What is the impact of Covid-19 on the Antenatal Care Services Utilization in Public-Private-Rural-Urban Hospitals of India during the COVID-19 Pandemic Period of 2020-2021 compared to pre-pandemic era 2018-2019?

Dr Piyush Kumar (✉ drpiyush003@gmail.com)

Health Department, Government of Bihar, India <https://orcid.org/0000-0001-9857-478X>

Research Article

Keywords: antenatal care, health facility, utilization, coronavirus disease, pregnant women, India

Posted Date: January 25th, 2022

DOI: <https://doi.org/10.21203/rs.3.rs-1286087/v1>

License: © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License. [Read Full License](#)

Version of Record: A version of this preprint was published at MODERN APPLIED MEDICAL RESEARCH on February 14th, 2022. See the published version at <https://doi.org/10.36099/mamr.220522>.

Abstract

Background

The ongoing coronavirus (COVID-19) pandemic is well documented to have a disastrous effect on the health-care services, particularly pregnancy-related health services. In order to provide the information to the scientific community and policy makers with accredited evidence and data in the country, this retrospective cross sectional mixed research study aims to find out the impact of the COVID-19 pandemic on antenatal services utilization among pregnant women of India attending public / private / rural / urban health facilities in 36 states and union territories. Hence, the researcher hopes that result and analysis will be beneficial to important stakeholders as well as policy makers in designing strategies for prioritizing pregnancy healthcare even within the ongoing COVID-19 pandemic period.

Methods

A facility-based retrospective mixed cross-sectional study was conducted from 1st January 2018 to 31st May 2021 for pregnant women attending public / private / rural / urban ANC services in 36 states and union territories of India. A total of 96990524 women registered for ANC during this period across all health facilities were included in the study with a purposive sampling technique. The data required for this study is collected from HMIS of Ministry of Health and Family Welfare (MoHFW) which is the most accredited data source in India. The total number of indicators included for the study was 20. The data collected is analysed with the help of Microsoft office.

Results

Overall, 96990524 women registered for ANC during the study period. The analysis shows that the covid-19 pandemic era has a negative impact on several indicators. The study revealed that there is significant increase in ANC service utilization at urban health facility of all the services as compared to pre-pandemic era on cumulative all India basis.

Conclusion

Enhancing women knowledge of protective health services, prioritizing maternal care related health services during ongoing COVID-19, and improving the accessibility of ANC service should be emphasized for getting maximum benefit to the neediest.

Introduction

Antenatal care services are well documented by several researchers to be affected by the COVID-19 pandemic despite the truth that pregnant women are considered vulnerable group [1]. However, the SARS-CoV-2 pandemic has led to maternity services disruptions in providing antenatal care due to the government enforced covid-19 restrictions regarding social distancing etc., which has negatively impacted on access to routine antenatal care.

The SARS-CoV-2, which causes disease (COVID-19), has spread globally since emerging in December 2019, and the World Health Organization (WHO) declared this a global pandemic on March 11, 2020[2]. Total number of 343,516,850 confirmed cases and **5,594,994** deaths **275,116,452 recovered** were reported globally as of January 21, 2022, 10:43 GMT [3].

The WHO defines Antenatal care as the care given to a pregnant mother before birth, and it involves education, screening, counselling added with treatment of problems, and immunization [4]. Antenatal care is the first contact opportunity for a pregnant woman to get connected with available-accessible-affordable health services and linking herself with pregnancy related complications to an established health-referral system.

Maternal mortality is significantly high. Almost 295 000 women died during and following due to pregnancy and childbirth related causes in 2017. The great majority of these deaths (94%) reported in low-resource settings, and majority could have been prevented [5]. Antenatal healthcare is targeted to reduce maternal morbidity and mortality by providing and educating about health promotion, danger signs, birth preparedness, and proper timely care for pregnancy complications. The WHO recommends a minimum of 04 ANC visit per pregnancy for pregnant women. NFHS Studies conducted in different states of India reported that educational status, maternal age, number of living children, occupation, place of residence, religion, socio-economic status, and previous obstetric history were significant factors associated with the use of antenatal care service [6].

The COVID-19 pandemic challenged not only India but global countries to provide good quality, essential maternal and newborn health services [7]. Pregnant women and newborns have experienced difficulties accessing health services due to lockdown measures or found to be reluctant to visit health facilities due to fear of possible infection[8]. The disruption of maternity services and moving resources away from most essential pregnancy care, due to COVID-19 response, increased risks of maternal morbidity and mortality [9]. Anxiety, domestic violence and mental health problems in pregnant women were reported to be increased during the ongoing covid-19 pandemic [10, 11].The indirect effects of COVID-19 on various other diseases at the population level, as a result of lockdown, social restrictions, and reorganization of health systems, is evident in several research studies[12]

The negative impact of containment and covid-19 policies on mortality at emergency department is also evident from several research studies [13]. To the best of the researcher/author knowledge, there is no published research till today 22-01-2022 exploring the effect of the COVID-19 pandemic on antenatal care services utilization by analysing 20 accredited times bound indicators for pregnant women in the country. This kind of research study is not done only in India, but also on global basis the author has not found such study which can clearly mark the impact of covid-19 on ANC through several process or output indicators.

In order to provide the information to the scientific community and policy makers with accredited evidence and data in the country, this retrospective cross sectional mixed research study aims to find out the impact of the COVID-19 pandemic on antenatal services utilization among pregnant women of India attending public / private / rural / urban health facilities in 36 states and union territories. Hence, the researcher hopes that result and analysis will be beneficial to important stakeholders as well as policy makers in designing strategies for prioritizing pregnancy healthcare even within the ongoing COVID-19 pandemic period.

Materials And Methods

Study Setting

The study was conducted by continuous observation of health facilities data found in HMIS of MoHFW, which is also available online. The population covered is 36 states and union territories of India. According to the data obtained from HMIS, the total ANC registered during this period is 96990524 numbers of females. In the country there are private, public, rural and urban hospitals, delivering ANC services. The financial burden of ANC services in public hospital of India is cost free, covered by state and central governments. For getting treatment at private health facilities the pregnant women or family have to pay as oope (out of pocket expense) until unless covered by some government sponsored scheme.

Study Design and Period

A health facility-based retrospective mixed cross-sectional study was conducted for pregnant women who attended ANC and takes the available services in the selected health facilities from 1st January 2018 to 31st May 2021. The first documented covid-19 case in India was found in January 2020[14]. Hence the year before 2020 i.e. 2018 and 2019 is pre-pandemic period utilized for comparison with the ongoing covid-19 pandemic period i.e.2020 and 2021 (up to May as data from accredited source is available till this month). The average per month is calculated and pandemic era is compared with pre-pandemic era to find out the impact of covid-19 on ANC services utilization.

Population

The actual population was all the pregnant women who attended ANC or utilized ANC related health services in the selected health facilities of choice, during the data collection period of this research study was considered as study population. Accordingly, a total of 96990524 numbers of female's pregnant women who fulfilled the inclusion criteria were included in the study.

Sample Size and Sampling Technique

A total of 96990524 women registered for ANC were included in the study with a purposive sampling technique. The data required for this study is collected from HMIS of Ministry of Health and Family Welfare (MoHFW) which is the most accredited data source in India. The total number of indicators included for the study was 25. The data collected is analysed with the help of Microsoft office.

Study Variables and Operational Definition

The outcome variable of this research study was antenatal care utilization. Antenatal care utilization for this study was defined as

1. Total number of pregnant women registered for ANC
2. Out of the total ANC registered, number registered within 1st trimester (within 12 weeks)
3. Number of PW given TT1/ Td1
4. Number of PW given TT2 / Td2
5. Number of PW given TT Booster/ Td Booster
6. Number of PW provided full Course 180 Iron Folic Acid (IFA) tablets
7. Number of PW provided full Course 360 Calcium tablets
8. Number of PW given one Albendazole tablet after 1st trimester
9. Number of PW received 4 or more ANC check ups
10. Number of PW given ANC Corticosteroids in Pre Term Labour
11. Out of the new cases of PW with hypertension detected, cases managed at institution
12. Number of Eclampsia cases managed during delivery
13. Number of PW tested for Haemoglobin (Hb) 4 or more than 4 times for respective ANCs
14. Number of PW having severe anaemia (Hb < 7) treated
15. Number of PW tested for Blood Sugar using OGTT(Oral Glucose Tolerance Test)
16. Number of PW tested positive for GDM
17. Number of PW given insulin out of total tested positive for GDM
18. Number of PW tested using POC test for Syphilis
19. Number of pregnant women tested for Syphilis
20. Number of syphilis positive pregnant women treated for Syphilis,

Data Collection and Quality Assurance

Data were continuously collected, observed analysed using Microsoft office software from electronic records of HMIS from MoHFW. The whole data collection and analysis is solely done by the author. To assure data quality the researcher has taken help of his wife to do cross check as well. Furthermore, there was daily supervision of data collected in the data collection process. Finally, it was checked for accuracy, reliability, completeness and consistency.

Data Management and Analysis

All data was checked for inconsistencies, any missing values, and for incompleteness, then entered into Microsoft office software and also exported to STATA for further analysis.

Data Availability

The data for study is available on HMIS of Ministry of Health and Family Welfare, Government of India. The link to the source is given below:-

<https://hmis.nhp.gov.in/#!/standardReports>

Ethical Consideration

Ethical clearance was not applicable as this research study have not utilized any human or animal for trials etc. or involved them in any way which requires ethical considerations. Furthermore the data used is available for public and the researcher have not disclosed any hidden or secret data. The purpose of this study is well explained above, and consent or approval is not required for such studies based on secondary data available in public domain. The researcher is a medical doctor and this research study is a part of author usual routine.

Results

Socio-Demographic Characteristics of Respondents

A facility-based retrospective mixed cross-sectional study was conducted from 1st January 2018 to 31st May 2021 for pregnant women attending all / public / private / rural / urban ANC services in 36 states and union territories of India. Thus, a total of 96990524 women registered for ANC were included in the study with a purposive sampling technique. See Table 1, 2, 3, 4, 5,(some extra data table is also attached at end for researchers interest)

This research study is ongoing and more analysis and interpretation will be available in next version of this research study with more data.

Impact of COVID-19 Pandemic on ANC Service Utilization

Table – 1- Comparison of ANC service utilization across India (all health facilities) before and after covid-19 pandemic

Indicator/ Variable	Average per month-Pandemic Era (2020-21)	Average per month-Pre-Pandemic Era (2018-2019)
Total number of pregnant women registered for ANC	2309294.7	2414769
Out of the total ANC registered, number registered within 1st trimester (within 12 weeks)	1725702.3	1662208
Number of PW given TT1/ Td1	1650691.2	1734836
Number of PW given TT2 / Td2	1459628.4	1555820.5
Number of PW given TT Booster/ Td Booster	514934.24	497145.75
Number of PW provided full Course 180 Iron Folic Acid (IFA) tablets	2080879.9	2072583.5
Number of PW provided full Course 360 Calcium tablets	1853213.6	1474173.5
Number of PW given one Albendazole tablet after 1st trimester	1143783	945783.85
Number of PW received 4 or more ANC check ups	1801079	1802186.5
Number of PW given ANC Corticosteroids in Pre Term Labour	38021.317	35867.25
New cases of PW with hypertension detected	46943.875	48617.71
Out of the new cases of PW with hypertension detected, cases managed at institution	33567.525	32482.96
Number of Eclampsia cases managed during delivery	5051.6167	5005.875
Number of PW tested for Haemoglobin (Hb) 4 or more than 4 times for respective ANCs	1803885.8	1927255.5
Number of PW having Hb level<11 (out of total tested cases) (7.1 to 10.9)	1508156	1706392.5
Number of PW having Hb level<7 (out of total tested cases)	72676.35	88738.625
Number of PW having severe anaemia (Hb < 7) treated	44108.592	49309.625
Number of PW tested for Blood Sugar using OGTT(Oral Glucose Tolerance Test)	368095.89	343927.75
Number of PW tested positive for GDM	10798.183	11486
Number of PW given insulin out of total tested positive for GDM	2990.3917	2328.4165
Number of PW tested using POC test for Syphilis	215142.48	32339.21
Out of above, number of PW found sero-positive for Syphilis	1499.9917	379.2083
Number of pregnant women tested for Syphilis	694791.53	732651.45
Number of pregnant women tested found sero positive for Syphilis	3670.8917	3673.542
Number of syphilis positive pregnant women treated for Syphilis	1573.55	1261.375

The study revealed that there is decrease in ANC service utilization of following services as compared to pre-pandemic era on cumulative all India basis:-

- Total number of pregnant women registered for ANC-Number of PW given TT1/ Td1
- Number of PW given TT2 / Td2
- Number of PW received 4 or more ANC check ups
- Number of PW tested for Haemoglobin (Hb) 4 or more than 4 times for respective ANCs
- Number of pregnant women tested for Syphilis

An important finding is increase in following ANC service utilization during covid-19 pandemic Era:-

- Number of PW tested using POC test for Syphilis
- Out of above, number of PW found sero-positive for Syphilis
- Number of syphilis positive pregnant women treated for Syphilis

Table – 2- Comparison of ANC service utilization at public health facilities across India before and after covid-19 pandemic

Indicator /	Public Average per month- Pandemic Era	Public Average per month- Pre-Pandemic Era
Total number of pregnant women registered for ANC	2208203	2314360
Out of the total ANC registered, number registered within 1st trimester (within 12 weeks)	1662352.5	1605446.5
Number of PW given TT1/ Td1	1566090.5	1645625.5
Number of PW given TT2 / Td2	1392607.5	1481007
Number of PW given TT Booster/ Td Booster	491451.45	476094.6
Number of PW provided full Course 180 Iron Folic Acid (IFA) tablets	2002525.5	2009726
Number of PW provided full Course 360 Calcium tablets	1782147	1420106.5
Number of PW given one Albendazole tablet after 1st trimester	1112063.5	927973.95
Number of PW received 4 or more ANC check ups	1730049.5	1739785.5
Number of PW given ANC Corticosteroids in Pre Term Labour	34949.625	32516.54
New cases of PW with hypertension detected	42436.215	43997.665
Out of the new cases of PW with hypertension detected, cases managed at institution	30312.55	29495.5
Number of Eclampsia cases managed during delivery	4629.0585	4606
Number of PW tested for Haemoglobin (Hb) 4 or more than 4 times for respective ANCs	1738688.5	1874225
Number of PW having Hb level<11 (out of total tested cases)(7.1 to 10.9)	1469851	1667481
Number of PW having Hb level<7 (out of total tested cases)	68486.65	83875.165
Number of PW having severe anaemia (Hb < 7) treated	40909.89	46005.125
Number of PW tested for Blood Sugar using OGTT(Oral Glucose Tolerance Test)	336444.35	320643.6
Number of PW tested positive for GDM	8575.35	9711.25
Number of PW given insulin out of total tested positive for GDM	2204.1915	1654.708
Number of PW tested using POC test for Syphilis	215122.4	32318.875
Out of above, number of PW found sero positive for Syphilis	1499.99165	379.2083
Number of pregnant women tested for Syphilis	648700.65	702290.65
Number of pregnant women tested found sero positive for Syphilis	3460.9585	3535.7085
Number of syphilis positive pregnant women treated for Syphilis	1436.3665	1217.208

The study revealed that there is decrease in ANC service utilization at **public health facility** of following services as compared to pre-pandemic era on cumulative all India basis:-

- Total number of pregnant women registered for ANC
- Number of PW given TT1/ Td1
- Number of PW given TT2 / Td2
- Number of PW provided full Course 180 Iron Folic Acid (IFA) tablets
- Number of PW received 4 or more ANC check ups
- Number of PW tested for Haemoglobin (Hb) 4 or more than 4 times for respective ANCs
- Number of PW having severe anaemia (Hb < 7) treated
- Number of pregnant women tested for Syphilis

An important finding is increase in following ANC service utilization at public health facility during covid-19 pandemic Era:-

- Number of PW tested using POC test for Syphilis
- Out of above, number of PW found sero-positive for Syphilis
- Number of syphilis positive pregnant women treated for Syphilis

Table – 3- Comparison of ANC service utilization at private health facilities across India before and after covid-19 pandemic

Indicator /	Private Average per month- Pandemic Era	Private Average per month- Pre-Pandemic Era
Total number of pregnant women registered for ANC	101091.14	100409.19
Out of the total ANC registered, number registered within 1st trimester (within 12 weeks)	63350.035	56761.17
Number of PW given TT1/ Td1	84600.925	89210.625
Number of PW given TT2 / Td2	67020.885	74813.5
Number of PW given TT Booster/ Td Booster	23482.815	21051.165
Number of PW provided full Course 180 Iron Folic Acid (IFA) tablets	78354.375	62857.625
Number of PW provided full Course 360 Calcium tablets	71066.59	54066.875
Number of PW given one Albendazole tablet after 1st trimester	31719.815	17809.585
Number of PW received 4 or more ANC check ups	71029.54	62401.585
Number of PW given ANC Corticosteroids in Pre Term Labour	3071.6915	3350.7085
New cases of PW with hypertension detected	4507.6585	4620.042
Out of the new cases of PW with hypertension detected, cases managed at institution	3254.975	2987.4585
Number of Eclampsia cases managed during delivery	422.55835	399.875
Number of PW tested for Haemoglobin (Hb) 4 or more than 4 times for respective ANCs	65197.565	53030
Number of PW having Hb level<11 (out of total tested cases)(7.1 to 10.9)	38304.95	38911.625
Number of PW having Hb level<7 (out of total tested cases)	4189.7	4863.4585
Number of PW having severe anaemia (Hb < 7) treated	3198.7	3304.5
Number of PW tested for Blood Sugar using OGTT (Oral Glucose Tolerance Test)	31651.565	23284.125
Number of PW tested positive for GDM	2222.8335	1774.75
Number of PW given insulin out of total tested positive for GDM	786.2	673.70835
Number of PW tested using POC test for Syphilis	20.1	20.33333
Out of above, number of PW found sero positive for Syphilis	0	0
Number of pregnant women tested for Syphilis	46090.865	30360.79
Number of pregnant women tested found sero positive for Syphilis	209.93335	137.83335
Number of syphilis positive pregnant women treated for Syphilis	137.18335	44.166665

The study revealed that there is decrease in ANC service utilization at private health facility of following services as compared to pre-pandemic era on cumulative all India basis:-

- Number of PW given TT1/ Td1
- Number of PW given TT2 / Td2
- Number of PW given ANC Corticosteroids in Pre Term Labour
- Number of PW having severe anaemia (Hb < 7) treated
- Number of PW tested using POC test for Syphilis

An important finding is increase in following ANC service utilization at private health facilities during covid-19 pandemic Era:-

- Total number of pregnant women registered for ANC
- Out of the total ANC registered, number registered within 1st trimester (within 12 weeks)
- Number of PW given TT Booster/ Td Booster
- Number of PW provided full Course 180 Iron Folic Acid (IFA) tablets
- Number of PW provided full Course 360 Calcium tablets
- Number of PW given one Albendazole tablet after 1st trimester
- Number of PW received 4 or more ANC check ups
- Out of the new cases of PW with hypertension detected, cases managed at institution
- Number of Eclampsia cases managed during delivery
- Number of PW tested for Haemoglobin (Hb) 4 or more than 4 times for respective ANC
- Number of PW tested for Blood Sugar using OGTT (Oral Glucose Tolerance Test)
- Number of pregnant women tested for Syphilis
- Number of syphilis positive pregnant women treated for Syphilis

Table – 4- Comparison of ANC service utilization at urban health facilities across India before and after covid-19 pandemic.

Indicator /	Urban Average per month- Pandemic Era	Urban Average per month- Pre-Pandemic Era
Total number of pregnant women registered for ANC	518771.3	451593.7
Out of the total ANC registered, number registered within 1st trimester (within 12 weeks)	343403.05	279530.85
Number of PW given TT1/ Td1	349543.55	310719.25
Number of PW given TT2 / Td2	293695.65	269778.9
Number of PW given TT Booster/ Td Booster	102912.92	85386.455
Number of PW provided full Course 180 Iron Folic Acid (IFA) tablets	483290.8	393306.2
Number of PW provided full Course 360 Calcium tablets	451589.65	312952.3
Number of PW given one Albendazole tablet after 1st trimester	227563.45	155192.5
Number of PW received 4 or more ANC check ups	371357.45	297172.6
Number of PW given ANC Corticosteroids in Pre Term Labour	15494.765	7497.875
New cases of PW with hypertension detected	17067.65	10140.295
Out of the new cases of PW with hypertension detected, cases managed at institution	12952.615	7149.417
Number of Eclampsia cases managed during delivery	2449.4415	900.41685
Number of PW tested for Haemoglobin (Hb) 4 or more than 4 times for respective ANCs	339487	291424.85
Number of PW having Hb level<11 (out of total tested cases)(7.1 to 10.9)	312497.4	298461
Number of PW having Hb level<7 (out of total tested cases)	21975.99	15978.585
Number of PW having severe anaemia (Hb < 7) treated	16918.35	9425
Number of PW tested for Blood Sugar using OGTT(Oral Glucose Tolerance Test)	125177.65	74461.67
Number of PW tested positive for GDM	5035.4085	2772.5835
Number of PW given insulin out of total tested positive for GDM	1637.3335	719.41665
Number of PW tested using POC test for Syphilis	734.15	328.125
Out of above, number of PW found sero positive for Syphilis	25.333335	12.666669
Number of pregnant women tested for Syphilis	255750.1	153349.8
Number of pregnant women tested found sero positive for Syphilis	1302.8334	1047.0419
Number of syphilis positive pregnant women treated for Syphilis	506.975	244.6667

- The study revealed that there is significant increase in ANC service utilization at urban health facility of all the services as compared to pre-pandemic era on cumulative all India basis.

Table – 5- Comparison of ANC service utilization at rural health facilities across India before and after covid-19 pandemic

Indicator /	Rural Average per month-Pandemic Era	Rural Average per month-Pre-Pandemic Era
Total number of pregnant women registered for ANC	1790520	1963175.5
Out of the total ANC registered, number registered within 1st trimester (within 12 weeks)	1382296	1382677.5
Number of PW given TT1/ Td1	1301144.5	1424117
Number of PW given TT2 / Td2	1165928	1286041.5
Number of PW given TT Booster/ Td Booster	412021.3	411759.3
Number of PW provided full Course 180 Iron Folic Acid (IFA) tablets	1597586	1679277.5
Number of PW provided full Course 360 Calcium tablets	1401620.5	1161220.9
Number of PW given one Albendazole tablet after 1st trimester	916217.85	790591.3
Number of PW received 4 or more ANC check ups	1429718.5	1505014
Number of PW given ANC Corticosteroids in Pre Term Labour	22526.55	28369.375
New cases of PW with hypertension detected	29876.225	38477.415
Out of the new cases of PW with hypertension detected, cases managed at institution	20614.91	25333.54
Number of Eclampsia cases managed during delivery	2602.175	4105.4585
Number of PW tested for Haemoglobin (Hb) 4 or more than 4 times for respective ANCs	1464396	1635830.5
Number of PW having Hb level<11 (out of total tested cases)(7.1 to 10.9)	1195653	1407931.5
Number of PW having Hb level<7 (out of total tested cases)	50700.36	72760.04
Number of PW having severe anaemia (Hb < 7) treated	27190.24	39884.625
Number of PW tested for Blood Sugar using OGTT(Oral Glucose Tolerance Test)	242917.6	269466.1
Number of PW tested positive for GDM	5762.775	8713.417
Number of PW given insulin out of total tested positive for GDM	1353.0585	1609
Number of PW tested using POC test for Syphilis	214408.35	32011.08
Out of above, number of PW found sero positive for Syphilis	1474.6584	366.5417
Number of pregnant women tested for Syphilis	439041.45	579301.65
Number of pregnant women tested found sero positive for Syphilis	2368.0585	2626.5
Number of syphilis positive pregnant women treated for Syphilis	1066.575	1016.7084

The study revealed that there is decrease in almost all ANC service utilization at rural health facility except following services as compared to pre-pandemic era on cumulative all India basis:

- Number of PW given TT Booster/ Td Booster
- Number of PW provided full Course 360 Calcium tablets
- Number of PW given one Albendazole tablet after 1st trimester
- Number of PW tested using POC test for Syphilis
- Number of syphilis positive pregnant women treated for Syphilis

Discussion

The study revealed that there is **decrease in ANC service utilization** of following services as compared to pre-pandemic era on cumulative all India basis:-

- Total number of pregnant women registered for ANC
- Number of PW given TT1/ Td1
- Number of PW given TT2 / Td2
- Number of PW received 4 or more ANC check ups
- Number of PW tested for Haemoglobin (Hb) 4 or more than 4 times for respective ANC
- Number of pregnant women tested for Syphilis

An important finding is **increase in** following ANC service utilization during covid-19 pandemic Era:-

- Number of PW tested using POC test for **Syphilis**
- Out of above, number of PW found sero-positive for Syphilis
- Number of syphilis positive pregnant women treated for Syphilis

This research study finding also revealed that urban health facility where maximum private health facilities are available was found to be associated with significantly increased utilization of antenatal care services in the pandemic era. This finding was supported by the accredited data source of HMIS – MoHFW-Gol. This might be related to the fact that pregnant women residing in urban areas may have better access as well as affordability-availability of different health facilities and better knowledge about the significance of ANC utilization.

This research study finding also revealed that rural health facility where mostly public health facilities are available was found to be associated with significantly decreased utilization of antenatal care services in the pandemic era. This finding was supported by the accredited data source of HMIS – MoHFW-Gol. This might be related to the fact that pregnant women residing in rural areas may have limited access as well as limited affordability-availability of different health facilities and lesser knowledge about the significance of ANC utilization added with lack of transport accessibility. This might be because of other reasons like fear of contracting disease stay-at-home orders leading to greater loss of income, reduced capability or (OOPE) purchasing power, resulting in inability to pay for services which in turn limit utilization of ANC services.

The situation is harsher in rural areas of developing countries like India due to the lack of proper infrastructure at public health facilities and limited resources. This might be due to public health system collapse or intentional individual choices made by public in responding to the pandemic, workforce diversion-reduction at rural-public health facilities, access reduction, and also some health facility may have restricted number of regular ANC visits due to possible fear of the pregnant women contracting coronavirus.

Strength and Limitation of the study

The cross-sectional retrospective nature of this study was one of the main limitations of this research study. Another limitation is availability of data from any other accredited and established source recognized worldwide. Furthermore, this study is not

done with primary method of data collection. The main strength is that the whole study is based on real time based accredited government data sources which is also available 24x7 to the visitors.

Conclusion And Recommendation

This research study findings showed that the covid-19 pandemic reduced the utilization of various antenatal health care services among pregnant women in India as compared to the pre-pandemic period. Hence author recommends more efforts in rural areas as well as improvement in public health facilities for enhancing ANC health services. Various types of IEC (Information, Education and Communication) materials should be distributed to raise awareness regarding the protective ANC services for pregnant women during the COVID-19 pandemic. It is also useful to start telecommunication-consultation services to help pregnant women. In addition, virtual consultation with gynaecologist- obstetricians can be provided via tele-consultation services, to women who need maternal health services.

Implications Of The Study

COVID-19 pandemic has caused interference in delivery of health services on the global scale, including ANC. Due to this global pandemic, women who are considered a vulnerable group in time of distress particularly pregnant women are facing more barriers in availing-affording-accessing healthcare services. This is due to several reasons including covid-19 guidelines- restrictions, transport related, anxiety, and fear of being exposed to coronavirus. This study demonstrates that improving the public and rural health facilities requirements which are not doing well in pandemic era would help to improve ANC services utilization during ongoing pandemic. Effective guidelines of preventive and clinical strategies are required to be implemented to control COVID-19 infection among pregnant women. Governments should also need to make policies during ongoing pandemic to make sure that pregnant-women can access ANC health services to protect themselves and their babies. Additionally, more arrangements should be made during pandemic to ensure transportation, accessibility, affordability and availability of ANC services during lockdown etc., to achieve SDG goal as well as health for all goals.

Abbreviations

ANC, Antenatal care; COVID-19, Coronavirus disease; WHO, World Health Organization; HMIS, Health Management Information System; MoHFW, Ministry of Health and Family Welfare; GoI, Government of India; OOPe, Out of Pocket Expense; IEC, Information, Education and Communication;

Declarations

Acknowledgments

Special thanks go to my wife Advocate Anupama and daughters Aathmika-Atheeva for their co-operation in accomplishment of this work.

Disclosure

The author reports no conflicts of interest for this research study.

Declarations

-This version of paper has not been previously published in any peer reviewed journal and is not currently under consideration by any journal. The document is Microsoft word with English (United States) language & 4910 words (8365 words Total). The preprint of this research article is available online with DOI on various preprint servers.

- Ethics approval and consent to participate: Not applicable. This study has not involved any human or animals in real or for experiments. The data were taken from the Health Department available as electronic patient records from HMIS (health

management information system) of MoHFW (ministry of health and family welfare), Government of India.

-Consent for publication: The authors provide consent for publication for increasing awareness and sharing knowledge to people who need it.

-Availability of data and materials: Electronic patient records from HMIS (health management information system) of MoHFW (ministry of health and family welfare), Government of India.

-Conflicts of Interest/ Competing Interest: There are no conflicts / competing of interest

- Funding:Self sponsored. No aid taken from individual or agency etc.

- Authors' contributions: The whole work is done by the Author - Dr Piyush Kumar, M.B.B.S., E.M.O.C., P.G.D.P.H.M., -Senior General Medical Officer- Bihar Health Services- Health Department- Government of Bihar, India.

- Acknowledgements- I am thankful to Advocate Anupama my wife and daughters Aathmika-Atheeva for cooperation.

- Author information: The author is currently working as Senior General Medical Officer for the government of Bihar.

-Financial Support & sponsorship: Nil

-Author contact information

Department of Health, Government of Bihar, MOBILE - +919955301119/+917677833752, Email drpiyush003@gmail.com

References

1. Kumar, Piyush and Kumar, Piyush and Farooqui, Habib Hasan, What is the Impact of Covid-19 Pandemic on the RCH (Reproductive and Child Health) Programme in Rajasthan, Because of Nationwide Lockdown (April 2020 to June 2020)?. Available at SSRN: <https://ssrn.com/abstract=3914646> or <http://dx.doi.org/10.2139/ssrn.3914646>
2. Kumar, Piyush and Kumar, Piyush, What Are the Factors Responsible for Increase in SARS-CoV-2/COVID-19 Pandemic Related Cases and Death in India in 2021? How Does Environmental, Host & Agent Factors of Epidemiological Triad Do Influence & Can Be Utilised to Manage Ongoing Pandemic Cases and Deaths? (April 25, 2021). Available at SSRN: <https://ssrn.com/abstract=3833788> or <http://dx.doi.org/10.2139/ssrn.3833788>
3. Worldometer. Coronavirus update COVID-19 21-01-2022-16; 19 <https://www.worldometers.info/coronavirus/>
4. WHO recommendations on antenatal care for a positive pregnancy experience <https://www.who.int/publications/i/item/9789241549912>
5. Home/Newsroom/Fact sheets/Detail/Maternal mortality – WHO - <https://www.who.int/news-room/fact-sheets/detail/maternal-mortality>
6. National Family Health Survey, India - <http://rchiips.org/nfhs/bihar.shtml>
7. DR PIYUSH KUMAR. What Impact Have SARS-CoV-2/Covid-19 Pandemic on the Reproductive and Child Health Programme of India over the 3 months after nationwide Lock down announcement in March 2020 -A brief analysis., 25 March 2021, PREPRINT (Version 1) available at Research Square <https://doi.org/10.21203/rs.3.rs-360551/v1>
8. Dr. Piyush Kumar. What Impact Have SARS-CoV-2/Covid-19 Pandemic on the Reproductive and Child Health Programme of Bihar in India over the 3 months after nationwide Lock down announcement in March 2020? How SARS-CoV-2 Pandemic era does influence RCH Programme? Immunisation? Maternal Health? Family Planning?, 30 March 2021, PREPRINT (Version 4) available at Research Square <https://doi.org/10.21203/rs.3.rs-348841/v4>

9. What Impact Have SARS-CoV-2/Covid-19 Pandemic on the Reproductive and Child Health Programme of Uttar Pradesh in India over the 3 months after nationwide Lockdown announcement in March 2020 -A brief analysis, 29 March 2021, PREPRINT (Version 2) available at Research Square <https://doi.org/10.21203/rs.3.rs-350287/v2>
10. Dr Piyush Kumar, Advocate Anupama. What impact have Covid-19 pandemic era on violence against women in India - A retrospective comparative research study from January 2018 to December 2021, 14 January 2022, PREPRINT (Version 2) available at Research Square <https://doi.org/10.21203/rs.3.rs-1256722/v2>
11. Kumar, Piyush and Kumar, Piyush, What Impact Have SARS-CoV-2/COVID-19 Pandemic on Domestic Violence against Women in India across Different States and Union Territories from the Beginning of Lockdown Due to COVID-19 Pandemic in March 2020 Till 20Th September 2020? How COVID-19 Pandemic Induced Lockdown Influence Mental Health of Women in India? (April 15, 2021). Available at SSRN: <https://ssrn.com/abstract=3826837> or <http://dx.doi.org/10.2139/ssrn.3826837>
12. Kumar, Piyush and Kumar, Piyush, What Impact Have SARS-CoV-2/COVID-19 Pandemic Induced Lockdown on the Number of OPD Patients of Diabetes, Hypertension, Stroke (CVA), Acute Heart Disease, Mental Illness, Epilepsy, Ophthalmic, Dental and Oncology in India During the Lockdown Months (April-May-2020)–Observational Research Analysis?. Available at SSRN: <https://ssrn.com/abstract=3884940> or <http://dx.doi.org/10.2139/ssrn.3884940>
13. Kumar, Piyush and Kumar, Piyush, What impact Have COVID-19 Pandemic on Number of Death Occurring at the Emergency Department: A Retrospective Analysis of Mortality in India From January 2019 to May 2021. Available at SSRN: <https://ssrn.com/abstract=4006146> or <http://dx.doi.org/10.2139/ssrn.4006146>
14. Dr Piyush Kumar,M.B.B.S., E.M.O.C., . What are the factors responsible for increase in SARS-CoV-2/Covid-19 Pandemic related cases and death in India in 2021? How does environmental, host & agent factors of epidemiological triad do influence & can be utilised to manage ongoing pandemic cases and deaths?. *Authorea*. May 10, 2021.
DOI: [10.22541/au.162066514.40049074/v1](https://doi.org/10.22541/au.162066514.40049074/v1)

Extra – Tables For Data

Table – 1- All Health Facilities – ANC services

Indicator/ Variables	Grand Total Jan- May 2021	Average per Month up to May 2021	Grand Total Jan- Dec 2020	Average per Month 2020	Grand Total Jan- Dec 2019	Average per Month 2019	Grand Total Jan- Dec 2018	Average per Month 2018
Total number of pregnant women registered for ANC	11705003	2341001	27331061	2277588.4	29239176	2436598	28715284	2392940
Out of the total ANC registered, number registered within 1st trimester (within 12 weeks)	8857190	1771438	20159599	1679966.6	20651001	1720917	19241988	1603499
Number of PW given TT1/ Td1	8373701	1674740	19519707	1626642.3	20914454	1742871	20721613	1726801
Number of PW given TT2 / Td2	7315183	1463037	17474638	1456219.8	18690487	1557541	18649203	1554100
Number of PW given TT Booster/ Td Booster	2586422	517284.4	6151009	512584.08	6126384	510532	5805114	483759.5
Number of PW provided full Course 180 Iron Folic Acid (IFA) tablets	10498110	2099622	24745654	2062137.8	25914433	2159536	23827573	1985631
Number of PW provided full Course 360 Calcium tablets	9536074	1907215	21590545	1799212.1	20071256	1672605	15308904	1275742
Number of PW given one Albendazole tablet after 1st trimester	5914302	1182860	13256472	1104706	12398974	1033248	10299836	858319.7
Number of PW received 4 or more ANC check ups	9050827	1810165	21503916	1791993	22797902	1899825	20454580	1704548
Number of PW given ANC Corticosteroids in Pre Term Labour	193519	38703.8	448066	37338.833	438607	36550.58	422207	35183.92
New cases of PW with hypertension detected	235295	47059	561945	46828.75	596384	49698.67	570441	47536.75
Out of the new	167139	33427.8	404487	33707.25	409638	34136.5	369953	30829.42

cases of PW with hypertension detected, cases managed at institution								
Number of Eclampsia cases managed during delivery	23372	4674.4	65146	5428.8333	66706	5558.833	53435	4452.917
Number of PW tested for Haemoglobin (Hb) 4 or more than 4 times for respective ANCs	9086072	1817214	21486690	1790557.5	24089887	2007491	22164234	1847020
Number of PW having Hb level<11 (out of total tested cases)(7.1 to 10.9)	7557869	1511574	18056856	1504738	20886670	1740556	20066753	1672229
Number of PW having Hb level<7 (out of total tested cases)	353876	70775.2	894930	74577.5	1092858	91071.5	1036869	86405.75
Number of PW having severe anaemia (Hb < 7) treated	214203	42840.6	544519	45376.583	645662	53805.17	537769	44814.08
Number of PW tested for Blood Sugar using OGTT(Oral Glucose Tolerance Test)	1950046	390009.2	4154191	346182.58	4554319	379526.6	3699947	308328.9
Number of PW tested positive for GDM	59466	11893.2	116438	9703.1667	145591	12132.58	130073	10839.42
Number of PW given insulin out of total tested positive for GDM	17071	3414.2	30799	2566.5833	30034	2502.833	25848	2154
Number of PW tested using POC test for Syphilis	1273526	254705.2	2106957	175579.75	639764	53313.67	136377	11364.75
Out of above, number of PW found sero-positive for Syphilis	10722	2144.4	10267	855.58333	5032	419.3333	4069	339.0833
Number of	3522324	704464.8	8221419	685118.25	9965701	830475.1	7617933	634827.8

pregnant women tested for Syphilis								
Number of pregnant women tested found sero positive for Syphilis	19916	3983.2	40303	3358.5833	43058	3588.167	45107	3758.917
Number of syphilis positive pregnant women treated for Syphilis	10098	2019.6	13530	1127.5	14911	1242.583	15362	1280.167

Table – 2-Public Health Facilities – ANC services

Indicator / Variables	Total Public 2021 Jan-May 2021	Public Average per Month up to May 2021	Total Public 2021 Jan-Dec 2020	Public Average per Month Jan to Dec 2020	Total Public 2021 Jan-Dec 2019	Average Public per Month Jan to Dec 2019	Total Public 2021 Jan-Dec 2018	Average Public per Month Jan to Dec 2018
Total number of pregnant women registered for ANC	11160472	2232094	26211748	2184312	27957956	2329830	27586683	2298890
Out of the total ANC registered, number registered within 1st trimester (within 12 weeks)	8514618	1702924	19461371	1621781	19929073	1660756	18601648	1550137
Number of PW given TT1/ Td1	7928918	1585784	18556764	1546397	19831929	1652661	19663083	1638590
Number of PW given TT2 / Td2	6973390	1394678	16686440	1390537	17788326	1482361	17755840	1479653
Number of PW given TT Booster/ Td Booster	2459103	491820.6	5892987	491082.3	5848872	487406	5577398	464783.2
Number of PW provided full Course 180 Iron Folic Acid (IFA) tablets	10076105	2015221	23877961	1989830	25142496	2095208	23090927	1924244
Number of PW provided full Course 360 Calcium tablets	9152196	1830439	20806254	1733855	19406749	1617229	14675806	1222984
Number of PW given one Albendazole tablet after 1st trimester	5733438	1146688	12929270	1077439	12165461	1013788	10105919	842159.9
Number of PW received 4 or more ANC check ups	8665872	1733174	20723099	1726925	22004864	1833739	19749980	1645832
Number of PW given ANC Corticosteroids in Pre Term Labour	176745	35349	414603	34550.25	395614	32967.83	384783	32065.25
New cases of PW with hypertension detected	210113	42022.6	514198	42849.83	540639	45053.25	515305	42942.08
Out of the new cases of PW with hypertension detected, cases	148783	29756.6	370422	30868.5	372165	31013.75	335727	27977.25

managed at institution								
Number of Eclampsia cases managed during delivery	21481	4296.2	59543	4961.917	60550	5045.833	49994	4166.167
Number of PW tested for Haemoglobin (Hb) 4 or more than 4 times for respective ANC's	8730348	1746070	20775686	1731307	23393149	1949429	21588252	1799021
Number of PW having Hb level<11 (out of total tested cases)(7.1 to 10.9)	7362887	1472577	17605494	1467125	20399373	1699948	19620171	1635014
Number of PW having Hb level<7 (out of total tested cases)	332124	66424.8	846582	70548.5	1034914	86242.83	978090	81507.5
Number of PW having severe anaemia (Hb < 7) treated	197901	39580.2	506875	42239.58	602132	50177.67	501991	41832.58
Number of PW tested for Blood Sugar using OGTT(Oral Glucose Tolerance Test)	1771947	354389.4	3821991	318499.3	4259770	354980.8	3435677	286306.4
Number of PW tested positive for GDM	46516	9303.2	94170	7847.5	124008	10334	109062	9088.5
Number of PW given insulin out of total tested positive for GDM	12474	2494.8	22963	1913.583	21787	1815.583	17926	1493.833
Number of PW tested using POC test for Syphilis	1273485	254697	2106573	175547.8	639535	53294.58	136118	11343.17
Out of above, number of PW found sero positive for Syphilis	10722	2144.4	10267	855.5833	5032	419.3333	4069	339.0833
Number of pregnant women tested for Syphilis	3263317	652663.4	7736855	644737.9	9527811	793984.3	7327164	610597
Number of pregnant women tested found sero	18695	3739	38195	3182.917	41357	3446.417	43500	3625

positive for Syphilis								
Number of syphilis positive pregnant women treated for Syphilis	9252	1850.4	12268	1022.333	14296	1191.333	14917	1243.083

Table – 3 - Private Health Facilities – ANC services

Indicator / Variables	Total Private 2021 Jan- May 2021	Private Average per Month up to May 2021	Total Private 2021 Jan-Dec 2020	Private Average per Month Jan to Dec 2020	Total Private 2021 Jan-Dec 2019	Private Average per Month Jan to Dec 2019	Total Private 2021 Jan-Dec 2018	Private Average per Month Jan to Dec 2018
Total number of pregnant women registered for ANC	544531	108906.2	1119313	93276.08	1281220	106768.3	1128601	94050.08
Out of the total ANC registered, number registered within 1st trimester (within 12 weeks)	342572	68514.4	698228	58185.67	721928	60160.67	640340	53361.67
Number of PW given TT1/ Td1	444783	88956.6	962943	80245.25	1082525	90210.42	1058530	88210.83
Number of PW given TT2 / Td2	341793	68358.6	788198	65683.17	902161	75180.08	893363	74446.92
Number of PW given TT Booster/ Td Booster	127319	25463.8	258022	21501.83	277512	23126	227716	18976.33
Number of PW provided full Course 180 Iron Folic Acid (IFA) tablets	422005	84401	867693	72307.75	771937	64328.08	736646	61387.17
Number of PW provided full Course 360 Calcium tablets	383878	76775.6	784291	65357.58	664507	55375.58	633098	52758.17
Number of PW given one Albendazole tablet after 1st trimester	180864	36172.8	327202	27266.83	233513	19459.42	193917	16159.75
Number of PW received 4 or more ANC check ups	384955	76991	780817	65068.08	793038	66086.5	704600	58716.67
Number of PW given ANC Corticosteroids in Pre Term Labour	16774	3354.8	33463	2788.583	42993	3582.75	37424	3118.667
New cases of PW with hypertension detected	25182	5036.4	47747	3978.917	55745	4645.417	55136	4594.667
Out of the new cases of PW with hypertension detected, cases managed at institution	18356	3671.2	34065	2838.75	37473	3122.75	34226	2852.167
Number of Eclampsia cases managed during delivery	1891	378.2	5603	466.9167	6156	513	3441	286.75
Number of PW tested for Haemoglobin (Hb) 4 or more than 4 times for respective ANCs	355724	71144.8	711004	59250.33	696738	58061.5	575982	47998.5

Number of PW having Hb level<11 (out of total tested cases)(7.1 to 10.9)	194982	38996.4	451362	37613.5	487297	40608.08	446582	37215.17
Number of PW having Hb level<7 (out of total tested cases)	21752	4350.4	48348	4029	57944	4828.667	58779	4898.25
Number of PW having severe anaemia (Hb < 7) treated	16302	3260.4	37644	3137	43530	3627.5	35778	2981.5
Number of PW tested for Blood Sugar using OGTT(Oral Glucose Tolerance Test)	178099	35619.8	332200	27683.33	294549	24545.75	264270	22022.5
Number of PW tested positive for GDM	12950	2590	22268	1855.667	21583	1798.583	21011	1750.917
Number of PW given insulin out of total tested positive for GDM	4597	919.4	7836	653	8247	687.25	7922	660.1667
Number of PW tested using POC test for Syphilis	41	8.2	384	32	229	19.08333	259	21.58333
Out of above, number of PW found sero positive for Syphilis	0	0	0	0	0	0	0	0
Number of pregnant women tested for Syphilis	259007	51801.4	484564	40380.33	437890	36490.83	290769	24230.75
Number of pregnant women tested found sero positive for Syphilis	1221	244.2	2108	175.6667	1701	141.75	1607	133.9167
Number of syphilis positive pregnant women treated for Syphilis	846	169.2	1262	105.1667	615	51.25	445	37.08333

Table – 4- Urban Health Facilities – ANC services

Indicator / Variables	Total Urban 2021 Jan-May 2021	Urban Average per Month up to May 2021	Total Urban 2021 Jan-Dec 2020	Urban Average per Month Jan to Dec 2020	Total Urban 2021 Jan-Dec 2019	Urban Average per Month Jan to Dec 2019	Total Urban 2021 Jan-Dec 2018	Urban Average per Month Jan to Dec 2018
Total number of pregnant women registered for ANC	2799199	559839.8	5732434	477702.8	5522753	460229.4	5315496	442958
Out of the total ANC registered, number registered within 1st trimester (within 12 weeks)	1861673	372334.6	3773658	314471.5	3516878	293073.2	3191862	265988.5
Number of PW given TT1/ Td1	1874643	374928.6	3889902	324158.5	3781616	315134.7	3675646	306303.8
Number of PW given TT2 / Td2	1559647	311929.4	3305543	275461.9	3270384	272532	3204310	267025.8
Number of PW given TT Booster/ Td Booster	548880	109776	1152598	96049.83	1072381	89365.08	976894	81407.83
Number of PW provided full Course 180 Iron Folic Acid (IFA) tablets	2595186	519037.2	5370533	447544.4	5025207	418767.3	4414141	367845.1
Number of PW provided full Course 360 Calcium tablets	2480328	496065.6	4885364	407113.7	4159912	346659.3	3350943	279245.3
Number of PW given one Albendazole tablet after 1st trimester	1246800	249360	2469203	205766.9	2059035	171586.3	1665584	138798.7
Number of PW received 4 or more ANC check ups	1982283	396456.6	4155099	346258.3	3695493	307957.8	3436649	286387.4
Number of PW given ANC Corticosteroids in Pre Term Labour	85226	17045.2	167332	13944.33	94715	7892.917	85234	7102.833
New cases of PW with hypertension detected	95254	19050.8	181014	15084.5	122078	10173.17	121289	10107.42
Out of the new cases of PW with hypertension detected, cases managed at institution	73207	14641.4	135166	11263.83	89324	7443.667	82262	6855.167
Number of Eclampsia cases managed during delivery	12264	2452.8	29353	2446.083	12377	1031.417	9233	769.4167
Number of PW tested for Haemoglobin (Hb) 4 or more than 4 times for respective ANCs	1807395	361479	3809940	317495	3675673	306306.1	3318523	276543.6

Number of PW having Hb level<11 (out of total tested cases)(7.1 to 10.9)	1663484	332696.8	3507576	292298	3569087	297423.9	3593977	299498.1
Number of PW having Hb level<7 (out of total tested cases)	122577	24515.4	233239	19436.58	180239	15019.92	203247	16937.25
Number of PW having severe anaemia (Hb < 7) treated	94726	18945.2	178698	14891.5	114580	9548.333	111620	9301.667
Number of PW tested for Blood Sugar using OGTT(Oral Glucose Tolerance Test)	714372	142874.4	1289771	107480.9	958592	79882.67	828488	69040.67
Number of PW tested positive for GDM	30337	6067.4	48041	4003.417	31688	2640.667	34854	2904.5
Number of PW given insulin out of total tested positive for GDM	10755	2151	13484	1123.667	8956	746.3333	8310	692.5
Number of PW tested using POC test for Syphilis	3924	784.8	8202	683.5	4858	404.8333	3017	251.4167
Out of above, number of PW found sero positive for Syphilis	145	29	260	21.66667	95	7.916667	209	17.41667
Number of pregnant women tested for Syphilis	1398620	279724	2781314	231776.2	2089149	174095.8	1591245	132603.8
Number of pregnant women tested found sero positive for Syphilis	8205	1641	11576	964.6667	9635	802.9167	15494	1291.167
Number of syphilis positive pregnant women treated for Syphilis	3476	695.2	3825	318.75	3257	271.4167	2615	217.9167

Table – 5 - Rural Health Facilities – ANC services

Indicator	Total Rural 2021 Jan-May 2021	Rural Average per Month up to May 2021	Total Rural 2021 Jan- Dec 2020	Rural Average per Month Jan to Dec 2020	Total Rural 2021 Jan- Dec 2019	Rural Average per Month Jan to Dec 2019	Total Rural 2021 Jan- Dec 2018	Rural Average per Month Jan to Dec 2018
Total number of pregnant women registered for ANC	8905795	1781159	21598577	1799881	23716423	1976369	23399788	1949982
Out of the total ANC registered, number registered within 1st trimester (within 12 weeks)	6995507	1399101	16385892	1365491	17134123	1427844	16050126	1337511
Number of PW given TT1/ Td1	6499047	1299809	15629757	1302480	17132838	1427737	17045967	1420497
Number of PW given TT2 / Td2	5755512	1151102	14169045	1180754	15420103	1285009	15444893	1287074
Number of PW given TT Booster/ Td Booster	2037542	407508.4	4998410	416534.2	5054003	421166.9	4828220	402351.7
Number of PW provided full Course 180 Iron Folic Acid (IFA) tablets	7902913	1580583	19375067	1614589	20889226	1740769	19413432	1617786
Number of PW provided full Course 360 Calcium tablets	7055735	1411147	16705127	1392094	15911344	1325945	11957961	996496.8
Number of PW given one Albendazole tablet after 1st trimester	4667496	933499.2	10787238	898936.5	10339939	861661.6	8634252	719521
Number of PW received 4 or more ANC check ups	7068527	1413705	17348781	1445732	19102409	1591867	17017931	1418161
Number of PW given ANC Corticosteroids in Pre Term Labour	108293	21658.6	280734	23394.5	343892	28657.67	336973	28081.08
New cases of PW with hypertension detected	140041	28008.2	380931	31744.25	474306	39525.5	449152	37429.33
Out of the new cases of PW with hypertension detected, cases managed at institution	93932	18786.4	269321	22443.42	320314	26692.83	287691	23974.25
Number of	11108	2221.6	35793	2982.75	54329	4527.417	44202	3683.5

Eclampsia cases managed during delivery								
Number of PW tested for Haemoglobin (Hb) 4 or more than 4 times for respective ANC's	7278667	1455733	17676713	1473059	20414214	1701185	18845711	1570476
Number of PW having Hb level<11 (out of total tested cases)(7.1 to 10.9)	5894375	1178875	14549176	1212431	17317583	1443132	16472776	1372731
Number of PW having Hb level<7 (out of total tested cases)	231299	46259.8	661691	55140.92	912619	76051.58	833622	69468.5
Number of PW having severe anaemia (Hb < 7) treated	119477	23895.4	365821	30485.08	531082	44256.83	426149	35512.42
Number of PW tested for Blood Sugar using OGTT(Oral Glucose Tolerance Test)	1235674	247134.8	2864405	238700.4	3595727	299643.9	2871459	239288.3
Number of PW tested positive for GDM	29129	5825.8	68397	5699.75	113903	9491.917	95219	7934.917
Number of PW given insulin out of total tested positive for GDM	6316	1263.2	17315	1442.917	21078	1756.5	17538	1461.5
Number of PW tested using POC test for Syphilis	1269602	253920.4	2098755	174896.3	634906	52908.83	133360	11113.33
Out of above, number of PW found sero positive for Syphilis	10577	2115.4	10007	833.9167	4937	411.4167	3860	321.6667
No of pregnant women tested for Syphilis	2123704	424740.8	5440105	453342.1	7876552	656379.3	6026688	502224
No of pregnant women tested found sero positive for Syphilis	11711	2342.2	28727	2393.917	33423	2785.25	29613	2467.75
No of syphilis positive pregnant women treated for Syphilis	6622	1324.4	9705	808.75	11654	971.1667	12747	1062.25