating an advanced stage of demographic transition. In the early 1970s, Kerala recorded a high fertility level, with a total TFR of 4.1 children per woman in 1971. During this period, fertility levels were consistently higher in rural areas compared to urban areas. By 1989, Kerala achieved a TFR, marking the attainment of below-replacement fertility levels (2.1) well ahead of the national average.

This period reflects fertility transition consolidation, with minimal urban–rural differentials, indicating widespread adoption of small-family norms across the state. Urban fertility consistently remained marginally lower than rural fertility, though the gap gradually narrowed over time.

In recent years, the decline has continued further, with TFR dropping to 1.6 in 2019 and reaching 1.5 during 2020–2023 across urban, rural, and total populations. While low TFR has contributed positively to improved maternal and child health outcomes, it also raises concerns related to population ageing, shrinking workforce, and increased proportion of pregnancies at advanced maternal ages, which require focused maternal and reproductive health planning.

2.4 High Risk Communities (Tribal, migrant, coastal, urban slum)

2.4.1 District Wise Scheduled Caste Population

The table 2.2 presents the district-wise distribution of the Scheduled Caste (SC) population in Kerala, highlighting rural–urban differentials and gender composition. At the state level,

Kerala has a total SC population of 30,39,573, of which 15,61,765 are females, accounting for nearly 51% of the SC population.

A majority of the SC population (18,18,281; 59.8%) resides in rural areas, while 12,21,292 (40.2%) live in urban settings. This indicates that although SC communities are predominantly rural, a significant proportion is concentrated in urban and semi-urban areas, including coastal and slum belts.

District-wise analysis shows that Palakkad district (4,03,833) reports the highest SC population, followed by Thiruvananthapuram district (3,72,977), Kollam district (3,28,263), Thrissur district (3,24,350) and Malappuram district (3,08,266).

In contrast, districts such as Wayanad (32,578) and Kasaragod (53,283) report comparatively lower SC population figures. Rural concentration is particularly high in districts like Palakkad and Malappuram whereas Thiruvananthapuram, Thrissur and Ernakulam show a substantial urban SC population.

From a maternal and reproductive health perspective, districts with higher SC population require strengthened outreach services, enhanced antenatal tracking and targeted maternal benefit coverage to ensure equitable access to RMNCH+A services.

Table 2.2: District Wise Scheduled Caste Population

Districts/Kerala	Total		Rural		Urban	
	ALL	Female	ALL	Female	ALL	Female
KSD	53,283	26,898	34,522	17,315	18,761	9,583
KNR	83,350	43,090	23,562	12,057	59,788	31,033
WYD	32,578	16,172	30,378	15,097	2,200	1,075
KKD	199,191	101,912	75,490	38,473	123,701	63,439
MLP	308,266	156,709	192,270	97,903	115,996	58,806
PKD	403,833	206,382	322,951	165,059	80,882	41,323
TSR	324,350	167,870	121,839	63,224	202,511	104,646
EKM	268,411	136,838	102,403	52,145	166,008	84,693
IDK	145,486	73,087	143,340	71,986	2,146	1,101
KTM	153,909	78,406	119,360	60,803	34,549	17,603
ALP	201,211	104,028	111,931	57,990	89,280	46,038
PTA	164,465	85,523	151,844	79,060	12,621	6,463
KLM	328,263	170,462	208,474	108,713	119,789	61,749
TVM	372,977	194,388	179,917	94,637	193,060	99,751
KERALA	3,039,573	1,561,765	1,818,281	934,462	1,221,292	627,303

Source: Census 2011

2.4.2 District Wise Scheduled Tribe Population

The table 2.3 shows the district-wise distribution of the Scheduled Tribe (ST) population in Kerala. The total ST population of the state is 4,84,839, with 2,46,636 females, constituting nearly **51%** of the ST population.

Unlike the SC population, the ST population is overwhelmingly rural. Out of the total ST population, 4,33,092 (89.3%) reside in rural areas, while only 51,747 (10.7%) live in urban areas. This highlights the geographic isolation and service access challenges faced by tribal communities.

District-wise distribution indicates that Wayanad district (1,51,443) has the highest ST population, accounting for nearly one-third of the total tribal population in Kerala. This is followed by Idukki district (55,815), Palakkad district (48,972), and Kasaragod district (48,857).

Districts such as Alappuzha, Pathanamthitta, and Thrissur report comparatively lower ST population figures. The high concentration of tribal population in hilly and forested districts like Wayanad and Idukki indicates the need for geographically sensitive health planning, including mobile medical units, strengthened referral transport, and focused antenatal and nutritional interventions.

Table 2.3: District Wise Scheduled Tribe Population

Districts/Kerala	Total		Rural		Urban	
	ALL	Female	ALL	Female	ALL	Female
KSD	48,857	24,907	46,094	23,420	2,763	1,487
KNR	41,371	21,230	36,302	18,603	5,069	2,627
WYD	151,443	76,967	148,215	75,204	3,228	1,763
KKD	15,228	7,799	9,555	4,855	5,673	2,944
MLP	22,990	11,718	18,247	9,320	4,743	2,398
PKD	48,972	24,658	47,023	23,706	1,949	952
TSR	9,430	5,068	5,859	3,141	3,571	1,927
EKM	16,559	8,210	8,324	4,099	8,235	4,111
IDK	55,815	27,820	55,243	27,508	572	312
KTM	21,972	10,998	19,698	9,848	2,274	1,150
ALP	6,574	3,399	2,961	1,521	3,613	1,878
PTA	8,108	4,161	7,663	3,931	445	230
KLM	10,761	5,566	7,886	4,065	2,875	1,501
TVM	26,759	14,135	20,022	10,663	6,737	3,472
KERALA	484,839	246,636	433,092	219,884	51,747	26,752

Source: Census 2011

Chapter 3

Antenatal Care

3.1 Trend in ANC Registration and Early ANC

Table 3.1.1 shows the trend in antenatal care (ANC) registration of pregnant women (PW) in Kerala from 2014-15 to 2024-25, with a focus on registrations done within the first trimester.

Key data points:

- i. Total number of PW registered was highest in 2017-18 at 5,65,673 and lowest in 2024-25 at 3,49,303. The total number of registrations shows a declining trend in the recent years.
- ii. Number of PW registered within the first trimester was highest in 2017-18 at 4,70,740 and lowest in 2024-25 at 3,24,725. The absolute number of first trimester registrations also follows a declining pattern similar to the total registrations.

Table 3.1: Trend in First Trimester Registration among Antenatal in Kerala

Period	No.of PW registered	Registered within 1st trimester	% of First Trimester PW Registration_
2014-15	495640	401565	81
2015-16	476451	384388	81
2016-17	487988	403053	83
2017-18	565673	470740	83
2018-19	504654	435004	86
2019-20	527626	437967	83
2020-21	427278	364297	85
2021-22	448660	387480	86
2022-23	418152	361854	87
2023-24	413958	353281	85
2024-25	349303	324725	93

Source: HMIS

The table indicates that the proportion of pregnant women registered within the first trimester has remained consistently high in the State over the years. The percentage ranged between 81% and 87% from 2014–15 to 2023–24, reflecting sustained early antenatal registration and effective outreach through the public health system. Notably, 2024–25 shows a significant increase to 93%, the highest during the period, indicating improved early identification and registration of pregnancies.

Table 3.2: District wise First Trimester Registration of Pregnancy (2024-25)

Districts	No. of PW	Registered within 1st trimester	% of First Trimester PW Registration
Alappuzha	15506	14851	95.8
Ernakulam	28577	27706	97.0
Idukki	10283	9565	93.0
Kannur	26130	22943	87.8
Kasaragod	21127	19072	90.3
Kollam	19657	19233	97.8
Kottayam	13095	12158	92.8
Kozhikode	38126	35285	92.5
Malappuram	69774	64522	92.5
Palakkad	30305	29223	96.4
Pathanamthitta	7403	7113	96.1
Thiruvananthapuram	31572	27823	88.1
Thrissur	25391	23309	91.8
Wayanad	12357	11922	96.5
Kerala	349303	324725	93.0

Source: HMIS

The table 3.2 provides district-level data on ANC registration of pregnant women in Kerala for 2024-25, with a focus on first trimester registration.

Key Data Points:

- State-level totals: Total PW registered – 3,49,303; Registered within first trimester – 3,24,725.
- The district with the highest number of pregnancies registered is Malappuram at 69,774, while the lowest is Pathanamthitta at 7,403.
- Early registration across districts shows that in most areas, the large majority of pregnant women were registered in the first trimester. Districts with the strongest early registration include Kollam, Ernakulam, Wayanad, Pathanamthitta, Palakkad, and Alappuzha. Districts with comparatively lower (but still high) early registration, above 87%, are Kannur and Thiruvananthapuram.

The table shows that in 2024-25, early pregnancy registration within the first trimester was robust throughout Kerala, achieving a state average where most PW were registered early. Eleven districts attained 92% or higher coverage, with several approaching near-complete early registration. Even districts with the lowest rates maintained good levels above 87%. This uniform performance across districts highlights the state's consistent efforts in health outreach and awareness programs, ensuring equitable access to early ANC services. Variations may be attributed to regional differences in population density, healthcare infrastructure, or socio-

economic factors, warranting targeted interventions in lower-performing districts to sustain overall progress.

3.2 Td Vaccination during Pregnancy

Tetanus toxoid (Td) vaccination during pregnancy is a critical intervention to prevent maternal and neonatal tetanus, a life-threatening but entirely preventable condition. Under the national immunization schedule in India, pregnant women are recommended to receive at least two doses of Td vaccine (Td1 and Td2) during the current pregnancy if they have not been previously fully immunized, followed by a Td booster in subsequent pregnancies. This ensures adequate antibody transfer to the newborn, providing passive protection against neonatal tetanus during the most vulnerable period.

Table 3.3: District wise Td Vaccination Coverage of Pregnant Women (2024-25)

Districts	No of PW registered for ANC	No of PW given Td1	No of PW given Td2	No of PW given Td Booster
TVM	31572	28938	24357	4168
KLM	19657	19991	17178	1718
PTA	7403	8267	7335	798
ALP	15506	12294	10880	692
KTM	13095	11303	9383	883
IDK	10283	8978	7401	873
EKM	28577	28271	22932	2954
TSR	25391	23048	19224	1869
PKD	30305	25700	23216	1613
MLP	69774	65593	59395	8374
KKD	38126	28688	25141	2287
WYD	12357	8339	7405	1039
KNR	26130	25469	25079	2432
KSD	21127	12959	12173	1252
Kerala	349303	307838	271099	30952

Source: HMIS

Table 3.3 presents the district-wise coverage of Td vaccination among pregnant women registered for antenatal care (ANC) in Kerala during 2024–25. At the state level, out of 3,49,303 pregnant women registered, 3,07,838 (88.1%) received Td1, 2,71,099 (77.6%) received Td2, and 30,952 received Td booster doses. This indicates relatively high coverage for the first dose, with a gradual decline observed for subsequent doses.

District-wise analysis reveals variation in coverage and reporting patterns. Some districts such as Kollam and Pathanamthitta report Td1 doses exceeding the number of registered pregnancies, suggesting administration to beneficiaries registered in previous periods or inter-district service utilization. High-performing districts in terms of Td1 coverage include

Ernakulam, Kannur, and Malappuram, where coverage is close to or exceeds the number of registered pregnancies.

However, a consistent drop is observed from Td1 to Td2 across most districts, indicating potential gaps in follow-up, tracking, or service uptake. This drop is notable in districts such as Alappuzha, Kottayam, and Kasaragod, where the difference between Td1 and Td2 coverage is relatively high.

Td booster administration shows significant inter-district variation, with higher numbers reported in Malappuram (8,374), Thiruvananthapuram (4,168), and Ernakulam (2,954), while comparatively lower uptake is seen in districts like Alappuzha and Pathanamthitta.

Overall, while Td1 coverage is satisfactory across the state, strengthening mechanisms for ensuring completion of Td2 and appropriate booster doses remains essential. This can be achieved through improved beneficiary tracking, follow-up by frontline health workers, and enhanced awareness among pregnant women regarding the importance of completing the full immunization schedule.

3.3 Nutritional Support and Supplementation (IFA, Calcium, etc.)

Iron and Folic Acid (IFA) and Calcium supplementation form essential components of antenatal care to prevent and manage anaemia, reduce the risk of low birth weight, preterm delivery, and maternal complications. National guidelines recommend that every pregnant woman receives a full course of 180 IFA tablets (containing 100 mg elemental iron + 0.5 mg folic acid daily for at least 6 months) and 360 Calcium tablets (500 mg elemental calcium daily for at least 6 months, usually started after the first trimester) during pregnancy. High coverage of these supplements is a key indicator of quality antenatal services and effective supply chain management at the field level.

Kerala maintains one of the strongest systems for distribution of antenatal supplements through its network of sub-centres, primary health centres, Family health centres, Community health centres and community health workers. Tracking the number of pregnant women (PW) who receive the complete recommended course helps monitor compliance, identify supply or follow-up gaps and support efforts to achieve universal coverage.

The following Table 3.4 presents district-wise data on the number of pregnant women provided with the full course of 180 IFA tablets and 360 Calcium tablets during 2024-25, as reported through the Health Management Information System (HMIS).

Table 3.4: District wise IFA & Calcium Supplementation 2024-25

District	Number of PW provided full course 180 Iron Folic	Number of PW provided full course 360 Calcium tablets
ALP	17909	15520
EKM	36582	37018
IDK	16524	20265
KNR	77077	83282
KSD	28573	28313
KLM	22948	22222
KTM	13280	13337
KKD	80552	78709
MLP	72528	72420
PKD	73524	67889
PTA	11373	11108
TVM	77519	78506
TSR	29885	29913
WYD	13504	13394
Kerala	571778	571896

*Source: HMIS***Key Data Points:**

- i. State total: Number of PW provided full course of 180 IFA tablets – 5,71,778 Number of PW provided full course of 360 Calcium tablets – 5,71,896
- ii. At the state level, coverage for both IFA and Calcium full courses is nearly identical and very high.
- iii. Coverage pattern: In most districts, the number of PW receiving full IFA and full Calcium courses is very close, with some districts showing slightly higher Calcium coverage (e.g., Ernakulam, Idukki, Kannur, Thiruvananthapuram, Thrissur) and others slightly higher IFA coverage (e.g., Kozhikode, Malappuram, Palakkad, Kollam).

During 2024-25, Kerala achieved excellent coverage of full-course IFA and Calcium supplementation among pregnant women, with state totals of 5,71,778 and 5,71,896 respectively, indicating near-universal provision of the recommended courses across the reported pregnancies. The almost equal numbers for IFA and Calcium reflect strong coordination in supply, distribution, and follow-up mechanisms. District-level performance is consistently high, with northern and central districts (Kannur, Kozhikode, Malappuram, Palakkad) accounting for the largest absolute numbers due to higher pregnancy loads, while smaller districts like Pathanamthitta and Wayanad show proportionally good coverage despite lower caseloads. Minor variations between IFA and Calcium in some districts may be due to differences in consumption compliance, supply timing, or reporting patterns. Overall, the data demonstrates Kerala's continued success in delivering essential micronutrient supplementation as part of quality antenatal care, contributing to improved maternal nutrition and better

pregnancy outcomes. Sustained efforts in counselling and monitoring will help maintain or further enhance these levels.

3.4 High Risk Pregnancies

3.4.1 Teenage Pregnancy (2024–25)

Teenage pregnancy (pregnancies among girls aged 15–19 years) is an important public health indicator reflecting adolescent sexual and reproductive health, access to education, awareness regarding contraception, and broader socio-cultural determinants. It is also influenced by the reach and effectiveness of adolescent health programmes such as RKSK, menstrual hygiene initiatives, and school-based life skills education. High rates of teenage pregnancy are associated with increased risks of maternal and neonatal complications, school dropout, and intergenerational cycles of poverty. Kerala has historically maintained one of the lowest teenage pregnancy rates in the country, supported by high female literacy, delayed age at marriage, strong school retention, and proactive health and education interventions.

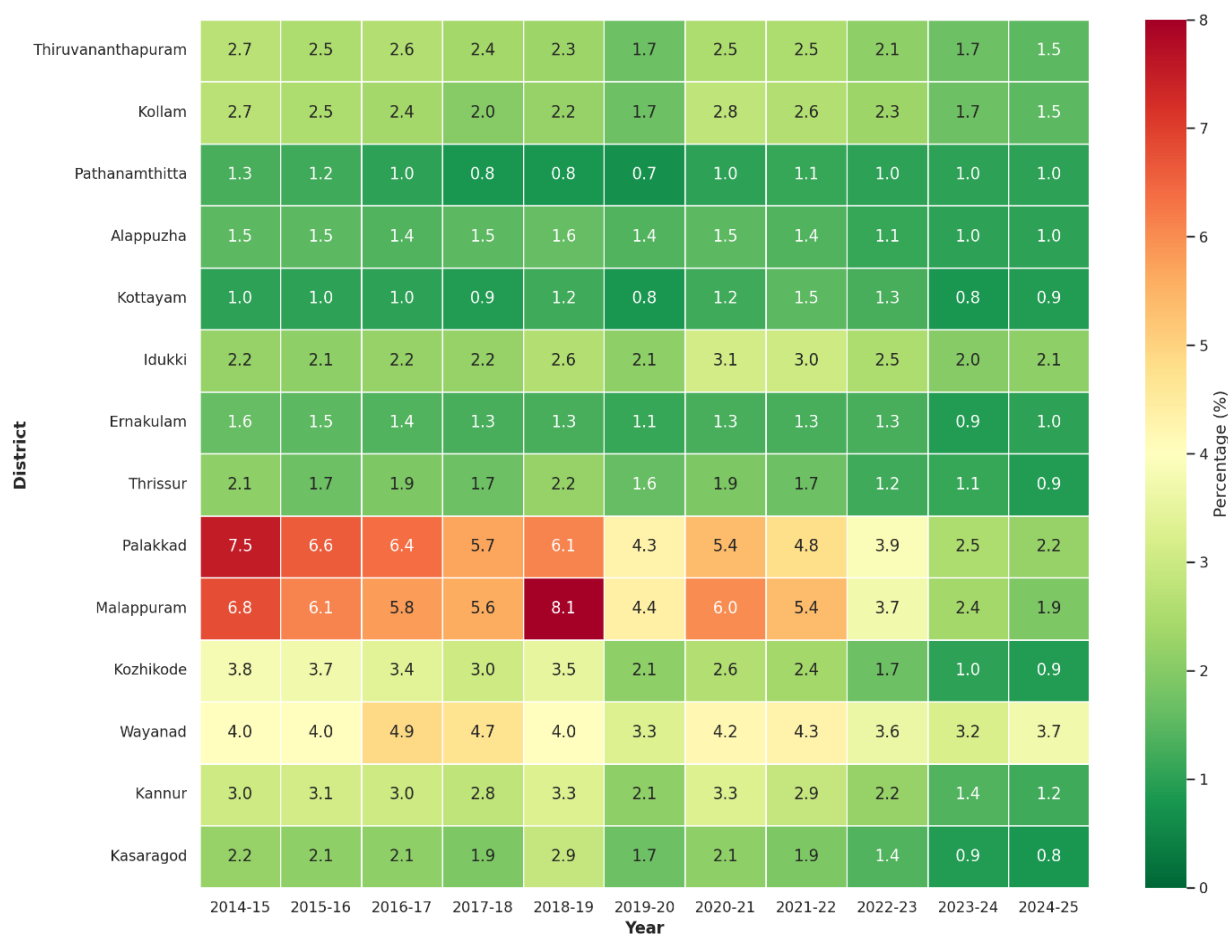


Fig 3.1: Teenage pregnancy heatmap

Source: RCH Portal

Fig 3.1 presents a district-wise and year-wise heatmap of teenage pregnancy percentages from 2014–15 to 2024–25, showing the proportion of teenage pregnancies among total pregnancies registered for antenatal care. The colour gradient ranges from red (higher percentages) to green (lower percentages), enabling clear visualization of trends and district-level variations over time.

Even without the visual, the pattern is evident: earlier years show higher concentrations in a few districts, while recent years demonstrate a uniform decline across the state. At the state level, teenage pregnancy has steadily decreased, with most districts reporting values below 3% in earlier years and falling further to below 2%—and in many cases below 1.5%—by 2024–25.

A clear district-wise pattern emerges when the data is examined in detail. Historically, higher percentages were observed in Palakkad, Malappuram, and Wayanad. Palakkad reported 7.5% in 2014–15 and declined to 2.2% by 2024–25. Malappuram showed a peak of 8.1% (around 2018–19) and reduced to 1.9% in 2024–25. Wayanad consistently remained above the state average, ranging between 3.2% and 4.9%, and continues to report the highest level at 3.7% in 2024–25.

In contrast, several districts have maintained consistently low levels throughout the period. Pathanamthitta (0.7–1.3%), Kottayam (0.8–1.5%), and Alappuzha (1.0–1.6%) demonstrate stable and low teenage pregnancy rates. Other districts such as Ernakulam, Thrissur, Thiruvananthapuram, Kollam, and Kasaragod have also shown steady improvement, with recent values largely between 0.8% and 1.7%.

The most recent period (2022–23 to 2024–25) highlights a strong convergence across districts, with nearly all districts reporting values below 2%. The highest in 2024–25 is Wayanad (3.7%), followed by Palakkad (2.2%) and Malappuram (1.9%), while the lowest levels are seen in Kasaragod (0.8%) and several central districts below 1%.

Overall, the trend reflects a clear transition from higher to lower burden across all districts, demonstrating the effectiveness of sustained multi-sectoral interventions. The shift from high to low percentages across the decade indicates improvements in adolescent health awareness, increased age at marriage, better access to contraception, and strengthened community-level interventions.

Notable reductions in historically high-burden districts such as Palakkad and Malappuram highlight the success of targeted programme efforts. At the same time, districts like Pathanamthitta and Kottayam serve as models of sustained low prevalence. However, the relatively higher levels in Wayanad indicate the continued need for focused interventions, particularly in tribal and hard-to-reach populations.

These declining trends contribute significantly to Kerala's strong maternal and child health indicators and align with national priorities under the Sustainable Development Goals. Continued emphasis on adolescent-friendly health services, life skills education, prevention of

early marriage, and targeted outreach in vulnerable populations will be essential to sustain and further accelerate progress.

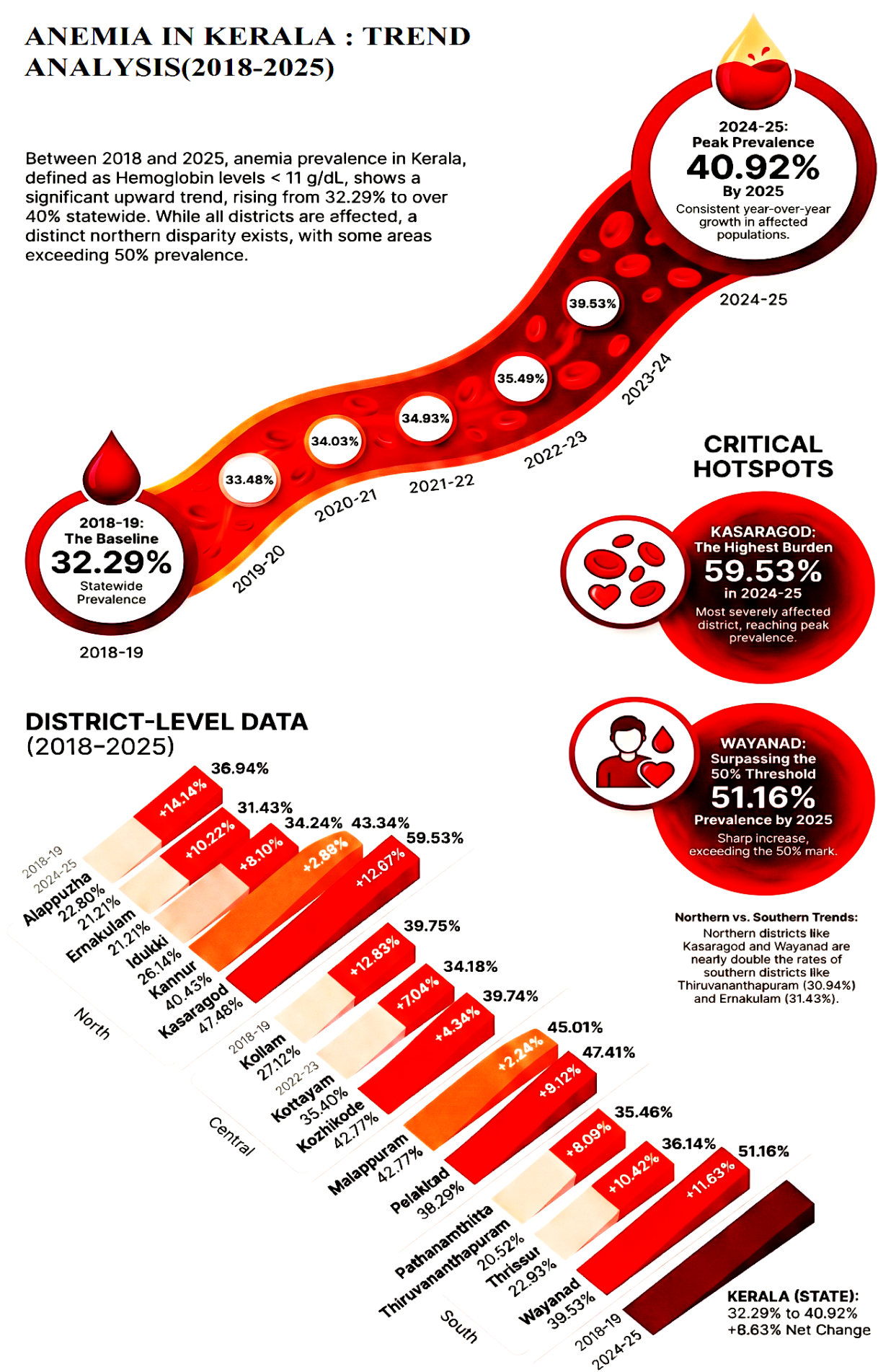
3.4.2 Prevalence of Anaemia among Pregnant Women (Hb <11 g/dL) – District-wise Trend (2018-19 to 2024-25)

Anaemia in pregnancy, defined as haemoglobin (Hb) level below 11 g/dL as per WHO criteria, remains a major public health concern due to its association with increased risks of maternal mortality, low birth weight, preterm delivery, and perinatal complications. Iron deficiency is the leading cause, exacerbated by inadequate dietary intake, poor absorption, infections, and high parity in some settings. National programs such as Anemia Mukht Bharat (AMB), intensified IFA supplementation, deworming, and dietary counselling aim to reduce anaemia prevalence among pregnant women to below 20–25% in high-burden states. Kerala, despite its strong health indicators, has historically reported moderate to high anaemia levels in certain districts, influenced by dietary patterns, socio-economic factors, and compliance with supplementation.

The infographic below displays the percentage of pregnant women (PW) registered for antenatal care found to be anaemic (Hb <11 g/dL) by district and financial year from 2018-19 to 2024-25, based on routine antenatal screening data.

ANEMIA IN KERALA : TREND ANALYSIS(2018-2025)

Between 2018 and 2025, anemia prevalence in Kerala, defined as Hemoglobin levels < 11 g/dL, shows a significant upward trend, rising from 32.29% to over 40% statewide. While all districts are affected, a distinct northern disparity exists, with some areas exceeding 50% prevalence.



Source: RCH Portal

Fig 3.2: Anaemia in Kerala -Trend

Key Data Points:

- i. State-level trend: Anaemia prevalence among PW increased gradually from 32.29% in 2018-19 to 40.92% in 2024-25, showing a consistent upward trend over the seven-year period.
- ii. Districts with persistently high anaemia prevalence (above 40% in recent years):
 - a. Kasaragod: Highest and rising sharply – 47.46% (2018-19) to 59.53% (2024-25).
 - b. Kannur: High and increasing – 40.45% (2018-19) to 43.34% (2024-25).
 - c. Malappuram: Consistently above 42–45% throughout the period, reaching 45.01% in 2024-25.
 - d. Wayanad: High and rising – 39.53% (2018-19) to 51.16% (2024-25).
 - e. Palakkad: Rising steadily – 38.29% (2018-19) to 47.41% (2024-25).
- iii. Districts with relatively lower anaemia prevalence (below or around 35% in recent years):
 - a. Thiruvananthapuram: Lowest overall but rising – 20.52% (2018-19) to 30.94% (2024-25).
 - b. Ernakulam: Moderate rise – 21.21% (2018-19) to 31.43% (2024-25).
 - c. Kottayam: Relatively stable but increasing – 27.14% (2018-19) to 34.18% (2024-25).
 - d. Idukki: Moderate – 26.14% (2018-19) to 34.24% (2024-25).
- iv. Most districts show a gradual increase in anaemia prevalence over the years, with sharper rises observed in northern districts (Kasaragod, Kannur, Wayanad, Palakkad, Malappuram) and southern/central districts (Alappuzha, Kollam, Thrissur, Thiruvananthapuram) in the later years (2022-23 onwards).

The data reveals a concerning upward trend in anaemia prevalence among pregnant women in Kerala, from 32.29% in 2018-19 to 40.92% in 2024-25 at the state level. This increase is observed across almost all districts, with the most pronounced rises in northern Kerala (Kasaragod reaching nearly 60%, Wayanad over 51%, Palakkad 47.41%, Malappuram 45.01%). Southern and central districts, while starting from lower baselines, also show increases, though remaining comparatively lower.

Possible contributing factors include inadequate consumption or absorption of IFA tablets despite high distribution, dietary habits low in iron-rich foods, hookworm or other parasitic infections in certain areas, delayed or incomplete antenatal follow-up, and potential impact of the COVID-19 period on routine services. The northern districts consistently report the highest burden, suggesting the need for intensified, area-specific interventions such as enhanced community-level IFA compliance monitoring, dietary diversification promotion, deworming drives, and screening for other causes of anaemia.

While Kerala continues to perform better than many states in overall maternal health, the rising anaemia trend warrants urgent and targeted action under Anemia Mukta Bharat and VIVA. Strengthening counselling on IFA adherence, early detection and management of

moderate/severe anaemia, and multi-sectoral nutrition interventions will be critical to reverse this trend and achieve the national target of reducing anaemia prevalence among pregnant women.

3.4.3 VIVA Status

The VIVA Keralam initiative, implemented by the Department of Health and Family Welfare, focuses on the early detection and management of anaemia among women of age group 15-59 years, including pregnant women and lactating women. As part of this programme, systematic haemoglobin testing is being carried out across all districts.

3.4.3.a VIVA Testing Status /Percentage Anaemic

Under the VIVA Keralam programme, systematic anaemia screening is being carried out across all districts. As on 10th October 2024, 52% of the targeted population has been tested statewide, covering a total of 54,79,889 beneficiaries through the combined line list.

District-wise performance as in Table 3.5 shows considerable variation. Pathanamthitta achieved the highest testing coverage at 75%, followed by Idukki at 73%. Kottayam and Kollam recorded 65% and 64% respectively. Palakkad reported the lowest coverage at 29%, while Kannur stood at 41%.

This ongoing screening effort forms a critical component of the state's strategy to detect and manage anaemia early, thereby contributing to improved maternal health outcomes and reduction in preventable maternal complications in Kerala.

Statewide, 51% of the 54,79,889 women tested under the VIVA Keralam programme were found to be anaemic.

District-wise, the highest prevalence was reported in Malappuram (60%), followed by Kollam (57%), Kozhikode (56%), Wayanad (56%), and Kasaragod (54%). The lowest prevalence was observed in Idukki (37%).

This data underscores the significant burden of anaemia among women and the importance of sustained screening and management efforts to improve maternal health outcomes in Kerala.

Table 3.5: VIVA-Tested/Anaemic

District	Target	Tested	% tested	No. of persons Anaemic	% Anaemic
TVM	1057463	376125	36	162944	43
KLM	884696	566727	64	324063	57
PTA	326148	244034	75	100261	41
ALP	661767	377896	57	194122	51
KTM	527730	341448	65	142367	42
IDK	328911	240949	73	89912	37
EKM	951776	480923	51	214956	45
TSR	973594	590508	61	302706	51
PKD	914166	263195	29	140639	53
MLP	1503144	872368	58	525079	60
KKD	942746	421447	45	235440	56
WYD	252305	124519	49	69817	56
KNR	787991	324529	41	170123	52
KSD	442332	255221	58	138907	54
State	10554769	5479889	52	2811336	51

Source: HMIS

3.4.3.b Mild, Moderate & Severe Anaemia

Among the women tested under the VIVA Keralam programme, the severity of anaemia is distributed as follows: Mild anaemia (Hb 11–11.9 g/dL) accounted for 27%, moderate anaemia (Hb 8.0–10.9 g/dL) for 23%, and severe anaemia (Hb < 8.0 g/dL) for 1% at the state level.

In the Table 3.6, district-wide variation is evident. Palakkad showed the highest proportion of moderate anaemia (29%) and severe anaemia (4%). Wayanad also reported a relatively higher severe anaemia rate (3%). Most districts had mild anaemia as the predominant category, ranging from 20% to 32%.

The low proportion of severe anaemia (1% statewide) is encouraging, indicating that the majority of detected cases are mild to moderate and can be effectively managed with timely intervention.

Table 3.6: District wise Distribution of Mild, Moderate & Severe Anaemia

District	Tested	Mild (11-11.9)	Moderate (8.0-10.9)	Severe (<8)	% Mild	% Moderate	% Severe
TVM	376125	84729	73376	4839	23	20	1
KLM	566727	174722	143788	5553	31	25	1
PTA	244034	58487	39641	2133	24	16	1
ALP	377896	109644	80891	3587	29	21	1
KTM	341448	75072	65116	2179	22	19	1
IDK	240949	49303	38595	2014	20	16	1
EKM	480923	129980	80801	4175	27	17	1
TSR	590508	162909	132837	6960	28	22	1
PKD	263195	54116	76380	10143	21	29	4
MLP	872368	265496	247505	12078	30	28	1
KKD	421447	134930	95689	4821	32	23	1
WYD	124519	30990	35261	3566	25	28	3
KNR	324529	87953	77613	4557	27	24	1
KSD	255221	64055	70281	4571	25	28	2
State	5479889	1482386	1257774	71176	27	23	1

*Source: HMIS***3.4.4 Percentage of Pregnant Women with Hypertension Detected (2021-22 to 2024-25)**

Hypertensive disorders in pregnancy, including gestational hypertension, pre-eclampsia, and eclampsia, are among the leading causes of maternal morbidity and mortality in India. Early detection through routine blood pressure measurement during antenatal care (ANC) visits is crucial for timely intervention, monitoring, and management to prevent complications such as severe pre-eclampsia, eclampsia, HELLP syndrome, and adverse fetal outcomes. Every pregnant woman should have her blood pressure checked at every ANC visit, with special emphasis on high-risk identification and referral.

Kerala's robust ANC system, supported by widespread screening at sub-centres, primary health centres, and PMSMA clinics, enables high detection rates of hypertension. Monitoring the percentage of registered pregnant women (PW) detected with hypertension (typically BP

≥140/90 mmHg) serves as a key indicator of screening quality, risk stratification, and the burden of hypertensive disorders in the state.

The following table 3.7 presents district-wise and state-level percentages of pregnant women registered for ANC who were detected with hypertension from 2021-22 to 2024-25, as reported through the Health Management Information System (HMIS).

Table 3.7: Percentage of Pregnant Women with Hypertension Detected
(2021-22 to 2024-25)

Percentage of PW with Hypertension detected				
District	2021-22	2022-23	2023-24	2024-25
TVM	6%	6%	4%	10%
KLM	3%	6%	5%	9%
PTA	6%	5%	6%	13%
ALP	3%	6%	9%	8%
KTM	7%	7%	6%	8%
IDK	4%	4%	4%	6%
EKM	6%	6%	7%	7%
TSR	2%	2%	7%	9%
PKD	2%	2%	15%	10%
MLP	5%	3%	4%	10%
KKD	3%	4%	6%	14%
WYD	2%	4%	4%	5%
KNR	1%	2%	2%	7%
KSD	1%	1%	2%	4%
State	4%	4%	6%	9%

Source: HMIS

Key Data Points:

- i. State-level trend: Percentage of PW with hypertension detected increased from 4% in 2021-22 and 2022-23 to 6% in 2023-24 and further to 9% in 2024-25, showing a clear upward trend in recent years.
- ii. Districts with the highest detection percentages in 2024-25:
 - a. Pathanamthitta (PTA): 13%
 - b. Kozhikode (KKD): 14%
 - c. Thiruvananthapuram (TVM): 10%
 - d. Palakkad (PKD): 10%
 - e. Malappuram (MLP): 10%
 - f. Kollam (KLM): 9%
 - g. Thrissur (TSR): 9%
- iii. Districts with consistently low detection percentages:
 - a. Kasaragod (KSD): Remained very low (1–4%) throughout the period.
 - b. Kannur (KNR): Low until 2023-24 (1–2%), rising to 7% in 2024-25.
 - c. Wayanad (WYD): Stable and low (2–5%).
 - d. Idukki (IDK): Stable at 4–6%.
- iv. Notable changes over time:
 - a. Sharp increases in several districts in 2023-24 and 2024-25, e.g., Palakkad (from 2% to 15% in 2023-24, then 10% in 2024-25), Kozhikode (from 3–4% to 14% in 2024-25), Malappuram (from 3–5% to 10% in 2024-25), and Pathanamthitta (from 5–6% to 13% in 2024-25).
 - b. Most districts show a rise in detection rates in the last two years, contributing to the state increase.

The data indicates a progressive increase in the detection of hypertension among pregnant women in Kerala, from a stable 4% in the initial years (2021-22 and 2022-23) to 9% in 2024-25 at the state level. This upward trend likely reflects improved screening intensity, more frequent BP measurements during ANC visits, and high-risk pregnancy tracking, and possibly a true rise in prevalence due to changing risk factors such as increasing maternal age, obesity, and lifestyle changes.

Higher detection in districts like Pathanamthitta, Kozhikode, Palakkad, and Malappuram in recent years suggests effective implementation of routine screening and risk identification in these areas. Lower and stable rates in northern districts like Kasaragod, Kannur (until recently), and Wayanad may indicate either lower true prevalence or opportunities to strengthen BP screening and recording practices.

The overall increase in detected cases is a positive sign of program performance rather than a worsening health situation, as early identification allows for prompt management which reduces severe complications. Continued emphasis on capacity building for ANMs and staff, ensuring availability of BP apparatus, and integration with digital tracking tools will help

sustain and further improve detection rates. This trend supports Kerala's efforts to minimize maternal deaths from hypertensive disorders and aligns with the goals for safe motherhood.

3.4.5 Percentage of Pregnant Women Tested Positive for Gestational Diabetes Mellitus (GDM) (2021-22 to 2024-25)

Gestational Diabetes Mellitus (GDM) is a common metabolic disorder during pregnancy characterized by glucose intolerance first recognized in pregnancy. It increases risks of maternal complications (pre-eclampsia, caesarean delivery, infections) and adverse perinatal outcomes (macrosomia, neonatal hypoglycaemia, respiratory distress, future type 2 diabetes in mother and child). Early screening and diagnosis allow for timely dietary counselling, monitoring, medical nutrition therapy, and insulin if required, significantly improving outcomes.

Kerala has implemented universal GDM screening in its antenatal care program, supported by the availability of testing facilities at primary health centres and taluk/district hospitals. The percentage of registered pregnant women (PW) testing positive for GDM is a key indicator of screening coverage, diagnostic efficiency, and the true burden of the condition in the population.

The following table 3.8 presents district-wide and state-wide percentages of pregnant women registered for antenatal care who were tested positive for GDM from 2021-22 to 2024-25, as reported through the Health Management Information System (HMIS).

Table 3.8: Percentage of Pregnant Women Tested Positive for Gestational Diabetes Mellitus

Percentage of PW tested positive for GDM				
District	2021-22	2022-23	2023-24	2024-25
TVM	9%	9%	18%	14%
KLM	12%	8%	7%	13%
PTA	13%	14%	17%	21%
ALP	6%	4%	16%	16%
KTM	22%	23%	27%	21%
IDK	11%	14%	16%	26%
EKM	25%	22%	19%	17%
TSR	10%	9%	17%	10%
PKD	10%	7%	9%	5%
MLP	15%	15%	11%	13%
KKD	7%	7%	26%	26%
WYD	8%	12%	13%	9%
KNR	5%	8%	9%	12%
KSD	1%	2%	9%	8%
State	11%	11%	15%	15%

Source: HMIS

Key Data Points:

- i. State-level trend: Percentage of PW testing positive for GDM remained stable at 11% in 2021-22 and 2022-23, then increased to 15% in 2023-24 and remained at 15% in 2024-25, indicating a rise in detected cases in recent years.
- ii. Districts with the highest GDM positivity in 2024-25:
 - a. Kozhikode (KKD): 26%
 - b. Idukki (IDK): 26%
 - c. Pathanamthitta (PTA): 21%
 - d. Kottayam (KTM): 21%
 - e. Alappuzha (ALP): 16%
 - f. Ernakulam (EKM): 17%

- iii. Districts with consistently higher positivity across years:
 - a. Kottayam: 21–27% throughout the period (highest and most stable high burden).
 - b. Ernakulam: 17–25% (high but slightly declining in recent years).
 - c. Kozhikode: Sharp rise from 7% (2021-23) to 26% in 2023-24 and 2024-25.
 - d. Idukki: Steady increase from 11% to 26% in 2024-25.
- iv. Districts with lower positivity:
 - a. Kasaragod (KSD): Very low (1–9%, mostly 8% in recent years).
 - b. Kannur (KNR): Low to moderate (5–12%).
 - c. Palakkad (PKD): Low and declining (5–10%).
 - d. Wayanad (WYD): Moderate (8–13%).
- v. Notable changes:
 - a. Significant increases in several districts in 2023-24 and 2024-25, e.g., Kozhikode (from 7% to 26%), Alappuzha (from 4–6% to 16%), Thiruvananthapuram (from 9% to 18% then 14%), and Kollam (from 7–12% to 13%).
 - b. Some districts show fluctuations or slight declines (e.g., Ernakulam, Thrissur, and Palakkad).

The data shows an increase in the percentage of pregnant women testing positive for GDM in Kerala, from a stable 11% in the earlier years to 15% in 2023-24 and 2024-25 at the state level. This rise likely reflects improved universal screening coverage, better adherence to the 75 g OGTT protocol, increased awareness and testing at earlier gestations in high-risk cases, and possibly a true rise in prevalence linked to rising maternal age, pre-pregnancy overweight/obesity, sedentary lifestyles, and dietary changes.

Districts such as Kottayam, Kozhikode, Idukki, Pathanamthitta, and Ernakulam consistently report higher positivity rates (often above 20%), indicating a higher burden in these areas and highlighting the need for strengthened GDM management services (nutrition counselling, frequent monitoring, insulin availability, and postpartum follow-up). Northern and southern districts like Kasaragod, Kannur, and Palakkad show lower rates, which may reflect differences in risk profiles, screening intensity, or diagnostic practices.

The upward trend in detected GDM is a positive indicator of effective screening rather than worsening health alone, as early identification enables timely interventions to reduce complications. Continued efforts to ensure 100% screening coverage, improve diagnostic accuracy, enhance counselling on lifestyle modification, and strengthen referral pathways for high-risk cases will be essential to manage this growing burden and prevent long-term metabolic consequences for mothers and children in Kerala.

3.4.6 Number of Eclampsia Cases among Pregnant Women (2020-21 to 2024-25)

Eclampsia is a severe obstetric emergency arising from unmanaged pre-eclampsia and is a critical indicator of the quality of antenatal, intrapartum, and emergency obstetric care. Tracking district-wise trends in eclampsia helps assess early detection, timely referral, and effectiveness of high-risk pregnancy management systems

Table 3.9: Number of Eclampsia Cases among Pregnant Women (2020-21 to 2024-25)

State/Districts	2020-21	2021-22	2022-23	2023-24	2024-25
	No. of Eclampsia cases	No. of Eclampsia cases	No. of Eclampsia cases	No. of Eclampsia cases	No. of Eclampsia cases
ALP	9	6	7	66	15
EKM	27	1	3	60	117
IDK	5	12	4	14	9
KNR	24	13	16	10	25
KSD	15	5	2	31	24
KLM	12	0	0	39	17
KTM	185	157	164	5	3
KKD	2	18	23	301	69
MLP	88	39	25	135	60
PKD	32	5	16	9	64
PTA	3	0	2	23	15
TVM	58	6	18	84	51
TSR	28	26	30	62	69
WYD	6	20	9	13	19
Kerala	494	308	319	852	617

Source: HMIS

The table 3.9 presents the number of eclampsia cases reported across districts in Kerala from 2020–21 to 2024–25. At the state level, a fluctuating trend is observed, with cases declining from 494 in 2020–21 to 308 in 2021–22, followed by a marginal increase to 319 in 2022–23, a sharp rise to 852 in 2023–24, and a subsequent decline to 617 in 2024–25.

The sharp increase in 2023–24 represents a significant deviation from previous years and is largely influenced by sudden spikes in a few districts. For instance, Kozhikode reported a steep rise to 301 cases in 2023–24, while Malappuram (135), Thiruvananthapuram (84), and Alappuzha (66) also contributed to the increase.

In 2024–25, although the total number of cases declined compared to the previous year, the burden remains higher than earlier years, indicating the need for continued attention. The highest number of cases in 2024–25 is reported from Ernakulam (117), followed by Thrissur (69), Kozhikode (69), Palakkad (64), and Malappuram (60).

District-wise trends show considerable variability and unusual fluctuations over the years. Kottayam reported consistently high numbers in earlier years (185 in 2020–21, 157 in 2021–22, and 164 in 2022–23), followed by a sharp decline to 5 in 2023–24 and 3 in 2024–25. Similarly, Kollam and Pathanamthitta reported negligible or zero cases in some years but showed increases in subsequent periods.

Such variations may reflect differences in reporting practices, case identification, referral patterns, or actual changes in incidence, underscoring the need for data validation and standardization across districts.

Overall, the fluctuating trend highlights the importance of strengthening antenatal screening for hypertensive disorders, ensuring early diagnosis, timely initiation of treatment, and effective referral mechanisms. Continued focus on adherence to clinical protocols, availability of essential drugs such as magnesium sulphate, and capacity building of healthcare providers will be critical in reducing the incidence of eclampsia and improving maternal health outcomes.

3.4.7 Number of RTI/STI Cases in Kerala (2020-21 to 2024-25)

Kerala maintains a strong network of designated STI/RTI clinics, ICTCs, and primary health facilities for screening, counselling, and free treatment. Routine reporting through HMIS captures cases diagnosed among women attending health services, providing insights into case load trends, screening effectiveness, and prevention impact.

The following table 3.4.7 shows district-wise number of RTI/STI cases reported in Kerala from 2020-21 to 2024-25, as per Health Management Information System (HMIS) data.

Table 3.10: Number of STI/RTI cases in Kerala

State/Districts	2020-21	2021-22	2022-23	2023-24	2024-25
	No.of RTI /STI cases	No.of RTI /STI cases	No.of RTI /STI cases	No.of RTI /STI cases	No.of RTI /STI cases
Alappuzha	1824	1359	1094	541	925
Ernakulam	3358	2988	3818	993	857
Idukki	1736	1467	1315	433	313
Kannur	1958	1921	1541	948	629
Kasaragod	901	790	659	223	496
Kollam	3553	2415	2730	1000	497
Kottayam	1435	1099	927	364	358
Kozhikode	969	1068	1776	887	851
Malappuram	3795	2793	3636	1115	358
Palakkad	1492	979	981	884	1079
Pathanamthitta	2392	2424	2131	554	148
Thiruvananthapuram	4081	7908	8212	1271	1174
Thrissur	2021	2127	2870	1293	1081
Wayanad	1020	1850	2123	563	1043
					<i>Source: HMIS</i>

Key Data Points:

i. State-level pattern (sum of districts): -

RTI/STI cases peaked in 2021-22 and 2022-23 in several districts, followed by a substantial decline starting 2023-24, with most districts showing lower numbers in 2024-25 compared to the 2020-23 period.

ii. Districts with highest reported cases in earlier years (2020-21 to 2022-23): -

Thiruvananthapuram: Sharp peak at 7,908 (2021-22) and 8,212 (2022-23), then reduced to 1,271 (2023-24) and 1,174 (2024-25).

Malappuram: High load (3,795 in 2020-21 to 3,636 in 2022-23), then dropped sharply to 1,115 (2023-24) and 358 (2024-25).

Ernakulam: Consistently high (2,988–3,818), then fell to 993 (2023-24) and 857 (2024-25).

Kollam: High early (3,553 in 2020-21), reduced to 1,000 (2023-24) and 497 (2024-25).

iii. Districts showing consistent decline: -

Pathanamthitta: From 2,131–2,424 (early years) to 554 (2023-24) and 148 (2024-25).

Idukki: Steady reduction from 1,736 (2020-21) to 313 (2024-25).

Kasaragod: Lowest throughout, from 901 to 223 (2023-24), slight rise to 496 (2024-25).

iv. Districts with increase or fluctuation in 2024-25: -

Alappuzha: Dropped to 541 (2023-24), then rose to 925 (2024-25).

Palakkad: Reduced to 884 (2023-24), then increased to 1,079 (2024-25).

Wayanad: Increased from 563 (2023-24) to 1,043 (2024-25).

Reported RTI/STI cases in Kerala showed an initial rise or stability during 2020-21 to 2022-23 in several districts, likely due to enhanced screening at facilities, and better case reporting in HMIS. A clear and substantial decline is evident from 2023-24 onwards in the majority of districts, with many recording 50–80% lower numbers compared to peak years. This downward trend is particularly pronounced in high-burden districts such as Thiruvananthapuram, Malappuram, Ernakulam, and Kollam.

Overall, the data demonstrates progress in controlling RTI/STI burden among women in Kerala. Sustained efforts in universal screening of pregnant women, adolescent and youth education and community awareness will be crucial to further reduce cases and prevent long-term reproductive health consequences. Regular data review and targeted interventions in districts showing any upward trend will help maintain this declining trajectory.

Chapter 4

Delivery & Intrapartum Care Services

Kerala maintains one of the strongest maternal health systems in India, characterized by near-universal skilled attendance at birth, high institutional delivery coverage, and robust emergency obstetric services. This contributes significantly to the state's low maternal mortality ratio and favorable perinatal outcomes.

4.1 Institutional Delivery Coverage and Trends

Institutional delivery — births taking place in health facilities (public or private) with skilled birth attendants — is a cornerstone of safe motherhood, ensuring access to hygienic conditions, emergency obstetric care, and timely management of complications. Kerala has achieved and maintained near-universal institutional delivery coverage for many years, one of the highest in the country, contributing significantly to its low maternal and neonatal mortality rates.

The following table presents the trend in the number of institutional deliveries in Kerala from 2014-15 to 2024-25, disaggregated by public and private sectors, as reported through the Health Management Information System (HMIS).

Table 4.1: Trend of Institutional Deliveries in Kerala

Period	Institutional Delivery (in lakh)	Public (in lakh)	Private (in lakh)
2014-15	4.84	1.46	3.38
2015-16	4.70	1.40	3.30
2016-17	4.46	1.22	3.24
2017-18	4.52	1.39	3.14
2018-19	4.84	1.44	3.40
2019-20	4.60	1.46	3.14
2020-21	4.20	1.32	2.88
2021-22	4.26	1.34	2.92
2022-23	4.15	1.28	2.86
2023-24	3.69	1.10	2.60
2024-25	3.22	0.90	2.32

Source: HMIS

Key Data Points:

- i. Total institutional deliveries:
 - a. Highest in 2014-15 and 2018-19: 4.84 lakh each
 - b. Lowest in 2024-25: 3.22 lakh
 - c. Clear declining trend in absolute numbers over the decade, from around 4.5–4.8 lakh (2014-19) to 3.22 lakh in 2024-25.
- ii. Public sector deliveries:
 - a. Highest: 1.46 lakh (2014-15 and 2019-20)
 - b. Lowest: 0.90 lakh (2024-25)
 - c. Declined steadily from ~1.4–1.46 lakh to 0.90 lakh.
- iii. Private sector deliveries:
 - a. Highest: 3.40 lakh (2018-19)
 - b. Lowest: 2.32 lakh (2024-25)
 - c. Consistently higher than public sector throughout, declining from ~3.1–3.4 lakh to 2.32 lakh.
- iv. Sectoral share (approximate):
 - a. Private sector has accounted for 65–72% of total institutional deliveries across the period.
 - b. Public sector share: 28–35%, with a slight decline in recent years.

The absolute number of institutional deliveries in Kerala has shown a consistent downward trend from 2014-15 to 2024-25, reflecting the state's demographic transition — declining fertility rates, smaller family sizes, and lower number of pregnancies overall. Despite this reduction in volume, institutional delivery coverage remains near-universal (close to 100%), as home deliveries have been virtually eliminated (less than 0.2% in recent years).

The private sector continues to dominate, handling roughly 70% of deliveries, indicating strong public preference for private facilities due to perceived quality, comfort, shorter waiting times, and additional amenities. The public sector, while providing excellent free services, has seen a proportional decline, likely due to the same demographic shift and competition from private providers.

This sustained high institutional delivery rate has been a major factor in Kerala's exemplary maternal health outcomes. The declining absolute numbers align with falling birth rates and do not indicate any reduction in access or coverage. Continued efforts to strengthen public sector

facilities and ensure equitable access in remote/tribal areas will help maintain this achievement and support universal health coverage goals.

4.2 Home Delivery - Trends, Challenges & Interventions

4.2.1 District wise Home delivery and Institutional Deliveries in Kerala (2024-25)

Institutional delivery remains a cornerstone of safe motherhood in Kerala, ensuring that almost all births occur in health facilities with skilled attendance and access to emergency obstetric and newborn care. Home deliveries, though extremely rare, are monitored closely as they carry higher risks of maternal and neonatal complications.

The following table presents district-wise data on home deliveries, institutional deliveries (disaggregated by public and private sectors), total deliveries, and the percentage of institutional deliveries for the year 2024-25, as reported through the Health Management Information System (HMIS).

Table 4.2: District wise Home delivery and Institutional Deliveries in Kerala (2024-25)

District	Home Delivery	Institutional delivery			Total Delivery	% of Institutional Delivery
		All	Public	Private		
TVM	21	29696	13679	16017	29717	99.93
KLM	20	16279	6812	9467	16299	99.88
PTA	7	9792	2147	7645	9799	99.93
ALP	9	10396	4125	6271	10405	99.91
KTM	10	15250	6458	8792	15260	99.93
IDK	37	7452	2480	4972	7489	99.51
EKM	24	27466	6207	21259	27490	99.91
TSR	15	26775	7719	19056	26790	99.94
PKD	16	23584	5566	18018	23600	99.93
MLP	191	68573	10671	57902	68764	99.72
KKD	24	36718	11205	25513	36742	99.93
WYD	24	9919	3410	6509	9943	99.76
KNR	16	26698	6943	19755	26714	99.94
KSD	15	13509	2853	10656	13524	99.89
Kerala	429	322107	90275	231832	322536	99.87

Source: HMIS

Key Data Points:

- State total: Total deliveries: 3,22,536 Institutional deliveries: 3,22,107 (All) — Public: 90,275; Private: 2,31,832 Home deliveries: 429 Percentage of institutional deliveries: **99.87%**

- ii. Districts with highest home deliveries (absolute numbers):
 - a. Malappuram (MLP): 191 (highest)
 - b. Idukki (IDK): 37
 - c. Thiruvananthapuram (TVM), Ernakulam (EKM), Kozhikode (KKD), Wayanad (WYD): 21–24 each
- iii. Districts with lowest home deliveries:
 - a. Pathanamthitta (PTA): 7
 - b. Alappuzha (ALP): 9
 - c. Kottayam (KTM): 10
- iv. Institutional delivery percentage by district:
 - a. Highest ($\geq 99.93\%$): Thiruvananthapuram (99.93%), Pathanamthitta (99.93%), Kottayam (99.93%), Palakkad (99.93%), Kozhikode (99.93%), Kannur (99.94%), Thrissur (99.94%)
 - b. Lowest: Idukki (99.51%), Malappuram (99.72%), Wayanad (99.76%)
 - c. All districts maintained $\geq 99.5\%$ institutional delivery coverage.
- v. Sectoral distribution (state level):
 - a. Private sector: 72% of institutional deliveries (2,31,832)
 - b. Public sector: 28% (90,275)
 - c. Private sector dominates in most districts, especially in urban/central areas (e.g., Ernakulam, Thrissur, Kozhikode).

In 2024-25, Kerala sustained near-universal institutional delivery coverage at 99.87%, with only 429 home deliveries reported across the state. This reflects the continued success of long-standing interventions such as free ambulance services (108/102), ASHA incentives, Janani Suraksha Yojana benefits, and extensive community awareness.

The residual home deliveries are concentrated in a few districts: Malappuram (191 cases) accounts for nearly half of the state total, followed by Idukki (37). These districts often include remote, hilly, or tribal areas where geographical barriers, cultural preferences, or unplanned labour may contribute. Districts like Pathanamthitta, Alappuzha, and Kottayam report the fewest cases, indicating very strong performance in outreach and facility utilization.

The private sector continues to handle the majority (72%) of institutional deliveries, consistent with historical trends and public preference for private facilities. Institutional coverage remains exceptionally high ($>99.5\%$) in all districts, with minor variations not affecting overall safety outcomes.

These results underscore Kerala's exemplary achievement in eliminating home deliveries as a significant public health issue. This near-100% institutional delivery rate remains a key pillar supporting Kerala's low maternal and neonatal mortality indicators.

4.2.2.a Trends in Home Deliveries, Migrants, Stillbirths, and Neonatal Deaths (2021-22 to 2025-26 January)

Even though home deliveries in Kerala have been reduced to extremely low levels (less than 0.2% of total deliveries), the residual cases continue to be monitored closely due to their higher risk profile. Special attention is given to home deliveries among migrant families (often interstate labourers) and the associated adverse outcomes such as stillbirths and neonatal deaths, which are preventable with timely institutional care.

The following table 4.3 shows the trend in the absolute number of home deliveries (HD), home deliveries among migrants, stillbirths occurring in home deliveries, and neonatal deaths occurring in home deliveries from 2021-22 to January 2025-26 (partial year data).

Table 4.3: Trends in Home Deliveries, Migrants, Stillbirths, and Neonatal Deaths

Year	Home Delivery	Migrants in HD	Still Birth in HD	Neonatal Death in HD
2021-22	586	42	7	1
2022-23	584	60	8	4
2023-24	526	71	16	4
2024-25	428	74	18	13
2025-26 Jan	200	62	8	9

Source: DHS Line list

Key Data Points:

- i. Total home deliveries:
 - a. Declined steadily from 586 (2021-22) to 428 (2024-25), a reduction of ~27% over four years.
 - b. In January 2025-26 (partial data): Already 200 cases, indicating a potential annual projection higher than 2024-25 if the trend continues.
- ii. Migrants in home deliveries:
 - a. Increased from 42 (2021-22) to 74 (2024-25), a rise of ~76%.

- b. In 2025-26(upto Jan): 62 migrants already reported, suggesting migrants now constitute a growing proportion (around 30–35% in recent periods) of remaining home deliveries.
 - iii. Stillbirths in home deliveries:
 - a. Rose from 7 (2021-22) to 18 (2024-25), more than doubling despite fewer total home deliveries.
 - iv. Neonatal deaths in home deliveries:
 - a. Increased sharply from 1 (2021-22) to 13 (2024-25).
 - b. In 2025-26 (upto Jan): 9 neonatal deaths already recorded.

While the overall number of home deliveries continued to decline from 2021-22 to 2024-25, reaching a new low of 428 in 2024-25, there is a concerning shift in the profile of these cases. The proportion and absolute number of home deliveries among migrant families has risen significantly, indicating that interstate migrant workers (and their families) are increasingly contributing to the residual home delivery burden. This group often faces barriers such as temporary residence, limited awareness of local health services, language issues, lack of transport, or unregistered pregnancies.

More alarmingly, despite fewer home deliveries, the number of stillbirths and neonatal deaths occurring in home settings has increased substantially over the same period. This suggests that the remaining home deliveries are becoming higher-risk events, likely involving complicated pregnancies or delayed recognition of danger signs, with limited access to emergency care

While Kerala has achieved near-elimination of home deliveries overall, the emerging concentration among migrants and the rising adverse outcomes in these cases require urgent, focused action to prevent avoidable maternal and neonatal deaths and maintain the state's exemplary maternal and child health performance.

4.2.2.b District wise Home Deliveries: Comparison Between 2024-25 (Full Year) and 2025-26 (April–January Period)

Home deliveries in Kerala remain extremely low in absolute terms, but their distribution across districts and trends over time provide important insights for targeted prevention. The table 4.4 below compares the number of home deliveries reported in each district for the full financial year 2024-25 with the cumulative figures for the first ten months (April 2025 to January 2026) of 2025-26.

Table 4.4: District Wise Distribution of Home Deliveries

District	2024 - 25	2025-26 Apr - Jan
TVM	21	20
KLM	20	8
PTA	6	2
ALP	9	8
KTM	10	3
IDK	37	27
EKM	24	16
TSR	15	10
PKD	16	15
MLP	191	49
KKD	24	11
WYD	24	17
KNR	16	10
KSD	15	4
State	428	200

Source: DHS Line list

Key Data Points:

- i. State total:
 - a. 2024-25 (full year): **428** home deliveries
 - b. 2025-26 (April–January): **200** home deliveries
 - c. This represents approximately **47%** of the previous year's total in just 10 months, suggesting a potential annual figure similar to or slightly lower than 2024-25 if the monthly average continues.
- ii. Districts with highest home deliveries in 2024-25:
 - a. Malappuram (MLPM): 191 (by far the highest, ~45% of state total)
 - b. Idukki (IDK): 37
 - c. Ernakulam (EKM), Kozhikode (KKD), Wayanad (WYD): 24 each
- iii. Districts in 2025-26 (April–January):
 - a. Malappuram: 49 (still highest, but significantly reduced from 191 in the previous year)

- b. Idukki: 27 (remains second highest)
 - c. Thiruvananthapuram: 20
 - d. Wayanad: 17
 - e. Ernakulam : 16
- iv. Districts showing notable reduction in 2025-26 (April–January) compared to 2024-25:
 - a. Malappuram: From 191 to 49 (sharp ~74% reduction in the period)
 - b. Thiruvananthapuram: From 21 to 20 (stable/slightly lower pace)
 - c. Kollam: From 20 to 8 (significant drop)
 - d. Kottayam: From 10 to 3
 - e. Kasaragod: From 15 to 4
- v. Districts with relatively stable or slower reduction:
 - a. Idukki: 37 → 27 (still high relative burden)
 - b. Palakkad: 16 → 15 (minimal change in pace)
 - c. Wayanad: 24 → 17 (moderate reduction)

The data for the first ten months of 2025-26 shows a continued overall decline in home delivery numbers compared to the full year 2024-25, with the state total at 200 cases (less than half of 428). This is encouraging and aligns with Kerala's long-term success in promoting institutional deliveries.

However, Malappuram remains the district with the single largest contribution (49 cases in 10 months vs. 191 in full 2024-25), though the reduction is substantial. Idukki, Wayanad, and Palakkad continue to report relatively higher numbers, likely due to remote/tribal geography, migrant populations, and occasional unplanned deliveries.

The sharp drops in districts like Malappuram, Kollam, Kottayam, and Kasaragod suggest effective local interventions (e.g., intensified migrant outreach, ASHA follow-up, ambulance responsiveness, or community awareness drives) are yielding results.

The current pace (200 cases in 10 months) projects an annual total for 2025-26 potentially around 240–260 cases — lower than 2024-25 — if the trend holds. This reinforces the impact of ongoing strategies: migrant registration drives, tribal health outreach, 24×7 ambulance services, focusing on resistant groups and high-risk pregnancy tracking.

To accelerate further reduction, continued focus should be placed on:

- Malappuram and Idukki (persistent high-burden districts)
- Migrant-dense pockets across districts
- Strengthening last-mile connectivity and early labour identification in remote areas

These efforts will help sustain the downward trajectory and move closer to zero preventable home deliveries in the state.

4.2.3 Place of Occurrence of Home Deliveries (2025-26, April to January)

Understanding the exact location where home deliveries occur is essential for designing precise interventions. “Home delivery” in this context refers to births that did not take place in a designated health facility (public or private hospital/centre). The table breaks down the 200 reported home deliveries in Kerala from April 2025 to January 2026 into three categories:

- Home — Birth occurred at the woman’s residence or family home.
- Other centres — Birth took place at non-designated centres (e.g., private clinics, nursing homes not registered for delivery, or informal settings).
- In Transit — Birth occurred en route to a facility (e.g., in ambulance, vehicle, or on the way).

Table 4.5: Place of Occurrence of Home Deliveries (2025-26, April to January)

District	Total Delivery	HD happened @ Home	Other centres	in Transit
TVM	20	19	0	1
KLM	8	8	0	0
PTA	2	0	0	2
ALP	8	7	0	1
KTM	3	3	0	0
IDK	27	21	1	5
EKM	16	16	0	0
TSR	10	10	0	0
PKD	15	15	0	0
MLPM	49	48	0	1
KKD	11	10	0	1
WYD	17	17	0	0
KNR	10	9	0	1
KSD	4	4	0	0
Kerala	200	187	1	12

Source: DHS Line list

Key Data Points:

- i. State total (April–January 2025-26): Total reported home deliveries: 200
 - a. Occurred at Home: 187 (93.5%)

- b. Occurred In Transit: 12 (6.0%)
 - c. Occurred at Other centres: 1 (0.5%)
- ii. Districts with highest number of home deliveries:
 - a. Malappuram (MLPM): 49 total — 48 at home (98%), 1 in transit
 - b. Idukki (IDK): 27 total — 21 at home (78%), 1 at other centre, 5 in transit
 - c. Thiruvananthapuram (TVM): 20 total — 19 at home, 1 in transit
 - d. Wayanad (WYD): 17 total — all 17 at home
 - e. Ernakulam (EKM): 16 total — all 16 at home
 - f. Palakkad (PKD): 15 total — all 15 at home
- iii. Districts with notable in-transit deliveries:
 - a. Idukki: 5 (highest)
 - b. Pathanamthitta: 2 (out of only 2 total cases)
 - c. Several districts with 1 each: Thiruvananthapuram, Alappuzha , Malappuram, Kozhikode, Kannur
- iv. Districts with zero or very low home deliveries:
 - a. Pathanamthitta: Only 2 total cases, both in transit
 - b. Kasaragod (KSD): 4 total, all at home

Of the 200 reported home deliveries in the first ten months of 2025-26, the overwhelming majority (93.5%) occurred at home, confirming that true domiciliary births (planned or unplanned at residence) remain the dominant category among residual cases.

Only 12 cases (6%) were classified as in transit, indicating that while ambulance/transport delays or sudden labour en route do occur, they are not the primary reason for non-institutional births. The single case in “other centres” is negligible.

District-wise patterns show:

- i. Malappuram continues to contribute the largest share (49 cases), with almost all (48) occurring at home — likely linked to high migrant population, unplanned labour, or cultural/logistical factors.
- ii. Idukki shows the highest in-transit proportion (5 out of 27), possibly due to hilly terrain, longer travel distances, and delayed recognition of labour.
- iii. Pathanamthitta is unique in that both its cases were in transit, with no home births — suggesting very strong facility linkage when labour begins.

4.3 Trends in Caesarean Section Deliveries in Kerala (2014-15 to 2024-25)

Caesarean section (C-section) is a life-saving surgical procedure indicated in cases of maternal or fetal complications (e.g., obstructed labour, fetal distress, placenta previa, previous C-section, severe pre-eclampsia, or gestational diabetes). High C-section rates are associated with increased risks of surgical complications, longer recovery, future obstetric risks, and higher healthcare costs.

Kerala has consistently reported one of the highest C-section rates in India, with private facilities playing a major role. The following table shows the trend in the absolute number of C-section deliveries (all, public, private) and the corresponding C-section rates (%) from 2014-15 to 2024-25, as reported through the Health Management Information System (HMIS).

Table 4.6: Trends in C-section Deliveries, Kerala (2014-15 to 2024-25)

Period	C Section Deliveries			C Section Rate		
	All	Public	Private	All	Public	Private
2014-15	196833	57969	138864	41	40	41
2015-16	194993	57229	137764	41	41	42
2016-17	184688	50043	134645	41	41	42
2017-18	184992	56563	128429	41	41	41
2018-19	197696	57853	139843	41	40	41
2019-20	187797	56894	130903	41	39	42
2020-21	177190	56080	121110	42	43	42
2021-22	180663	57593	123070	42	43	42
2022-23	180503	55229	125274	44	43	44
2023-24	161016	47777	113239	44	44	44
2024-25	143392	39845	103547	45	44	45

Source:
HMIS

Key Data Points:

- i. C-section rates (overall):
 - a. Stable at 41% from 2014-15 to 2019-20
 - b. Gradual rise to 42% (2020-21 to 2021-22)
 - c. Further increase to 44% (2022-23 to 2023-24)
 - d. Reached 45% in 2024-25 — highest recorded in the period
- ii. Public vs Private sector:
 - a. Public sector rate: Fluctuated between 39–44%, mostly around 40–43%

- b. Private sector rate: Consistently 41–45%, slightly higher in most years
- c. In 2024-25: Public 44%, Private 45% — convergence at high levels

The C-section rate in Kerala has shown a slow but steady upward trend, rising from a stable 41% (2014-20) to 45% in 2024-25. This increase occurs despite a decline in total deliveries, indicating a higher proportion of births are now delivered by C-section.

The private sector continues to perform a larger share of C-sections, with rates consistently at or above the public sector. This pattern reflects common factors in private facilities: maternal preference for planned deliveries, perceived better pain management/epidural availability, shorter hospital stays, and sometimes economic incentives. Public sector rates have also risen (from ~40% to 44%), suggesting broader trends in clinical practice, increasing high-risk pregnancies (e.g., rising maternal age, GDM, hypertension), and improved access to surgical facilities.

4.3.1 District wise Trend in Caesarean Section Rates (2020-21 to 2024-25)

The district-wise C-section rates provide deeper insight into regional variations in obstetric practice across Kerala. Rates are expressed as percentages of total institutional deliveries performed by caesarean section, disaggregated by public sector, private sector, and overall (All).

The following table shows the trend in C-section rates (%) by district and sector from 2020-21 to 2024-25, based on HMIS data.

Table 4.7: District wise Trend in Caesarean Section Rates (2020-21 to 2024-25)

Period		2020-21	2021-22	2022-23	2023-24	2024-25
Alappuzha	Pub	51.1	53.8	53.0	53.7	52.2
	Pvt	57.7	55.6	59.7	59.1	59.9
	All	54.1	54.7	56.3	56.7	56.9
Ernakulam	Pub	52.9	52.0	54.9	53.7	55.6
	Pvt	52.0	51.3	54.3	52.5	51.7
	All	52.2	51.5	54.4	52.8	52.6
Idukki	Pub	48.3	50.7	52.8	47.1	50.0
	Pvt	50.4	52.0	52.8	51.8	53.7
	All	49.6	51.5	52.8	50.2	52.5
Kannur	Pub	43.7	42.4	45.2	46.1	48.7
	Pvt	43.7	45.7	46.5	46.8	48.2
	All	43.7	44.8	46.1	46.6	48.4
Kasaragod	Pub	29.4	29.9	33.2	32.7	32.9
	Pvt	28.9	27.1	30.3	33.7	34.9
	All	29.0	27.7	31.0	33.5	34.5
Kollam	Pub	46.2	48.9	48.9	52.6	49.8
	Pvt	57.9	59.2	60.6	51.5	59.1
	All	52.8	54.5	55.4	52.0	55.2

Kottayam	Pub	43.5	43.4	44.1	41.0	41.1
	Pvt	49.6	50.9	48.0	47.7	48.6
	All	47.3	48.1	46.4	44.8	45.4
Kozhikode	Pub	43.1	43.3	41.9	44.0	44.9
	Pvt	39.1	38.4	43.5	43.6	43.9
	All	40.6	40.2	42.9	43.7	44.2
Malappuram	Pub	33.1	32.9	32.9	32.9	35.2
	Pvt	32.0	33.9	34.2	35.0	35.0
	All	32.2	33.7	33.9	34.6	35.0
Palakkad	Pub	42.1	41.0	42.1	40.5	39.7
	Pvt	35.1	33.9	38.9	38.7	39.8
	All	37.0	35.8	39.6	39.1	39.8
Pathanamthitta	Pub	49.4	48.4	50.6	50.8	49.7
	Pvt	57.2	54.2	55.1	54.1	55.1
	All	54.7	52.3	53.6	53.3	53.9
Thiruvananthapuram	Pub	43.0	43.4	42.1	42.2	43.9
	Pvt	48.4	51.4	49.7	49.9	54.0
	All	45.5	47.3	45.9	46.2	49.3
Thrissur	Pub	42.4	43.1	43.6	46.5	46.5
	Pvt	44.5	42.5	43.5	44.0	46.0
	All	43.9	42.7	43.5	44.8	46.2
Wayanad	Pub	28.8	30.0	27.6	29.2	28.7
	Pvt	43.4	41.1	44.9	43.8	42.1
	All	37.5	36.7	39.2	39.1	37.5

Source: HMIS

Key Data Points:

- i. State-level context (from earlier data): Overall C-section rate rose gradually from ~42% (2020-21) to 45% (2024-25), with private sector consistently at or slightly above public sector.
- ii. Districts with consistently high overall C-section rates ($\geq 50\%$ in most years):
 - a. Alappuzha: 54.1% to 56.9% (highest and stable)
 - b. Kollam: 52.8% to 55.2%
 - c. Pathanamthitta: 52.3% to 54.7%
 - d. Ernakulam: 51.5% to 54.4%
 - e. Idukki: 49.6% to 52.8%
- iii. Districts with comparatively lower overall C-section rates (mostly $< 40\%$):
 - a. Malappuram: 32.2% to 35.0% (lowest in the state)

- b. Kasaragod: 27.7% to 34.5%
 - c. Wayanad: 36.7% to 39.2%
 - d. Palakkad: 35.8% to 39.8%
 - e. Kozhikode: 40.2% to 44.2%
- iv. Public vs Private sector variations:
- a. Private sector rates are higher than public in most districts and years (e.g., Alappuzha Pvt 55.6–59.9% vs Pub 51.1–53.8%; Kollam Pvt 51.5–60.6% vs Pub 46.2–52.6%).
 - b. In Malappuram, rates are low in both sectors (Pvt 32.0–35.2%, Pub 32.9–35.2%).
 - c. Kasaragod and Wayanad show very low public sector rates (28–34%) but higher private rates (27–44%).
 - d. Convergence in recent years (2023-24 to 2024-25) in several districts where public and private rates are now similar or very close.
- v. Trends over time:
- a. Gradual increase in most districts from 2020-21 to 2024-25 (e.g., Kannur 43.7% → 48.4%, Kozhikode 40.6% → 44.2%, Thiruvananthapuram 45.5% → 49.3%).
 - b. Some districts show stability or minor fluctuations (e.g., Malappuram remains ~32–35%, Kottayam ~45–48%).
 - c. Sharpest recent rises in northern/central districts like Kannur, Kozhikode, Thrissur, and Thiruvananthapuram.

It is evident from the table that Kerala exhibits wide inter-district variation in C-section rates, with southern and central districts (Alappuzha, Kollam, Pathanamthitta, Ernakulam) consistently reporting the highest rates (often >50–55%), while northern districts (Malappuram, Kasaragod, Wayanad) and some central ones (Palakkad) have notably lower rates (mostly 30–40%).

The private sector drives higher rates in most districts, reflecting differences in case mix, maternal preferences, facility practices, and economic incentives. However, public sector rates have also risen in many districts, approaching or matching private levels in recent years — indicating broader shifts in clinical decision-making, possibly due to increasing high-risk pregnancies (advanced maternal age, GDM, hypertension) and better access to surgical facilities.

Districts with persistently low rates (Malappuram, Kasaragod, Wayanad) may reflect higher normal delivery promotion, different patient profiles (e.g., multiparity), or conservative

obstetric practices. The overall state increase to 45% in 2024-25, combined with district-level highs above 55%, underscores the need for systematic review.

4.3.2 C-Section Audit Status (April to December 2025)

Audit of caesarean section (C-section) cases is a critical quality assurance mechanism to review the medical indications, decision-making process, and appropriateness of each procedure. Regular audits help identify patterns of overuse, ensure adherence to clinical guidelines, promote evidence-based practice, and reduce unnecessary interventions while safeguarding emergency access when indicated. In Kerala, C-section audits are conducted at facility level.

The following table presents district-wise data on institutional deliveries, C-section deliveries, C-section rates, number of C-sections audited, and cases audited (April to December 2025), as reported through HMIS or audit systems.

Table 4.8: C-Section Audit Status (April to December 2025)

Dist	Inst Delivery	C Section	C section rate	C-section Audited
TVM	22315	11113	50	8620
KLM	11959	6753	56	5343
PTA	7302	4072	56	3540
ALP	7826	4505	58	1216
KTM	11753	5539	47	1954
IDK	4745	2470	52	2325
EKM	21349	11234	53	8995
TSR	19394	9177	47	4960
PKD	17492	7268	42	6373
MLPM	50435	18389	36	11995
KKD	26973	11864	44	1757
WYD	7338	2946	40	2822
KNR	19700	9785	50	3408
KSD	9578	3413	36	2458
Kerala	238159	108528	46	65766

Source: DHS Line list

Key Data Points:

- i. State total (April–December 2025):
 - a. Institutional deliveries: 2,38,159
 - b. C-section deliveries: 1,08,528
 - c. Overall C-section rate: **46%**
 - d. C-sections audited: 65,766 (60.6% of total C-sections)

- ii. Districts with highest C-section rates:
 - a. Alappuzha (ALP): 58%
 - b. Kollam (KLM): 56%
 - c. Pathanamthitta (PTA): 56%
 - d. Ernakulam (EKM): 53%
 - e. Idukki (IDK): 52%
 - f. Thiruvananthapuram (TVM), Kannur (KNR): 50% each
- iii. Districts with lowest C-section rates:
 - a. Malappuram (MLPM): 36%
 - b. Kasaragod (KSD): 36%
 - c. Wayanad (WYD): 40%
 - d. Palakkad (PKD): 42%

The table indicates that during April to December 2025, Kerala recorded a high overall C-section rate of 46% across 2.38 lakh institutional deliveries, consistent with the rising trend observed in previous years (45% in full 2024-25). Southern and central districts (Alappuzha, Kollam, Pathanamthitta, Ernakulam) continue to show the highest rates (56–58%), while northern districts (Malappuram, Kasaragod) and Wayanad maintain comparatively lower rates (36–40%), reflecting regional differences in clinical practice, patient profiles, and facility preferences.

Audit coverage stands at 60.6% statewide, meaning nearly 4 out of 10 C-sections remain unaudited in this period. Coverage varies widely: Thrissur, Palakkad, and Wayanad show strong performance (80–96% audited), while Kozhikode (15%), Idukki (lower audited cases relative to total), and some others lag significantly. Districts with high C-section rates (e.g., Alappuzha 58%, Kollam 56%) have moderate to good audit coverage, but the overall gap in audited vs. not audited cases (42,762 unaudited) highlights the need for strengthened audit mechanisms, especially in private facilities where the majority of C-sections occur.

4.4 Emergency obstetric and newborn care (EmONC)

4.4.1 Trend of Underweight Newborns (<2.5 kg) in Kerala (2014-15 to 2024-25)

Low Birth Weight (LBW) is a key indicator of maternal nutrition, antenatal care quality, and overall maternal health status. Monitoring trends in underweight newborns (<2.5 kg) helps assess effectiveness of antenatal interventions, anemia control, and high-risk pregnancy management.

Table 4.9: Trend of Underweight Newborns(2014-15to2023-24)

Live Birth			NB Weight<2.5Kg				Proportion of NB <2.5kg		
Period	All	Public	Private	All	Public	Private	All	Public	Private
2014-15	490794	150775	340019	53136	21965	31171	11	15	9
2015-16	474930	142878	332052	55550	22793	32757	12	16	10
2016-17	452765	125352	327413	55648	18635	37013	12	15	11
2017-18	492964	168273	324691	54836	24193	30643	11	14	9
2018-19	487790	145586	342204	52549	21544	31005	11	15	9
2019-20	464530	147725	316805	51471	21674	29797	11	15	9
2020-21	425176	132690	292486	49454	20135	29319	12	15	10
2021-22	430670	135395	295275	52124	21228	30896	12	16	10
2022-23	419807	129446	290361	56521	21322	35199	13	16	12
2023-24	374078	110624	263454	51608	18958	32650	14	17	12
2024-25	326249	91124	235125	47326	16231	31095	15	18	13

Source: HMIS

- i. The public sector consistently shows higher proportion of LBW babies compared to private sector.
- ii. Public sector LBW proportion increased from 15% (2014-15) to 18% (2024-25).
- iii. Private sector proportion increased from 9% to 13% during the same period.
- iv. Overall state proportion increased from 11% to 15% over the decade.

The table illustrates how despite declining live births, the proportion of underweight newborns has steadily increased, particularly after 2020-21. This indicates that the reduction in total births has not translated into improved birth weight outcomes.

The rising LBW proportion suggests:

- v. Increased high-risk pregnancies.
- vi. Persistent maternal anemia
- vii. Nutritional deficiencies
- viii. Preterm deliveries
- ix. Improved reporting and documentation

The higher LBW proportion in public facilities may reflect greater high-risk case load handled by government institutions.

4.4.2 Trends in Pre-term Birth, Kerala (2017-18 to 2024-25)

Preterm birth (<37 weeks of gestation) is a major contributor to neonatal morbidity and mortality. Monitoring trends in preterm newborns helps assess quality of antenatal care, high-risk pregnancy management, and referral systems.

Table 4.10: Trends in Pre-term Births, Kerala (2017-18 to 2024-25)

Period	Live Birth			Pre-term newborns			Proportion of preterm NB		
	All	Public	Private	All	Public	Private	All	Public	Private
2017-18	492964	168273	324691	6916	4674	2242	1.4	2.8	0.7
2018-19	487790	145586	342204	13077	8249	4828	2.7	5.7	1.4
2019-20	464530	147725	316805	13206	7511	5695	2.8	5.1	1.8
2020-21	425176	132690	292486	14890	7173	7717	3.5	5.4	2.6
2021-22	430670	135395	295275	19556	8389	11167	4.5	6.2	3.8
2022-23	419807	129446	290361	22222	7602	14620	5.3	5.9	5
2023-24	374078	110624	263454	26968	8423	18545	7.2	7.6	7
2024-25	326249	91124	235125	29710	8878	20832	9.1	9.7	6.3

Source: HMIS

The table indicates that the public sector initially showed higher preterm proportion compared to private sector. However, from 2022-23 onwards, private sector preterm proportion increased sharply.

By 2024-25:

- i. Public: 9.7%
- ii. Private: 6.3%
- iii. Overall: 9.1%

The gap between sectors has narrowed over time.

Observation and Analysis

Despite declining live births, there is a consistent and sharp increase in both absolute number and proportion of preterm births over the last eight years. The proportion has increased from 1.4% in 2017-18 to 9.1% in 2024-25. This represents a significant upward trend.

Possible contributing factors include:

- i. Increase in high-risk pregnancies.
- ii. Maternal comorbidities (HTN, GDM, anemia)
- iii. Rise in medically indicated early deliveries.
- iv. Improved reporting and documentation in HMIS
- v. Higher C-section rates contributing to early deliveries.

The sharp rise after 2020-21 requires detailed review at state and district levels.

4.5 Comprehensive Abortion Care (CAC)

Comprehensive Abortion Care (CAC) is an essential component of reproductive and maternal health services. It ensures safe, legal, and timely abortion services along with post-abortion care, counseling, and contraception. Effective implementation of CAC services helps reduce unsafe abortions, prevent maternal morbidity and mortality, and promote informed reproductive choices.

Table 4.11: Trends in Abortion (Spontaneous and MTP)

Year	PW Registratio n	Abortio n	Spontane ous	Induced	% of Abortion- All	% of Abortion- Spontaneous	% of Aborti on- Induce d
2014-15	495640	17025	14732	2293	3.43	2.97	0.46
2015-16	476451	16061	13962	2099	3.37	2.93	0.44
2016-17	487988	15804	13739	2065	3.24	2.82	0.42
2017-18	565673	21633	12175	9458	3.82	2.15	1.67
2018-19	504654	23633	13123	10510	4.68	2.60	2.08
2019-20	527626	23370	12502	10868	4.43	2.37	2.06
2020-21	427278	19608	11083	8525	4.59	2.59	2.00
2021-22	448660	21950	10961	10989	4.89	2.44	2.45
2022-23	418152	25686	11167	14519	6.14	2.67	3.47
2023-24	413958	30037	9858	20179	7.26	2.38	4.87

2024-25	349304	35705	9776	25929	10.22	2.80	7.42
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Source: HMIS

- i. Total abortion percentage increased from 3.43% (2014-15) to 10.22% (2024-25).
- ii. Spontaneous abortions remained relatively stable (~2.5–3%).
- iii. Induced abortions (MTP) increased significantly, especially after 2021-22.
- iv. Induced abortions now contribute the majority of total abortions.

This trend indicates increased access and/or reporting of MTP services, but also highlights the need for strengthened family planning counseling and post-abortion contraception.

4.5.1 Availability of CAC Services - Public & Private

Availability of Medical Termination of Pregnancy (MTP) services at public health facilities is a key component of Comprehensive Abortion Care (CAC). Service readiness across gestational age categories ensures timely and safe access to abortion care while reducing referrals and delays

Table 4.12: Facilities Providing MTP Services Public

District	Total DH/SDH	Up to 9 Weeks	Up to 12 Weeks	Up to 24 Weeks	Beyond 24 Weeks
TVM	12	2	8	1	1
KLM	9		4	5	
PTA	5		2	3	
ALP	8	2	1	4	1
KTM	6		5	1	
IDK	5			5	
EKM	11	4	5	2	
TSR	8			7	1
PKD	7		3	4	
KKD	8		1	7	
WYD	5			5	
KNR	8		4	3	1
KSD	2		2		
MLPM	8		3	4	1
State	102	8	38	51	5

Source: CAC Quarterly report

Observation and Analysis

- i. Public sector has 102 functional MTP facilities.
- ii. Majority of facilities provide services up to 24 weeks, indicating reasonable mid-trimester capacity.

Strengthening early access and expanding approved centers in low-coverage districts is essential.

4.5.2 Availability of CAC Services – Private Sector

Table 4.13: Facilities Providing MTP Services Private

District	Total Facilities	Up to 9 Weeks	Up to 12 Weeks	Up to 24 Weeks	Beyond 24 Weeks
TVM	43	5	8	30	
KLM	50	5	33	8	4
PTA	21		16	5	
ALP	21			21	
KTM	14		11	3	
IDK	7			7	
EKM	49	9	12	26	2
TSR	25	1	12	12	
PKD	25	1	5	19	
KKD	35		20	15	
WYD	7			7	
KNR	27	6	8	6	7
KSD	20		4	16	
MLPM	50	15	8	26	1
State	394	42	137	201	14

Source: CAC Quarterly report

Observation and Analysis

- i. The private sector contributes substantially to CAC service availability, with nearly four times more facilities than the public sector.
- ii. Strong availability exists for services up to 24 weeks, especially in urbanized districts.

Chapter 5

Family Planning Services

Family Planning (FP) services are a vital component of reproductive and maternal health programs. They enable individuals and couples to achieve desired family size, ensure healthy spacing between pregnancies, and prevent unintended pregnancies. Effective family planning contributes significantly to reducing maternal mortality, improving neonatal outcomes, and promoting women's health and empowerment.

The state's FP program focuses on expanding access to a basket of contraceptive choices, strengthening counseling services, ensuring quality sterilization services, and promoting spacing methods. Monitoring trends in contraceptive use helps assess program performance and identify service gaps.

5.1 Contraceptive Prevalence Rate – Trends

Contraceptive Prevalence Rate (CPR) among currently married women is a key indicator of family planning coverage and reproductive health service utilization. It reflects the proportion of women using any method of contraception and indicates program effectiveness over time.

Table 5.1: Contraceptive Prevalence Rate

Round	Kerala	India
NFHS-1(1992-93)	40.6	63.3
NFHS-2(1998-99)	48.2	63.7
NFHS-3(2005-06)	56.3	68.6
NFHS-4(2015-16)	53.1	53.5
NFHS-5(2019-20)	60.7	66.7

Source: NFHS

Trend Analysis

Kerala:

- i. Increased steadily from 40.6% (NFHS-1) to 56.3% (NFHS-3).
- ii. Slight decline observed in NFHS-4 (53.1%).
- iii. Significant improvement in NFHS-5 (60.7%), reaching the highest level recorded.

India

- i. Remained above 60% in early rounds.
- ii. Declined sharply in NFHS-4 (53.5%).
- iii. Improved again in NFHS-5 (66.7%).

Key Observations

- i. Kerala showed consistent improvement over three decades, with a temporary dip in NFHS-4.
- ii. The gap between Kerala and India narrowed in NFHS-4.
- iii. In NFHS-5, India (66.7%) is slightly higher than Kerala (60.7%).
- iv. The overall upward trend indicates strengthened family planning acceptance.

Table 5.2 displays district-wise CPR figures from NFHS-4 (2015–16) and NFHS-5 (2019–20).

Table 5.2: District-wise Contraceptive Prevalence Rate (CPR)

Districts	NFHS-4(2015-16)	NFHS-5(2019-20)
TVM	49	41
KLM	53	63
PTA	51	59
ALP	45	62
KTM	53	45
IDK	63	72
EKM	58	70
TSR	64	70
PKD	62	59
MLP	43	59
KKD	58	68
WYD	58	79
KNR	49	62
KSD	43	56
Kerala	53	61

Source: NFHS

Key Observations:

- i. Overall CPR in Kerala increased from 53% (NFHS-4) to 61% (NFHS-5).
- ii. Significant improvement noted in Wayanad (58% to 79%), Ernakulam (58% to 70%), and Idukki (63% to 72%).

- iii. A decline is observed in Thiruvananthapuram (49% to 41%) and Kottayam (53% to 45%), warranting focused review.
- iv. Most districts show upward trends, indicating strengthened outreach, counseling, and availability of contraceptive services.

5.2 Female and Male Sterilization

Sterilization services constitute a major component of the permanent family planning method mix. Female sterilization continues to dominate, while male sterilization (NSV) remains comparatively low. Monitoring trends helps assess method balance, sectoral contribution, and program recovery post-pandemic

Key Sterilization Categories

- i. NSV – No Scalpel Vasectomy (Male Sterilization)
- ii. Laparoscopic Sterilization – Female sterilization (interval)
- iii. Mini-lap Sterilization – Female sterilization (interval)
- iv. PPS – Post-Partum Sterilization
- v. PAS – Post-Abortion Sterilization

Table 5.3: State level trend in Male and Female sterilizations (2014-15 to 2024-25)

Period	NSV			Lapro			Mini-lap			PPS			PAS		
	All	Pub	Pvt	All	Pub	Pvt	All	Pub	Pvt	All	Pub	Pvt	All	Pub	Pvt
2014-15	1262	1239	23	16783	10381	6402	5020	1712	3308	68406	32675	35731	NA	NA	NA
2015-16	1073	1060	13	16423	10170	6253	4360	1608	2752	63679	29795	33884	NA	NA	NA
2016-17	906	874	32	15740	9653	6087	4290	1322	2968	56473	25027	31446	NA	NA	NA
2017-18	730	665	65	13399	8555	4844	3162	1080	2082	45665	24673	20992	369	125	244
2018-19	736	723	13	13221	8138	5083	3592	1282	2310	57516	28126	29390	363	118	245
2019-20	658	643	15	12806	7764	5042	3549	1260	2289	53315	27745	25570	694	179	515
2020-21	73	38	35	5130	650	4480	2503	555	1948	45028	22407	22621	727	248	479
2021-22	299	295	4	6445	2272	4173	3039	1307	1732	44318	22843	21475	687	145	542
2022-23	634	623	11	10592	5086	5506	3494	1435	2059	45305	24223	21082	745	184	561
2023-24	457	426	31	10397	4283	6114	3890	1475	2415	36394	20446	15948	602	139	463
2024-25	419	381	38	9460	4167	5293	3326	1181	2145	34368	17844	16524	1437	286	1151

Overall Trend Analysis

- i. Female sterilization overwhelmingly dominates the permanent method mix.
- ii. Male sterilization remains extremely low compared to female sterilization.
- iii. Sharp service disruption observed during 2020-21 (COVID period).
- iv. Partial recovery post-2021-22.
- v. Long-term declining trend in PPS suggests:
 - a. Reduced fertility
 - b. Increasing preference for spacing methods
 - c. Shift toward delayed childbearing
- vi. Rise in PAS may reflect improved integration of post-abortion family planning services.

5.3 Interval IUCD Insertions

The trend in IUCD insertions over the past decade shows fluctuations influenced by service delivery patterns, institutional births, and the impact of the COVID-19 pandemic.

Table 5.4: Trend of IUCD Insertion (Public and Private Sector)
(from 2014-15 to 2023-24)

Period	PPIUCD			PAIUCD			IUCD Other			IUCD All		
	All	Public	Private	All	Public	Private	All	Public	Private	All	Public	Private
2014-15	3297	3167	130	NA	NA	NA	NA	NA	NA	51121	42780	8341
2015-16	2920	2758	162	NA	NA	NA	NA	NA	NA	49626	42242	7384
2016-17	2811	2713	98	NA	NA	NA	NA	NA	NA	49709	42580	7129
2017-18	3502	2928	574	491	295	196	36657	30602	6055	40650	33825	6825
2018-19	3601	3323	278	419	245	174	37083	30883	6200	41103	34451	6652
2019-20	3317	3042	275	400	188	212	32866	27190	5676	36583	30420	6163
2020-21	2297	1996	301	295	95	200	21481	16560	4921	24073	18651	5422
2021-22	2451	2025	426	305	90	215	22592	16323	6269	25348	18438	6910
2022-23	2271	1838	433	282	105	177	29893	22467	7426	32446	24410	8036
2023-24	2539	1972	567	602	139	463	26854	18357	8497	29995	20468	9527
2024-25	2785	2192	593	654	184	470	27196	18618	8578	30635	20994	9641

Source: HMIS

Overall IUCD Insertions (IUCD – All)

- i. IUCD insertions were consistently high between 2014–15 and 2016–17 (~49,000 annually).
- ii. A gradual decline was observed from 2017–18 onwards, with a sharp dip during 2020–21 (24,073) due to COVID-related service disruptions.
- iii. Post-pandemic recovery is evident from 2021–22 onwards, reaching 30,635 in 2024–25, indicating service stabilization and renewed uptake.

PPIUCD (Post-Partum IUCD)

- i. PPIUCD services strengthened from 2017–18 onwards, reflecting improved integration of family planning with institutional deliveries.
- ii. After a decline during 2020–21, insertions steadily increased, reaching 2,785 in 2024–25, showing recovery and improved counselling during the immediate postpartum period.

PAIUCD (Post-Abortion IUCD)

- i. Introduced in reporting from 2017–18, PAIUCD insertions show gradual growth over time.
- ii. The number increased significantly by 2023–24 and 2024–25, reflecting better post-abortion family planning counselling and service linkage.

Public vs Private Sector Contribution

- i. The public sector consistently accounts for the majority of IUCD insertions across all years.
- ii. However, the private sector share has gradually increased, especially in PPIUCD and PAIUCD categories in recent years, indicating improved engagement of accredited private facilities.

Overall Interpretation

The long-term trend reflects strong institutionalization of IUCD services in the state, temporary disruption during the pandemic, and steady recovery thereafter. The increasing contribution of postpartum and post-abortion IUCD insertions highlights improved integration of family planning counselling with maternal health services, ensuring better spacing and reproductive health outcomes.

5.4 Other Contraceptive Methods

The decade-long trend in public sector distribution of family planning commodities reflects fluctuations due to programmatic focus, supply dynamics.

5.4.1 Distribution of Family Planning Commodities (Public) Reported in HMIS (2014-15 to 2024-25)

Table 5.5: Distribution of Family Planning Commodities (Public)

Period	Oral Pills cycles distributed	Condom pieces distributed	Centchroman pills given	EC Pills distributed
2014-15	70926	4452851	1483	19824
2015-16	93511	4089074	401	16684
2016-17	97986	4629757	1945	25895
2017-18	65616	3710265	6042	15953
2018-19	40948	2281647	4509	9787
2019-20	52619	1878483	6828	7626
2020-21	85653	1118089	11900	10193
2021-22	97916	1283620	10044	8552
2022-23	112357	2192916	5122	5547
2023-24	94819	2347817	7683	5369
2024-25	114990	2636554	21194	10608

Source: HMIS

Oral Pills (Cycles Distributed)

- Increased from 70,926 (2014–15) to 97,986 (2016–17).
- Declined sharply during 2017–18 to 2018–19 (lowest: 40,948).
- Significant recovery from 2020–21 onward.
- Reached the highest level in 2024–25 (1,14,990).

Condom Pieces Distributed

- Peak distribution in 2016–17 (46.29 lakh).
- Gradual decline from 2017–18, with a major dip during 2020–21 (11.18 lakh) due to pandemic-related restrictions.

- iii. Steady recovery observed, reaching 26.36 lakh in 2024–25, though still below pre-2017 peak levels.

Centchroman (Chhaya) Pills

- i. Low uptake until 2016–17.
- ii. Rapid increase from 2017–18 onwards.
- iii. Significant rise during pandemic period.
- iv. Highest distribution recorded in 2024–25 (21,194).

Emergency Contraceptive (EC) Pills

- i. Highest in 2016–17 (25,895).
- ii. Gradual decline from 2017–18 to 2023–24.
- iii. Moderate increase again in 2024–25 (10,608).

5.4.2 District wise Distribution of Other Family Planning Commodities (Public) Reported in HMIS (2024-25)

The district-wise distribution of spacing contraceptives shows variation based on population size, service utilization, and outreach performance. Overall, the state distributed 1,14,990 oral pill cycles, 26,36,554 condoms, 21,194 Centchroman pills, and 10,608 EC pills during the reporting period.

Table 5.6: District wise Distribution of Other Family Planning Commodities (Public)

Period	Oral Pills cycles distributed	Condom pieces distributed	Centchroman pills given	EC Pills distributed
TVM	9187	432479	5816	1222
KLM	8087	152655	728	424
PTA	6002	108671	377	442
ALP	7276	167167	1109	452
KTM	8587	163556	1210	1462
IDK	5661	168575	422	624
EKM	7444	199371	708	265
TSR	11448	260209	2804	954
PKD	9506	197075	1017	826
MLP	8018	151141	1215	771
KKD	12023	241608	2463	1710
WYD	4980	103311	679	427
KNR	9162	199450	2066	920
KSD	7609	91286	580	109

State	114990	2636554	21194	10608
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Source: HMIS

- Urban and densely populated districts such as Kozhikode, Thrissur, and Thiruvananthapuram show higher distribution volumes.
- Condom distribution dominates among spacing methods, reflecting dual protection promotion.
- Rising Centchroman distribution in select districts suggests increasing acceptance of non-hormonal weekly contraceptive options.
- Districts with comparatively lower distribution may require strengthened IEC activities and improved outreach through field workers.

5.4.3 Districtwise Anthara (Injectable MPA) Coverage in Kerala

Anthara is the brand name for injectable Medroxyprogesterone Acetate (MPA), a long-acting reversible contraceptive (LARC) administered every three months. It is a highly effective, reversible method of family planning, particularly suitable for women who desire spacing or limiting births but prefer non-daily methods. Under the National Family Planning Programme, injectable MPA is provided free of cost in public health facilities and is also available in private facilities. Coverage tracking includes the number of women receiving the 1st dose (initiation), 2nd dose (at 3 months), 3rd dose (at 6 months), and 4th dose & above (continued use beyond 9 months).

The following table shows district-wise coverage of injectable MPA (Anthara) in Kerala for the year 2024-25, disaggregated by public and private sectors and by dose number, as reported through HMIS

Table 5.7: District wise Anthara (Injectable MPA) Coverage in Kerala (2024-25)

Districts/State	Injectable Contraceptive MPA - Public				Injectable Contraceptive MPA -Private			
	1st dose	2nd dose	3rd dose	4th dose & above	1st dose	2nd dose	3rd dose	4th dose & above
Alappuzha	62	19	15	5	3	0	0	0
Ernakulam	171	58	28	41	10	1	0	1
Idukki	47	15	9	6	0	0	0	0
Kannur	246	67	21	10	14	7	0	0
Kasaragod	36	34	16	10	21	12	5	1
Kollam	75	17	11	2	117	84	31	12
Kottayam	152	49	26	6	0	0	0	0
Kozhikode	122	45	36	21	79	0	0	0
Malappuram	90	22	3	1	83	23	1	63
Palakkad	66	32	9	1	125	44	3	0
Pathanamthitta	28	6	4	6	0	0	0	0

Trivandrum	208	83	52	69	71	31	21	12
Thrissur	221	112	58	20	24	20	15	1
Wayanad	87	36	26	28	120	91	31	18
Kerala	1611	595	314	226	667	313	107	108

Source: HMIS

Overall, public sector accounts for ~70% of 1st doses and higher continuation rates, while private sector contributes significantly to initiation in some districts.

Districts with highest 1st dose coverage (public + private):

- i. Thiruvananthapuram (Trivandrum): 208 (Pub) + 71 (Pvt) = 279
- ii. Thrissur: 221 (Pub) + 24 (Pvt) = 245
- iii. Kannur: 246 (Pub) + 14 (Pvt) = 260
- iv. Ernakulam: 171 (Pub) + 10 (Pvt) = 181

Districts with highest continuation (4th dose & above, public + private):

- i. Thiruvananthapuram: 69 (Pub) + 12 (Pvt) = 81
- ii. Wayanad: 28 (Pub) + 18 (Pvt) = 46
- iii. Ernakulam: 41 (Pub) + 1 (Pvt) = 42
- iv. Malappuram: 1 (Pub) + 63 (Pvt) = 64 (notable private sector continuation)

Sectoral pattern:

- i. Public sector dominates initiation and continuation in most districts (e.g., Kannur, Thrissur, Kottayam, Kozhikode).
- ii. Private sector shows higher 1st dose uptake in Kollam (117), Palakkad (125), Wayanad (120), and Malappuram (83), indicating private providers play a key role in certain districts.
- iii. Continuation (4th dose & above) is generally low across both sectors, with only a small fraction of initiators continuing to the 4th dose or beyond (state-level drop-off from 1,611 to 226 in public; 667 to 108 in private).

Chapter 6

Maternal Mortality in Kerala

Kerala has consistently maintained one of the lowest Maternal Mortality Ratios (MMR) in India, reflecting strong public health infrastructure, high institutional delivery rates, and effective maternal health interventions. The state's progress is aligned with national goals under the National Health Mission and the Sustainable Development Goal (SDG) target of reducing MMR below 70 per 100,000 live births.

6.1 Trend of Maternal Mortality

Maternal Mortality in Kerala is the lowest in India. There is sustained reduction of deaths from 158 in 2014-15 to 85 in 2025-26 .During 2021-22, the maternal deaths were increased to 220 compared to 135 in the previous year due to Covid pandemic.

Of these deaths, maternal suicides ranges from 4 to 19, which also has reduced considerably over the years. Between 2014–15 and 2016–17, maternal suicides ranged from 11 to 19 cases, contributing 8–12% of total maternal deaths. A decline was noted in 2018–19 with only 6 deaths. However, a sharp rise occurred in 2019–20, where maternal suicides were increased to 18. During the pandemic period (2020–21 and 2021–22), the proportion remained significant, with total maternal deaths also increasing in 2021–22 (220 deaths). A notable improvement is seen in 2024–25 and 2025-26, with only 4 & 7 cases respectively , alongside a reduction in total maternal deaths (85). The Ammamanassu programme through which all pregnant women and post natal women are screened based on a questionnaire, has contributed largely to achieve this reduction.

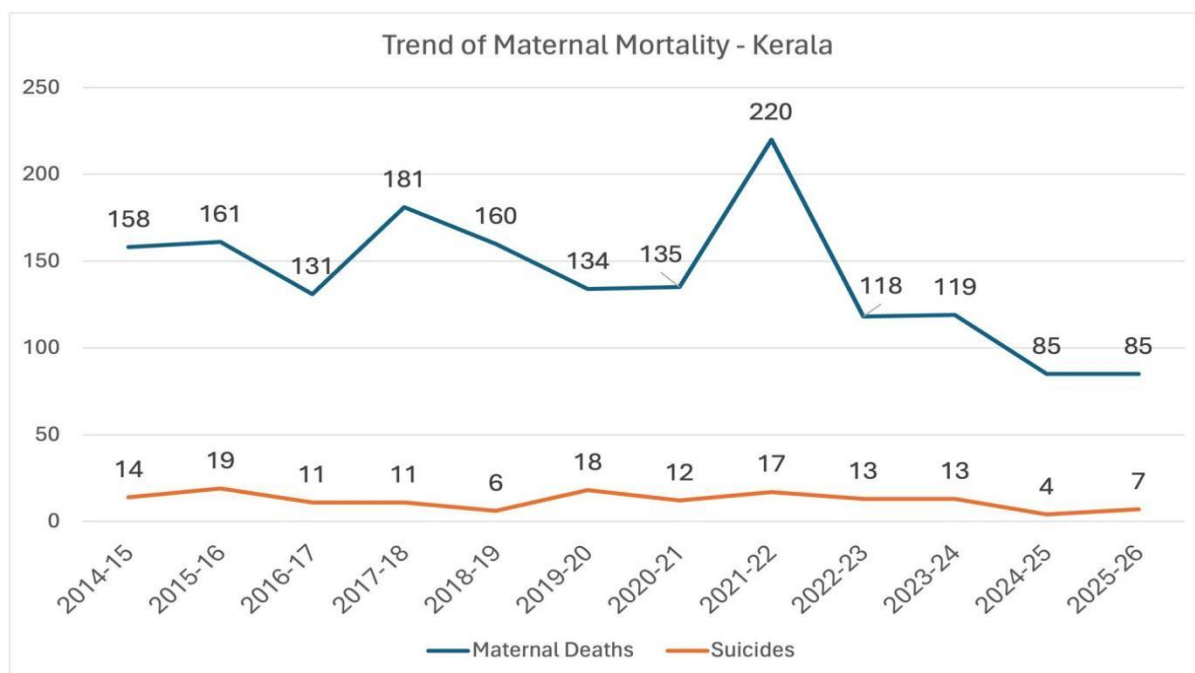


Fig 6.1: Trend of Maternal Mortality - Kerala

Source: DHS Data

6.2 Trends in Maternal Mortality Ratio

The Maternal Mortality Ratio (MMR) in Kerala shows a remarkable and sustained decline over the past two decades, consistently remaining far below the national average.

Table 6.1: Maternal Mortality Ratio: Kerala vs India (1997–98 to 2021-23) – SRS MMR Bulletin

YEAR	KERALA	INDIA
1997-98	150	398
1999-01	149	327
2001-03	110	301
2004-06	95	254
2007-09	81	212
2010-12	66	178
2011-13	61	167
2014-16	46	130
2015-17	42	122
2016-18	43	113
2017-19	30	103
2018-20	19	97
2019-21	20	93
2020-22	18	88

2021-23	30	88
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Source: SRS MMR Bulletin

Trend Analysis (1997–98 to 2021–23)

- i. In 1997–98, Kerala’s MMR was 150, compared to India’s 398.
- ii. A steady decline is observed through the early 2000s, reaching 95 (2004–06), 66 (2010–12) to 30 in 2021-23

Key Observations

- i. Kerala has reduced MMR by nearly 80% from 150 (1997–98) to 30 (2021–23).
- ii. The state consistently performs well below the national average.
- iii. The slight increase in 2021–23 may reflect post-pandemic effects and rising indirect causes such as cardiac disorders, hypertension, and other co-morbidities.

The district-wise analysis of MMR in Kerala in Table 6.2 shows inter-district variations over the last decade, though the overall state trend remains relatively low.

Table 6.2: District-wise Maternal Mortality Ratio (MMR)

District	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
TVM	22	30	33	38	16	29	38	54	19	26	24
KLM	55	38	19	51	34	40	44	65	13	20	30
PTA	26	14	14	7	47	7	31	49	32	35	20
ALP	41	48	46	21	46	25	46	95	27	23	19
KTM	24	37	36	30	17	53	29	68	20	45	7
IDK	0	51	47	55	26	57	38	67	32	72	40
EKM	19	17	17	25	12	28	21	30	19	19	11
TSR	26	32	24	28	34	14	23	56	27	19	41
PKD	47	48	51	62	56	36	44	67	39	31	47
MLP	35	42	25	33	42	26	30	50	24	29	19
KKD	30	26	14	56	37	25	29	32	34	19	35
WYD	79	28	40	28	61	48	15	46	41	47	10
KNR	25	14	34	27	18	14	19	27	29	36	23
KSD	29	58	42	40	30	55	60	67	66	108	51
KERALA	32	33	29	37	33	29	32	51	28	32	26

Source: DHS Line list

State-Level Trend

- i. Kerala's MMR fluctuated between 29–37 from 2014–15 to 2019–20.
- ii. A rise was observed in 2021–22 (51), due to COVID deaths
- iii. The ratio improved thereafter to 28 (2022–23) and stands at 26 (2024–25), indicating recovery and system strengthening.

Key District Observations

Higher Fluctuations / Periodic Spikes:

- i. Kasaragod (KSD) showed significant fluctuation, peaking at 108 (2023–24) before reducing to 51 (2024–25).
- ii. Idukki (IDK) and Palakkad (PKD) demonstrated repeated higher MMR values across multiple years.
- iii. Alappuzha (ALP) recorded a sharp spike in 2021–22 (95).

Relatively Stable / Lower Trend Districts:

- i. Ernakulam (EKM) consistently maintained lower MMR levels, reaching 11 (2024–25).
- ii. Kannur (KNR) and Thiruvananthapuram (TVM) show moderate but controlled trends.
- iii. Wayanad (WYD), despite earlier high values (79 in 2014–15), reduced substantially to 10 (2024–25).

Interpretation

- i. District-level variations may reflect differences in case load, referral patterns, reporting completeness, and indirect causes of maternal deaths.
- ii. Smaller districts may show sharp fluctuations due to low denominator (live births).
- iii. The spike during 2020–21 and 2021–22 across several districts aligns with pandemic-related healthcare disruptions.
- iv. The subsequent decline indicates strengthened maternal death surveillance, improved high-risk pregnancy tracking, and better emergency obstetric care.

6.3 Major Causes of Maternal Deaths

Maternal death is a serious public health concern and a key indicator of the quality of maternal healthcare services. Understanding the causes of maternal deaths is essential for identifying preventable factors, strengthening clinical management, and improving health system response.

Total Deaths

- 2022–23: 124
- 2023–24: 119

- 2024–25: 85

Leading Causes by Year

2022–23

1. Suicide – 15
2. Unknown – 12
3. Sepsis – 10
4. PIH, Eclampsia, HELLP – 9
5. ARDS Pneumonia – 6

2023–24

1. Sepsis – 14
2. Suicide – 13
3. Multiorgan failure – 11
4. ARDS Pneumonia – 9
5. Others – 8

2024–25

1. Sepsis – 12
2. Others – 12
3. PIH, Eclampsia, HELLP – 11
4. Amniotic fluid embolism – 8
5. Cardiac (Others) – 6

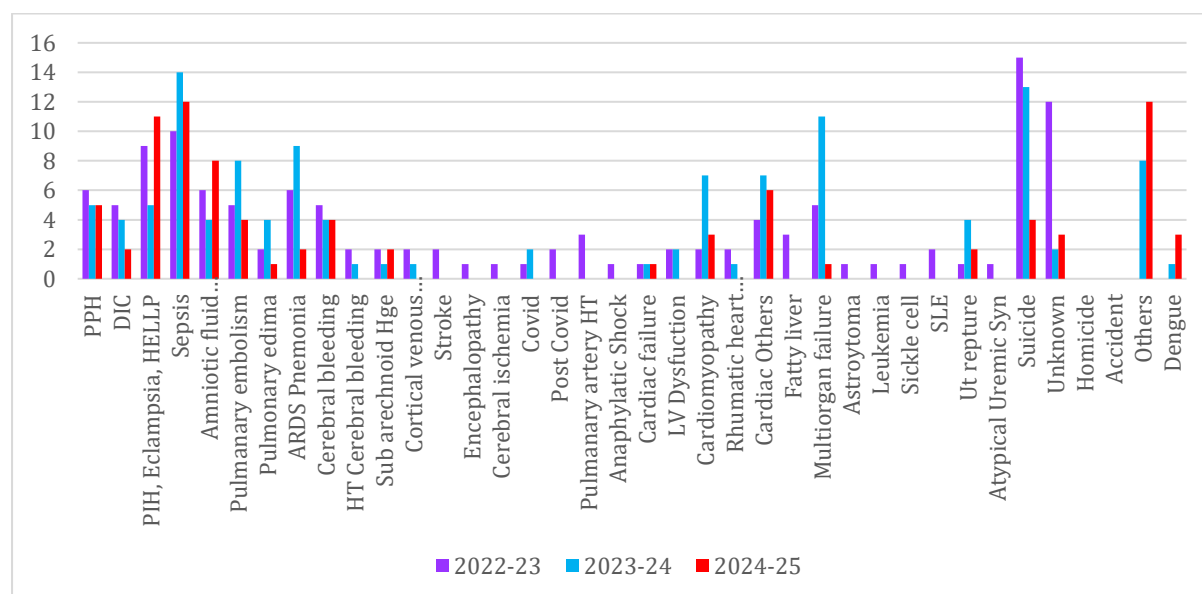
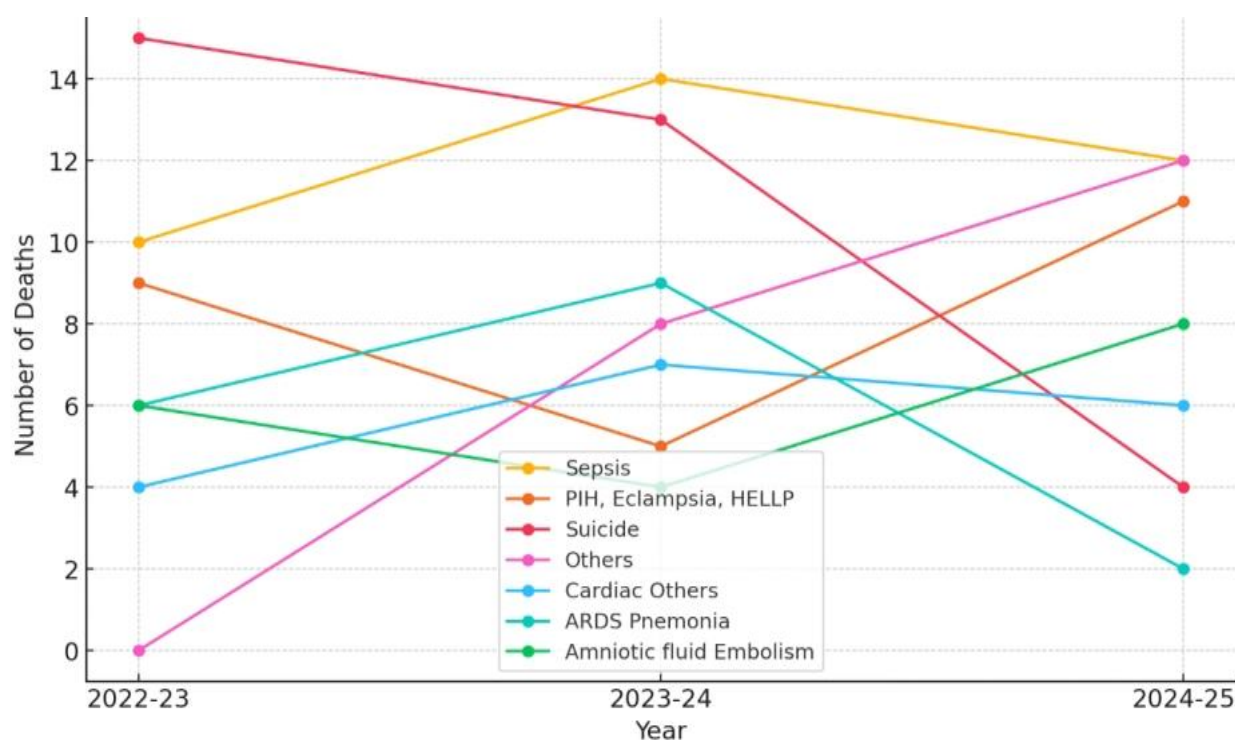


Fig 6.2: Causes of maternal death*Source: DHS Line List*

- i. Sepsis remains the most consistent leading cause across all 3 years.
- ii. Suicide was very high in 2022–23 and 2023–24 but is not in the top 5 by 2024–25.
- iii. Unknown causes dropped sharply after 2022–23, suggesting improved diagnosis/reporting.
- iv. Cardiac-related causes (Cardiac failure, Cardiomyopathy, Cardiac Others) are significant contributors in recent years.
- v. Overall maternal deaths decreased by ~30% between 2022–23 and 2024–25.

**Fig 6.3: Maternal Deaths Trend (Selected Causes, 2022-2025)***Source: DHS Line List*

6.2.1 Sepsis

Based on the data from the last three years, postpartum sepsis has remained one of the leading causes of maternal mortality despite an overall reduction in total maternal deaths. In 2022–23, sepsis accounted for 10 deaths, which rose to 14 in 2023–24, making it the leading cause, and remained high at 12 in 2024–25. This consistent burden indicates that infection continues to be a critical challenge in maternal care.

The persistence of sepsis-related deaths underscores the need to strengthen infection prevention protocols, ensure adherence to aseptic techniques, improve early detection and treatment, and provide timely referral and management in health facilities. Focused interventions in these areas are vital to further reduce maternal mortality from this preventable cause.

6.2.2 Cardiac related causes

From the analysis of maternal deaths over the last three years, cardiac-related conditions have emerged as a significant indirect cause of mortality. The data show multiple categories contributing to this burden, including cardiac failure, left ventricular dysfunction, cardiomyopathy, rheumatic heart disease, and other unspecified cardiac causes. In 2022–23, cardiac causes together accounted for around 12 reported deaths, with a similar pattern seen in 2023–24 where the toll increased to nearly 18, largely due to higher numbers in cardiomyopathy, LV dysfunction, and other causes of cardiac origin. In 2024–25, while overall maternal deaths declined, cardiac causes still contributed notably, with other causes of cardiac origin and isolated cases of failure, LV dysfunction, and cardiomyopathy. This trend highlights the growing importance of cardiac conditions in maternal health, possibly reflecting better survival from direct obstetric complications but increasing vulnerability to pre-existing or pregnancy-exacerbated heart disease. The findings emphasize the need for early detection of cardiac risk in pregnancy, multidisciplinary management of women with known heart disease, and postpartum follow-up, as these deaths are often preventable with timely intervention.

6.2.3 Neurological causes of Maternal Death

The data over the last three years indicate that neurological causes also contribute to maternal mortality, though in smaller numbers compared to sepsis and cardiac conditions. Reported categories include cerebral bleeding, hypertensive cerebral bleeding, subarachnoid hemorrhage, cortical venous thrombosis, stroke, encephalopathy, cerebral ischemia, and related neurological complications. In 2022–23, neurological causes together accounted for around 15 deaths, with the highest contributions from cerebral bleeding (5) and smaller numbers from other subtypes such as stroke, cortical venous thrombosis, and encephalopathy. In 2023–24, neurological deaths declined to about 7, and in 2024–25, the figure further reduced to approximately 6, with cases mainly due to cerebral bleeding and hypertensive cerebral bleeding. This downward trend suggests improvements in hypertensive disorder management during pregnancy and perhaps better critical care support. However, neurological causes remain important because of their sudden onset, high fatality, and association with underlying hypertensive disorders such as PIH, eclampsia, and HELLP syndrome. Strengthening antenatal detection of hypertensive disease, ensuring timely neuroimaging and specialist care, and improving intensive care access can further reduce these preventable neurological maternal deaths.

6.2.4 PIH (Pregnancy-Induced Hypertension), Eclampsia, and HELLP syndrome

The analysis of maternal deaths due to PIH (Pregnancy-Induced Hypertension), Eclampsia, and HELLP syndrome over the last three years highlights their continued significance as a direct obstetric cause. In 2022–23, these conditions were responsible for 9 deaths, ranking among the top five causes of maternal mortality. The number dropped to 5 deaths in 2023–24, but again rose sharply to 11 deaths in 2024–25, making it the second leading cause in the latest year. This fluctuation suggests that while there may have been temporary improvements in detection and management, challenges remain in ensuring consistent and effective control of hypertensive disorders during pregnancy. Since PIH and its complications are well-recognized preventable causes of maternal morbidity and mortality, these deaths point to gaps in early antenatal screening, timely initiation of antihypertensive therapy, monitoring for complications, and availability of emergency obstetric care. Strengthening routine blood pressure and urine protein monitoring, ensuring readiness to manage severe pre-eclampsia and eclampsia with magnesium sulfate and antihypertensives, and improving critical care access could significantly reduce mortality from these preventable hypertensive complications.

6.2.5 Amniotic Fluid Embolism

The data show that Amniotic Fluid Embolism has been an important though relatively less frequent cause of maternal mortality over the past three years. In 2022–23, Amniotic Fluid Embolism accounted for 6 deaths, followed by a slight decrease to 4 deaths in 2023–24. However, in 2024–25 the number rose again to 8 deaths, making it one of the top five causes of maternal death in the latest year. Amniotic fluid embolism is a rare but catastrophic obstetric emergency, characterized by sudden cardiovascular collapse, respiratory distress, and disseminated intravascular coagulation, often occurring during labor, delivery, or the immediate postpartum period. The high fatality rate associated with Amniotic Fluid Embolism reflects the challenges in its early recognition and the limited availability of specific interventions. The increase observed in 2024–25 suggests the need for heightened preparedness in obstetric units, including early identification of at-risk deliveries, availability of advanced critical care support, prompt resuscitation measures, and rapid multidisciplinary management. Strengthening emergency response protocols and simulation-based training for healthcare providers could help improve maternal outcomes in such unpredictable and high-risk cases.

6.2.6 Pulmonary and respiratory Causes

The data over the last three years highlight the contribution of pulmonary and respiratory conditions to maternal mortality, though at a relatively moderate level compared to sepsis and hypertensive disorders. The categories include pulmonary embolism, pulmonary edema, ARDS pneumonia, and other respiratory complications. In 2022–23, pulmonary-related causes together accounted for approximately 19 deaths, with ARDS/ pneumonia and pulmonary embolism contributing the largest share. In 2023–24, the number rose slightly to about 21 deaths, driven mainly by ARDS pneumonia (9) and pulmonary embolism (8), making respiratory causes a major indirect contributor that year. By 2024–25, these deaths declined to

around 9 cases, with the highest contribution from amniotic fluid embolism though pathophysiologically overlapping with respiratory failure and only isolated cases of pulmonary embolism and ARDS pneumonia. This trend suggests that while overall respiratory-related maternal deaths are decreasing, they continue to pose a significant risk due to their acute onset, rapid progression, and requirement for advanced critical care facilities.

6.2.7 Relatively Rare Causes of Maternal Death

The analysis of maternal deaths over the last three years shows that, alongside the major contributors such as sepsis, PIH/HELLP, and suicide, a range of rare causes have also been reported, though in small numbers. These include conditions such as disseminated intravascular coagulation (DIC), fatty liver of pregnancy, anaphylactic shock, uterine rupture, autoimmune diseases like systemic lupus erythematosus (SLE), hematological disorders including leukemia and sickle cell disease, and neurological or oncological causes such as astrocytoma, encephalopathy, and cerebral ischemia. In addition, a few deaths were linked to external causes such as homicide and accidents. While these rare causes individually contribute only one or two cases annually, together they highlight the wide clinical spectrum of complications that can threaten maternal survival. Many of these deaths reflect either pre-existing chronic illnesses exacerbated by pregnancy or acute, unpredictable emergencies with limited scope for prevention, such as anaphylaxis or acute fatty liver.

6.4 Maternal Death Review

Sustainable Development Goal 3, is one of the 17 Sustainable Development Goals established by the United Nations in 2015. The goal is titled "Good Health and Well-being" and aims to ensure healthy lives and promote well-being for all people of all ages. One of the Goal is reducing the global maternal mortality ratio to less than 70 per 100,000 live births.

The SRS report for 2018-20 placed Kerala's MMR at 19 per 100,000 live births, the lowest in the country. This remarkably low MMR is a significant achievement for Kerala and reflects its strong healthcare system in Public sector and Private sector. Hence the state already achieved the SDG goals. However, the aim is to prevent all the preventable maternal Deaths.

State level Maternal Death Review is conducted every quarter under the chairmanship of Additional Chief Secretary (Health) involving O&G specialists, Radiologists and Paediatricians from both Public and Private along with representatives of FOGSI and IAP.

6.4.1 Maternal Death Audit

Kerala has been a frontrunner in India when it comes to implementation of Confidential Reviews of Maternal Deaths (CRMD), also known as Maternal Death Audits. Maternal Death

Audits was introduced in the state in the 1990s. The success of program lies in its focus on learning and continuous improvement. By analyzing maternal deaths confidentially, the program identifies weaknesses in the system and works to address them, ultimately aiming to prevent all preventable maternal deaths. Findings from the audits are used to make recommendations for improvements in the healthcare system and professional practices. This could involve areas like emergency preparedness, better transportation systems, or standardized protocols for managing complications during pregnancy and childbirth.

6.4.2 Maternal Death Near Miss Response (MDNMSR)

The Maternal Death Near Miss Surveillance and Response (MDNMSR) meetings are being conducted across all districts, reflecting a comprehensive and decentralized approach to addressing maternal health challenges. Chaired by the District Collector, these meetings underscore the high priority given to the initiative. Held monthly, the meetings provide a platform for in-depth discussion of both maternal deaths and near-miss cases, offering critical insights into potential issues and areas for prevention. Appropriate measures are being implemented to prevent similar occurrences in the future. The active participation of gynecologists from both government and private hospitals promotes collaboration and facilitates knowledge sharing across the healthcare system.

Reports

Moreover, the Kerala Federation of Obstetrics and Gynecology is also conducting Confidential Reviews of Maternal Deaths and periodically publishing reports on the leading causes of maternal mortality in the state.

Challenges and Areas of Concern

While significantly reduced, home births still occur, and they carry a higher risk of complications. The government is actively discouraging home births and promoting institutional deliveries. Although showing a reduction compared to previous years, maternal suicides remain a concern and highlight the importance of addressing mental health during and after pregnancy. Delayed pregnancies can increase the risk of complications for both the mother and the child.

Despite the low MMR, postpartum hemorrhage (PPH) remains a leading direct cause of maternal deaths in Kerala. Ongoing efforts focus on improving its management through active intervention during delivery and ensuring the availability of blood and blood components.

Hypertensive Disorders and Sepsis are emerging as significant contributors to maternal mortality, highlighting the need for robust diagnostic protocols and rapid interventions. Unhealthy lifestyles, poor diet, lack of exercise, and stress may be contributing to the rising incidence of high blood pressure among young women.

Review meetings

The review meetings conducted periodically will analyze the data regarding the maternal death occurred in the state.

Chapter 7

Maternal Health Initiatives

7.1 Janani Shishu Suraksha Karyakaram (Ammayum Kunjum)

Janani Shishu Suraksha Karyakaram (JSSK) launched on 1st June, 2011 entitles all pregnant women delivering in public health institutions to absolutely free and no expense delivery, including caesarean section. Free services during the antenatal period, intranatal and post natal period. It also entitles sick newborns and infants accessing public health institutions for free treatment up to one year after delivery.

The entitlements includes:

- i. Free drugs and consumables,
- ii. Free diagnostics
- iii. Free blood
- iv. Free diet for 3 days during normal delivery and 7 days for C-section
- v. Free transport from home to institution, between facilities in case of a referral and drop back

7.2 Mathruyanam

As part of Janani Shishu Suraksha Karyakram, Mathruyanam program is being implemented in the state for free transportation to the pregnant women during delivery in public institutions. It is being implemented in all the districts.

7.3 Janani Suraksha Yojana (JSY)

Janani Suraksha Yojana (JSY) is a centrally sponsored scheme, which integrates cash assistance with delivery and post-delivery care. The Yojana has identified Accredited Social Health Activist (ASHA) as an effective link between the government and pregnant women.

The cash assistance under the JSY is given to all pregnant women delivering in government hospital except in payward and to all BPL/SC/ST women delivering in accredited private hospital.

The cash entitlement is as given as below:

Table 7.1: JSY cash assistance

Rural Area		Total	Urban Area		Total
Mother's Package	ASHA's package*		Mother's package	ASHA's package**	(Amount in Rs.)
700	600	1300	600	400	1000

*ASHA package of Rs. 600 in rural areas include Rs. 300 for ANC component and Rs. 300 for facilitating institutional delivery.

**ASHA package of Rs. 400 in urban areas include Rs. 200 for ANC component and Rs. 200 for facilitating institutional delivery.

7.4 SUMAN

SUMAN (Surakshit Matritva Aashwasan) promotes safe pregnancy, childbirth, postpartum care with respect and dignity by translating the entitlements into a service guarantee package for the beneficiaries. The Service packages has been divided into three categories; Basic Package, Basic Emergency Obstetric Care (BEmOC) Package and Comprehensive Emergency Obstetric Care (CEmOC) Package. The Medical Officer/Superintendent after doing self assessment in the institutions and submits to District RCH officer. The RCH Officer verifies it and submits the same to District Quality Assurance Committee. After that it is submitted to the State (FW) and after verifying it is submitted to State Quality Assurance committee for approval and notification.

7.5 Adolescent Health Programme

There are 253 million adolescents in the age group 10-19 years in India. This age group comprises of individuals in a transient phase of life requiring nutrition, education, counselling and guidance to ensure their development into healthy adults. They are susceptible to several preventable and treatable health problems, like early & unintended pregnancy, unsafe sex leading to STI/HIV/AIDS, nutritional disorders like malnutrition, anemia & overweight, alcohol, tobacco and drug abuse, mental health concerns, injuries & violence.

Government of India has recognized the importance of influencing health-seeking behavior of adolescents. The health situation of this age group is a key determinant of India's overall health,

mortality, morbidity and population growth scenario. Therefore, investments in adolescent reproductive and sexual health will yield dividends in terms of delaying age at marriage, reducing incidence of teenage pregnancy, meeting unmet contraception need, reducing the maternal mortality, reducing STI incidence and reducing HIV prevalence. It will also help India realize its demographic dividends, as healthy adolescents are an important resource for the economy.

7.5.1 Rashtriya Kishor Swasthya Karyakram (RKSK)

In order to ensure holistic development of adolescent population, the Ministry of Health and Family Welfare launched Rashtriya Kishor Swasthya Karyakram (RKSK) on 7th January 2014 to reach out to 253 million adolescents - male and female, rural and urban, married and unmarried, in and out-of-school adolescents with special focus on marginalized and undeserved groups. The programme expands the scope of adolescent health programming in India - from being limited to sexual and reproductive health, it now includes in its ambit nutrition, injuries and violence (including gender based violence), non-communicable diseases, mental health and substance misuse. The strength of the program is its health promotion approach. It is a paradigm shift from the existing clinic-based services to promotion and prevention and reaching adolescents in their own environment, such as in schools, families and communities. Key drivers of the program are community based interventions like, outreach by counsellors; facility based counselling; Social and Behavior Change Communication; and strengthening of Adolescent Friendly Health Clinics across levels of care.

RKSK takes cognizance of this and involves parents and community. Focus is on reorganizing the existing public health system in order to meet the service needs of adolescents. Under this a core package of services includes preventive, promotive, curative and counselling services, routine check-ups at primary, secondary and tertiary levels of care is provided regularly to adolescents, married and unmarried, girls and boys during the clinic sessions.

7.5.2 School Health & Wellness Programme

Schools play a critical role in helping students establish lifelong healthy behaviours. Recognizing the importance of this, school based health promotion activities have been incorporated as a part of the Health and Wellness component of the Ayushman Bharat Programme. School Health & Wellness Programme (launched in Feb 2020) is being implemented in government and government aided schools in districts (including aspirational districts). Two teachers, preferably one male and one female, in every school, designated as “Health and Wellness Ambassadors” shall be trained to transact with school children, health promotion and disease prevention information on 11 thematic areas in the form of interesting joyful interactive activities for one hour every week.

State specific School Health Programme (Aksharam Arogyam) was launched in 2024. It includes:

- Comprehensive health screening of all students in the State, starting in LP sessions of Government and Aided Schools.
- Referral to health care institutions for managing health problems identified and follow up
- Universal Health promotional classes by trained teachers to be known as Health and Wellness Ambassadors [HWAs] on a weekly basis on 11 nationally standardised health themes.
- Enhanced continuation of existing health services flowing through schools, like Iron Folic Acid tablets distribution [AMB-WIFS], National Deworming Day, Menstrual Hygiene Promotion, school age immunisation.
- Developing Electronic Health Records of all school students in the State, for effective data management
- Development of First Aid / First Responder skills among students and staff of schools

7.6 Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA)

Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA) was launched to provide fixed day assured, comprehensive and quality antenatal care universally to all pregnant women on the 9th of every month by a gynaecologist. It was started with the involvement of private gynaecologist. The aim was to provide at least one Antenatal check up by a gynaecologist. Now it has been extended to include additional three antenatal check up by gynaecologist for the high-risk antenatal by conducting PMSMA camp on an additional day

7.7 PCPNDT Act

The Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act, 1994, is a central legislation enacted to prohibit sex selection before or after conception and to regulate the use of prenatal diagnostic techniques so as to prevent their misuse for sex-selective abortions. The Act makes it an offence to conduct or facilitate diagnostic procedures in unregistered centres, engage in sex selection, communicate the sex of the foetus, advertise sex determination services, or sell ultrasound and related equipment to unregistered entities.

In Kerala, the Act is implemented by the Directorate of Health Services, with the District Medical Officer (DMO) functioning as the Appropriate Authority responsible for registration, inspection, monitoring, and enforcement at the district level.

The Pre-Conception and Pre-Natal Diagnostic Techniques (Prohibition of Sex Selection) Amendment Act, 2002 (brought into force in 2003), significantly strengthened the original law. It formally expanded the scope of the Act to explicitly prohibit sex selection both prior to and after conception, thereby addressing advances in reproductive technologies such as sperm sorting and pre-implantation procedures that could be misused for selecting the sex of the child.

The amendment broadened regulatory oversight to include genetic counselling centres, genetic laboratories, genetic clinics, ultrasound clinics, and imaging centres, whether functioning independently or within institutions such as IVF centres. It made registration mandatory for all such facilities, prohibited advertisement of sex selection services, and enhanced the powers of Appropriate Authorities to conduct inspections, search and seizure, seal equipment, and initiate prosecution in cases of violation.

Core objectives:

The PCPNDT Act's core objectives focus on stopping sex selection and regulating prenatal diagnostics to combat female foeticide and improve India's child sex ratio.

- i. Ban sex selection techniques before or after conception, including emerging methods like sperm sorting or preimplantation genetic diagnosis.
- ii. Prevent misuse of prenatal diagnostic tools (e.g., ultrasound, amniocentesis) for determining fetal sex, allowing them only for detecting genetic abnormalities, metabolic disorders, chromosomal issues, congenital malformations, haemoglobinopathies, or sex-linked disorders
- iii. Promote ethical practices in genetic counseling, laboratories, and clinics through mandatory registration, oversight by supervisory boards, and public awareness against harmful practices.
- iv. Regulate facilities and equipment sales to curb violations, with penalties ensuring compliance

Implementation:

Implementation is structured through multiple institutional layers, including:

- i. Central Supervisory Board and State Supervisory Boards.
- ii. Appropriate Authorities at district and state levels responsible for enforcement.
- iii. State Advisory Committees and District Advisory committees to review and guide implementation
- iv. State Supervisory Board plays a pivotal role to ensure effective enforcement against sex selection and diagnostic misuse
- v. The State of Kerala continues to implement the Pre-Conception and Pre-Natal Diagnostic Techniques (PC&PNDT) Act, 1994 through systematic registration,

inspections, enforcement measures, and public awareness initiatives aimed at preventing sex selection and female foeticide.

- vi. As of December 2025, Kerala has 1,706 registered Ultrasound Clinics/Imaging Centres, 385 Genetic Clinics, 69 Genetic Laboratories, 22 Genetic Counselling Centres, 44 jointly registered facilities and 16 Mobile Clinics. Periodic inspections are conducted by the Appropriate Authorities as a key regulatory mechanism to ensure compliance with the provisions of the PC&PNDT Act, 1994, verify adherence to registration and record-maintenance requirements, and prevent misuse of diagnostic techniques for sex selection.
- vii. All reported installations of ultrasound machines were physically verified, and no instances of sale to unregistered bodies were detected.
- viii. Awareness and capacity-building activities were intensified through print and electronic media campaigns, hoardings, and community outreach. Since the enactment of the PC&PNDT Act in 1994, the State has consistently undertaken sustained Information, Education and Communication (IEC) and capacity-building activities as an integral component of implementation. Public awareness campaigns are conducted periodically through print and electronic media, hoardings, posters, stickers, and distribution of leaflets to reinforce the prohibition of sex selection and promote the value of the girl child. In addition, regular sensitisation programmes, Continuing Medical Education (CME) sessions, and capacity-building initiatives are organised for both the public and private sectors to ensure awareness of legal provisions, ethical responsibilities, and compliance requirements under the Act. These ongoing efforts aim to strengthen regulatory compliance, deter violations, and foster a societal commitment towards gender

In conclusion, Kerala is actively implementing the PC&PNDT Act through regular inspections, appropriate regulatory action, awareness programmes, and close monitoring of registered facilities. Although no major instances of sex determination were reported during the period, continued vigilance, strengthened monitoring, and clarity in reporting practices remain essential, particularly in the context of the increasing number of infertility cases and the expanding network of ART centres across the State.

7.8 ART and Surrogacy

Background

Infertility has become a major public health issue in India, including Kerala, driving demand for Assisted Reproductive Technology (ART) services. To address the ethical, medical, and social challenges of infertility treatment and surrogacy, the Government of India enacted the Assisted Reproductive Technology (Regulation) Act, 2021, and the Surrogacy (Regulation) Act, 2021, along with their respective Rules. These laws apply uniformly across all States and Union Territories, including Kerala.

In Kerala, the presence of a strong private healthcare sector, high levels of health awareness, and increasing infertility rates has contributed to the rapid expansion of Assisted Reproductive Technology (ART) services. The legislation establishes a comprehensive regulatory framework to ensure safe, ethical, and equitable access to these services, while safeguarding against exploitation and unethical practices

Objectives:

- i. To regulate and standardise ART and surrogacy services.
- ii. To ensure ethical medical practices and patient safety.
- iii. To prevent commercialisation and exploitation of women by permitting only altruistic practices.
- iv. To protect the rights of intending couples, donors, surrogate mothers, and children born through ART/surrogacy.
- v. To establish transparent governance, accountability, and monitoring mechanisms

Legal and Institutional Framework in Kerala

- i. Constitution of the State ART & Surrogacy Board.
- ii. Designation of Appropriate Authorities for registration, inspection, and enforcement.
- iii. Mandatory registration of ART clinics, surrogacy clinics, and ART banks.
- iv. Integration of ART regulation with existing laws such as the PC&PNDT Act, Clinical Establishments Act, and biomedical waste management rules.
- v. Certification process for medical indication, eligibility, essentiality in surrogacy cases

Implementation Status

Inspection of ART clinics, ART banks, and surrogacy clinics is conducted prior to the issuance of registration. The inspection reports are reviewed and discussed in the monthly meeting of the State Appropriate Authority, held in the chamber of the Special Secretary (Health), before final approval and grant of registration.

Table 7.2: ART/Surrogacy Clinics in Kerala as on 31/01/2026

	Government	Private	Total
ART Level 1	5	38	43
ART Level 2	3	90	93
ART Bank	1	26	27
Surrogacy Clinic	0	24	24
Total	9	178	187

Source: DHS website

Compliance monitoring is ongoing, with emphasis on infrastructure standards, qualified manpower, counselling services, and consent procedures. Enforcement has been strengthened following judicial scrutiny of alleged illegal surrogacy and unethical ART practices in the State.

Table 7.3: District Wise Details of ART , Surrogacy Clinics in Kerala

	District	No of Level 1 Clinics	No of Level 2 Clinics	No of ART Banks	No of Surrogacy Clinics
1	Thiruvananthapuram	8	17	4	4
2	Kollam	4	6	1	1
3	Pathanamthitta	1	3	1	1
4	Alappuzha	4	5	2	4
5	Kottayam	0	5	2	0
6	Idukki	3	0	0	0

7	Ernakulam	5	20	9	8
8	Thrissur	4	6	0	1
9	Palakkad	1	6	0	1
10	Malappuram	1	12	4	1
11	Kozhikode	2	8	0	1
12	Wayanad	3	0	0	0
13	Kannur	6	2	1	0
14	Kasargod	1	3	3	2
	Total	43	93	27	24

Source: DHS website

Monitoring Mechanisms

Periodic inspections of registered facilities are carried out by the State Board and the State Appropriate Authority, with follow-up actions to address deficiencies identified during inspections.

Way Forward:

- i. Strengthen awareness among service providers on legal ART and surrogacy services
- ii. Strengthen public awareness campaigns on legal ART and surrogacy services.
- iii. Conduct periodic inspections and compliance audits of ART and surrogacy facilities
- iv. Digital registry and real-time reporting mechanism for ART procedures.

Note: The details of the ART (Regulation) Act, 2021 and the Surrogacy (Regulation) Act, 2021 are published on the website of the Director of Health Services.

Chapter 8

Maternal Health Infrastructure

8.1 Infrastructure

Maternal Health Infrastructure refers to the physical facilities, equipment, human resources, and service delivery systems established to ensure safe pregnancy, childbirth, and post-natal care for women. Strengthening maternal health infrastructure is essential for reducing maternal mortality and improving the overall health outcomes of mothers and newborns

Key Components of Maternal Health Infrastructure:

- i. Maternal and Child Health (MCH) Wings
- ii. Labour Rooms and Operation Theatres
- iii. High Dependency Units (HDUs) for obstetric emergencies
- iv. Newborn Care Units (SNCU, NBSU, NBCC)

Government Initiatives for Strengthening Maternal Health Infrastructure through NHM

- i. LaQshya Programme – Improving quality of care in labour rooms and maternity operation theatres.
- ii. Construction of New MCH Blocks
- iii. Setting up of SNCU/NBSU

The major achievements achieved by the state as follows:

Table 8.1: Construction of New MCH Wing

No.	District	Name of the Facility	Approval (Lakh)
1	Thrissur	THQH Chavakkadu	130
2	Kannur	TH Peravoor - Maternity block	150
3	Kannur	TH Iritty - Maternity block	150
4	Ernakulam	THQH Kothamangalam- New Labour Room & Maternity Ward, FP Theatre & Ward	100
5	Idukki	THQH Thodupuzha -New MCH block	300
6	Thiruvananthapuram	DH Neyyattinkara- 5 storeyed MCH cum Surgical block	1200
7	Thiruvananthapuram	CHC Fort -MCH blocks - 3 Storeyed	500

8	Kollam	TH Nedumgolam -OP & MCH block	360
9	Alappuzha	THQH Chengannur - New MCH Block	500
10	Thrissur	THQH Irinjalakkuda -Maternity complex + Operation Theatre	400
11	Palakkad	THQH Chittur -New block for Gynaec & Obstetrics	200
12	Palakkad	THQH Alathur -New block for Gynaec & Obstetrics Pediatric ward	200
13	Thiruvananthapuram	New MCH block at W&C Thycaud	1000
14	Thrissur	New MCH block at THQH Kodungallor	1000
15	Palakkad	New Block at W&C Palakkad (Phase 1 & 2)	320
16	Malappuram	New MCH block at THQH Nilambur	1000
17	Malappuram	W&C Block at DH Tirur	500
18	Malappuram	Construction of new MCH Block at W & C Kozhikode	1000
19	Thiruvananthapuram	New MCH block at SAT Trivandrum.	5048
20	Kannur	New MCH Block at Kuthuparambu	334
21	Wayanad	Construction of new MCH Block at CHCMeenangady	630

Source: DHS Planning division

Table 8.2: Infrastructure for LaQshya standards

No.	District	Institution	Type of Work	Amount in Lakhs
1	Thiruvananthapuram	SAT Trivandrum	Labour room strengthening as per LaQshya standards and Obstretic ICU	400
2	Thiruvananthapuram	W&C Thycad Trivandrum	Labour room strengthening as per LaQshya standards and Obstretic ICU & Civil works	202
3	Thiruvananthapuram	GH Peroorkkada Trivandrum	Labour room strengthening as per LaQshya standards	174

4	Kollam	Medical College Kollam	Modernisation of Gynec block and adjoining Emergency OT as per LaQshya.	226
5	Kollam	THQH Kottarakkara Kollam	Modernisation of Gynec block and adjoining Emergency OT as per LaQshya	134
6	Kollam	TH Kadakkal Kollam	Mordernization of Gynaec Block- Emergency OT and labour room as per LaQshya standards	103
7	Pathanamthitta	DH Kozhenchery Pathanamthitta	Gynaecology OT strengthening as per LaQshya standards and Obstetric ICU	247
8	Pathanamthitta	THQH Ranni Pathanamthitta	Renovation of existing labour room as per LaQshya standards	93
9	Pathanamthitta	MCH Konni Pathanamthitta	Labour Room Strengthening as per LaQshya Standards	350
10	Pathanamthitta	THQH Thiruvalla Pathanamthitta	Strengthening of Labour Room as per LaQshya Standards	100
11	Alappuzha	Medical College Alappuzha	Labour Room Strengthening as per LaQshya Standards	158
12	Alappuzha	W&C Alappuzha	Labour Room Strengthening as per LaQshya Standards	140
13	Alappuzha	THQH Kayamkulam	Vertical extension of Casualty block for labour room and OT as per LaQshya standards	319
14	Kottayam	Medical College Kottayam	Setting Up of HDU and strengthening of Labour room	398
15	Ernakulam	GH Muvattupuzha	Labour Room Strengthening as per LaQshya Standards	307
16	Ernakulam	District Hospital Aluva	Labour Room & Emergency OT strengthening as per LaQshya Standards	197
17	Thrissur	THQH Chalakkudy	Labour Room Strengthening as per LaQshya Standards	94

18	Palakkad	THQH Chittur	New block and New casualty, Labour ward &NBSU &Pediatric ward	400
19	Palakkad	GTSH Kottathara	New Labour room and OT as per LaQshya standards	177
20	Malappuram	DH Perinthalmanna	Labour room strengthening as per LaQshya standards	244
21	Malappuram	DH Tirur	Labour room strengthening as per LaQshya standards	199
22	Malappuram	THQH Malappuram	Labour Room Strengthening as per LaQshya Standards	67
23	Kozhikode	W&C Kozhikode	Labour room and OT strengthening as per LaQshya standards	144
24	Kozhikode	TH Koyilandy	Setting up of Theatre complex, Labour room and wards as per LaQshya standards	177
25	Kozhikode	IMCH Kozhikode Kozhikode	Strengthening of Maternity wing as per LaQsyha Standards at IMCH Kozhikode	141
26	Kozhikode	DH Vadakara	Strengthening of Maternity wing - Gynec ward, Modular OT, Minor OT etc.	267
27	Wayanad	DH Mananthavady	Labour room strengthening as per	100
28	Kannur	W&C Mangattuparamba	Strengthening of labour block as per LaQshya and Medical gas and other civil works	128
29	Kannur	GH Thalassery	Strengthening of labour block as per LaQshya	98
30	Kannur	DH Kannur	Labour block extension as per LaQshya	257
31	Kannur	Taluk Hospital Irritty	Construction First Floor to the existing Labour Block	319

32	Kannur	THQH Thaliparamba Kannur	Labour Room strengthening as per LaQshya standard & Setting up of Obsteric HDU/ICU	174
33	Kasargod	DH Kanhangad	Horizondal Extention to Labour block as per LaQshya	179
34	Kasargod	THQH Trikaripur	Renovation of Existing Operation Theatre and LR extension with Maternity Ward	100
35	Kasargod	TH Panathady Kasargod	Setting up of labour room and OT as per LaQshya standards	105

Source: NHM Engg division

8.2 LaQshya

LaQshya is a focused and targeted approach for transformational improvement in quality of care provided around the time of birth. It includes quality certification program for Labour room and Maternal OT.

8.3 Delivery Points in Kerala – Public and Private Sector

The distribution of delivery points across Kerala shows a strong presence of private sector institutions alongside a well-established public health system. Table 8.3.1 below shows delivery points across districts in Kerala (public and private).

Table 8.3: Delivery Points in Kerala (Public and Private)

District	Public	Private	All
TVM	13	47	60
KLM	11	45	56
PTA	5	18	23
ALP	8	24	32
KTM	6	35	41
IDK	5	18	23
EKM	14	70	84
TSR	9	57	66
PKD	7	31	38
MLP	8	88	96
KKD	8	38	46
WYD	5	16	21
KNR	9	40	49
KSD	3	33	36
State	111	560	671

Source: HMIS

State Overview

- i. Total Delivery Points: 671
- ii. Public Sector: 111 (16.5%)
- iii. Private Sector: 560 (83.5%)

This indicates that more than three-fourths of delivery institutions are in the private sector, though public facilities play a major role in high-risk and referral care.

- i. The private sector significantly supplements institutional delivery services in Kerala.
- ii. Urbanized districts such as Ernakulam, Thrissur, and Thiruvananthapuram show higher private facility concentration.
- iii. Hilly and geographically challenging districts like Wayanad and Idukki have fewer delivery points, which may influence referral patterns.
- iv. Despite the larger number of private facilities, public institutions remain crucial for comprehensive emergency obstetric care and free service provision under government schemes.

Overall, Kerala demonstrates strong institutional delivery coverage supported by a mixed public–private healthcare delivery system.

8.4 Women and Child Hospitals

Women & Children (W&C) Hospitals play a crucial role in providing specialized maternal and child health services, including high-risk obstetric care, neonatal services, and comprehensive pediatric support.

Key Observation

- A total of 9 districts (TVM,KLM,ALP,EKM,PKD,MLP,KKD,KNR& KSD) have dedicated W&C Hospitals.
- These institutions serve as major referral centers for maternal and neonatal complications.
- Districts without standalone W&C hospitals manage specialized care through District Hospitals, Medical Colleges, or other higher-level facilities.

Importance

W&C Hospitals strengthen the continuum of maternal and child healthcare by ensuring:

- Comprehensive Emergency Obstetric and Newborn Care (CEmONC)
- SNCU services
- Management of high-risk pregnancies
- Specialized pediatric interventions

They are vital components in sustaining Kerala’s strong maternal and child health indicators.

Chapter 9

Financial Allocation for Maternal Health

The budget allocation and expenditure under Maternal Health Programmes under NHM for the last 5 years is shown below:

Table 9: Budget allocation and expenditure under Maternal Health Programmes NHM

Financial Year	Amount approved (Rs in Lakhs)	Expenditure (Rs in Lakhs)
2020-21	3025.46	4793.40
2021-22	5264.06	6935.18
2022-23	8,076.10	7121.06
2023-24	6,958.33	4,122.13
2024-25	6,496.03	6052.69
Total	29819.98	29024.46

Source: NHM Finance division

Chapter 10

SDG Status in Maternal Health

10.1 Relevant Sustainable Development Goal: Goal 3. Reduce Maternal Mortality

Sustainable Development Goal (SDG) 3, entitled “Good Health and Well-Being,” is one of the 17 interlinked goals adopted by the United Nations in 2015 as part of the 2030 Agenda for Sustainable Development. SDG 3 encompasses a broad mandate to ensure healthy lives and promote well-being for individuals across all age groups, with a strong emphasis on equity and universal access to healthcare services. Within this framework, a key maternal health target is the reduction of the global maternal mortality ratio (MMR) to fewer than 70 deaths per 100,000 live births by 2030, with no country exceeding twice the global average. This target reflects international consensus on the urgent need to address preventable maternal deaths, particularly in low- and middle-income countries where systemic inequities, limited access to skilled birth attendants, and inadequate emergency obstetric care continue to pose significant challenges.

According to the Sample Registration System (SRS) report for 2020–22, Kerala recorded a Maternal Mortality Ratio (MMR) of 18 per 100,000 live births, the lowest in the country and far below the national average. This exceptionally low MMR stands as a landmark public health achievement and underscores the effectiveness of Kerala’s healthcare system, which is characterised by a synergistic contribution from both the public and private sectors. By attaining this figure, the state has already surpassed the Sustainable Development Goal (SDG) target of reducing the global MMR to fewer than 70 per 100,000 live births. Nevertheless, the broader aspiration extends beyond meeting global benchmarks; it is to ensure the elimination of all preventable maternal deaths.

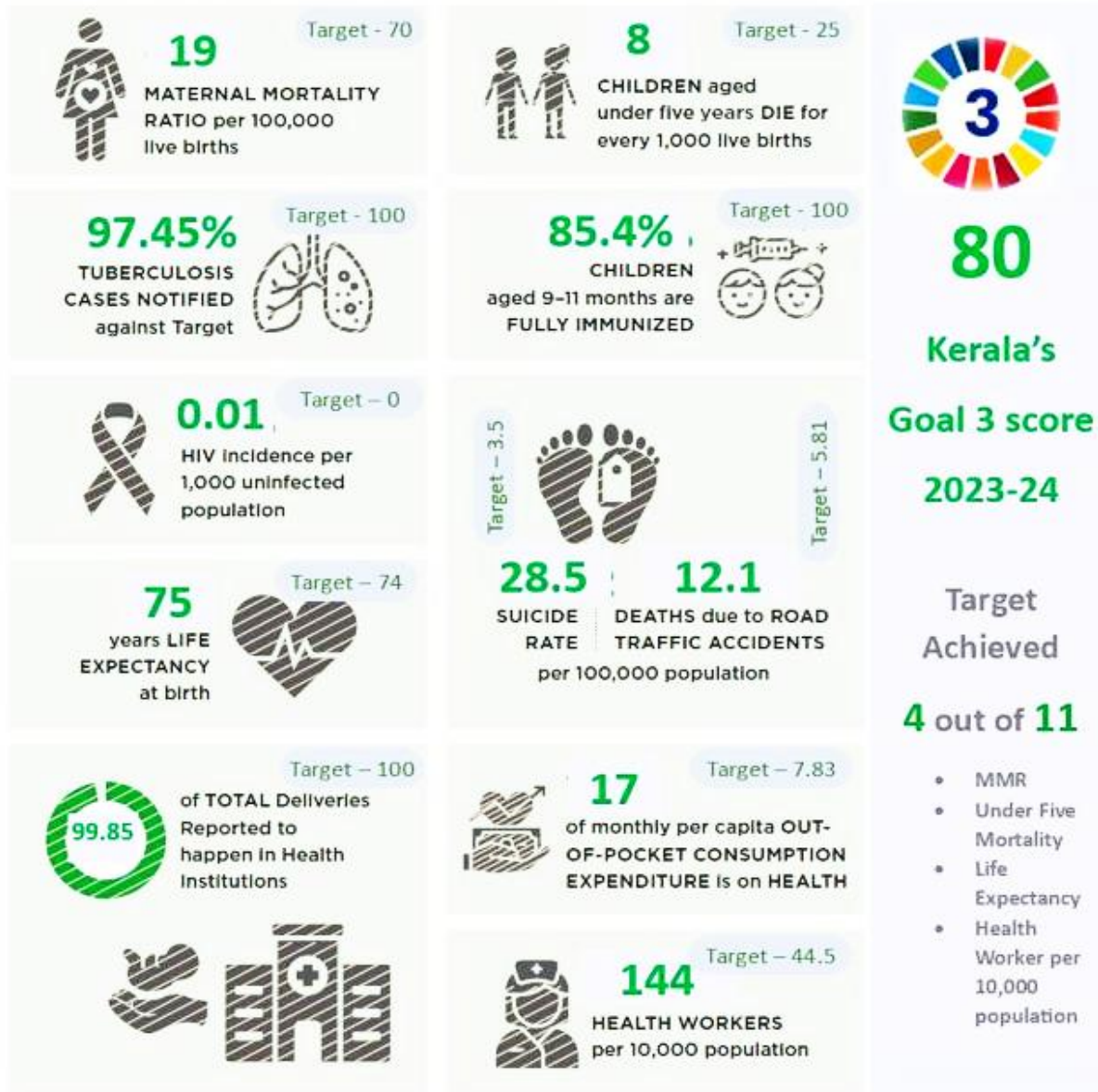
Kerala’s progress, while commendable, thus represents not an end point but a platform for advancing towards the aspirational goal of *zero preventable maternal mortality*, aligning with the global commitment to equity, quality, and dignity in maternal health.

GOAL 3



ENSURE HEALTHY LIVES AND PROMOTE WELL-BEING FOR ALL AT ALL AGES

2023-24 PERFORMANCE OF KERALA ON GOAL 3 INDICATORS



New Indicators in SDG Goal 3 Ranking

- LIFE EXPECTANCY @ Birth
- TB Case Notification against target

Fig 10.1: SDG Goal 3 Kerala performance

10.2 Key Activities and Progress

Key Mortality Indicators (Latest Available): Kerala records the lowest IMR in India and is the only large state with IMR below 10, declining by about 62% from 2010 to 2023, with no rural–urban disparity. The state achieved the SDG targets for U5MR and NMR as early as 1991, and for MMR during 2010–12.

Table 10.1: Key Mortality Indicators

Indicator	Kerala	India	Remarks
Maternal Mortality Ratio (MMR) (per 100,000 live births, 2021–23)	30	88	Among the lowest in the country. Kerala achieved the SDG target (<70) during 2010–12.
Total Fertility Rate (TFR)	1.5	1.9	Kerala was the first state in India to achieve below-replacement fertility in 1988, while India reached this level only in 2019. The absence of a traditional rural–urban fertility divide is a distinguishing feature of Kerala.
Sex Ratio at Birth (females per 1,000 males, 2021–23)	971	917	Kerala ranks among the best-performing states, reporting one of the highest sex ratios at birth, well above the national average.

Source: SRS 2021-23

Quality of Healthcare Access and Utilisation

Kerala’s health system ensures near-universal access to institutional and medical care, contributing significantly to better health outcomes. Table 10.2 shows Healthcare Access Indicators in Kerala vs India.

Table 10.2: Healthcare Access Indicators

Indicator	Kerala	India
Institutional / Medically Attended Deliveries (%)	99.7	94.9

Source: DHS Data

Indicators reflect strong healthcare utilisation across both government and private sectors.

Annexures

Photos of W&C Hospitals



W&CH Palakkad



W&C Hospital Mangattuparaba



W &CH Kanjangad



W&CH Thycaud



W &CH Alappuzha



W &CH Kozhikode

