

**AN ANALYTIC CROSS-SECTIONAL STUDY DEPICTING TRENDS OF
INSTITUTIONAL DELIVERIES ALONG WITH STATUS OF CAESAREAN-SECTIONS
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ABSTRACT

Aims & Objectives: To analyze the transition towards institutional deliveries trends of C-section. **Methods:** cross-sectional study where data of HMIS is analyzed to compare trends of institutional deliveries along with status of caesarean-sections in Solan and Mandi district of Himachal Pradesh. **Results:** In 2010-11 institutional deliveries in H.P were 63.17% which rose to 92.79% by 2019-20. In a similar way progressive gain in institutional deliveries was noticed in Solan Districts from 69.8% in 2010-11 to 96.88% in 2019-20. Similarly the hike in Mandi District was from 46.94% to 91.45%. The number of C-section deliveries conducted at (public & private) facilities to total number of deliveries conducted in the given year, which increased from 10.75% in 2010-11 in H.P to 22.3% in 2019-20. Same expansion was noticed in Solan District from 7.3% to 20.2% and in Mandi District it raised from 8.73% to 20.45 for the corresponding years. **Conclusions:** There had been constant raise in institutional deliveries which clearly depicts that there had been great interventions at facility and community level. Similarly raise in C-section is result of detection and management of high risk pregnancies detected during ANCs. Enhancement of Information Education Communication (IEC) activities by health care professionals regarding promotion of institutional deliveries will definitely yield better outcome.

KEYWORDS: HMIS, C-section, high risk pregnancies, ANC.**INTRODUCTION**

Institutional deliveries has great significance in managing intra partum complications which further is a blessing in disguise for reduction in Still Births, Infant Mortality Rate (IMR), Maternal Mortality Ratio (MMR). Early detection of high risk pregnancies at community level and their management at higher institutions has brought fruitful results. Management of birth asphyxia and active management of third stage of labor was better addressed in case of institutional deliveries by managing Post-Partum Hemorrhage (PPH).^[1] Transportation of delivery cases in 108 ambulances from home to delivery points and skill development staff (Emergency Medical Technician-EMT) in conducting delivery in emergency situations along with neonatal resuscitation skills has also played an important role in improving institutional deliveries after its launch on 2nd October 2010 in Himachal Pradesh.^[2] This study also includes impact on Facility Based Newborn Care (FBNBC) operational

guidelines 2011 for planning and implementations.^[3] Government of India has launched Janani Shishu Suraksha Karyakaram (JSSK) on 1st June, 2011.^[4] For institutional deliveries, the most important facilitator as well as barrier was identified as ambulance service, under JSSK scheme ambulance services provided positive impact on institutional deliveries. It was supported with targeted intervention designed to facilitate appropriate decision-making at family level in order to address barriers to institutional delivery, this concept was better addressed by ASHAs.^[5] Janani Express-102 (ambulance) for free transport and drop back facility to expectant mothers, women after delivery and sick child up to 1 year under the Janani Shishu Suraksha Karyakaram (JSSK) in the entire state of Himachal Pradesh was flagged off on 5th December 2014.^[6] Himachal Pradesh is being a hilly state it's difficult to reach health institutions during intra partum complications so prior transport to delivery points is best

proven strategy. In winters newborns succumb to hypothermia quite easily, this can be prevented by Newborn Care Corners (NBCC), which are equipped with radiant warmers at facilities providing services of

institutional deliveries. Facility of C-Section is also available in certain facilities where high risk pregnancies can be managed with best possible measures.

RESULTS

Table 1: Status of Institutional Deliveries out of total number of deliveries conducted.

Total number of deliveries conducted in the given year	Before introduction of new approaches in 2010-11						After introduction of new approaches in 2019-20					
	H.P N=103487		SOLAN N=8452		MANDI N=13913		H.P N=89403		SOLAN N=8863		MANDI N=9953	
Parameter	N	%	N	%	N	%	N	%	N	%	N	%
Institutional Deliveries	65372	63.17	5832	69.8	6532	46.94	82043	92.79	8510	96.88	9103	91.45

Table 1/Fig.1 demonstrates percentage gain in institutional deliveries out of total deliveries conducted. In 2010-11 institutional deliveries in H.P were 63.17% which raised to 92.79% by 2019-20. In a similar way

progressive gain in institutional deliveries was noticed in Solan Districts from 69.8% in 2010-11 to 96.88% in 2019-20. Similarly the hike in Mandi District was from 46.94% to 91.45% during same interval of time period.

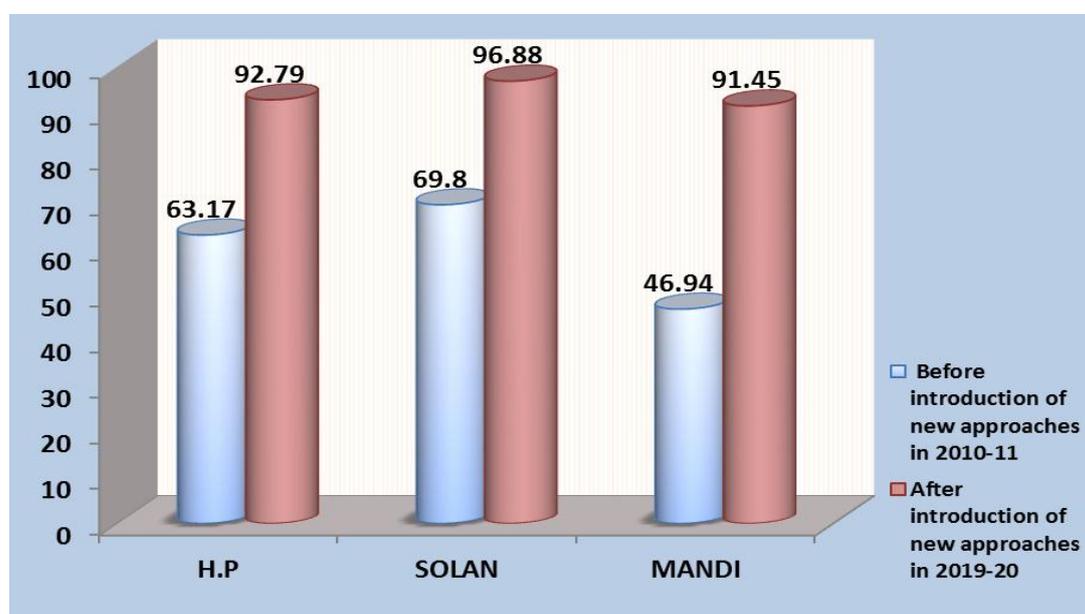


Fig. 1: Demonstrating status of Institutional Deliveries out of total number of deliveries conducted.

Table 2: Status of C-section deliveries conducted at (public+private) facilities.

Total number of deliveries conducted in the given year	Before introduction of new approaches in 2010-11						After introduction of new approaches in 2019-20					
	H.P N=103487		SOLAN N=8452		MANDI N=13913		H.P N=89403		SOLAN N=8863		MANDI N=9953	
Parameter	N	%	N	%	N	%	N	%	N	%	N	%
Number of C-section deliveries conducted at (public+private) facilities	11122	10.75	612	7.3	1217	8.74	19736	22.3	1775	20.2	2036	20.45

C-section: caesarean-section.

Table 2/Fig.2 displays the number of C-section deliveries conducted at (public+private) facilities to total number of deliveries conducted in the given year, which increased from 10.75% in 2010-11 in H.P to 22.3% in 2019-20.

Same expansion was noticed in Solan District from 7.3% to 20.2% and in Mandi District it raised from 8.73% to 20.45 for the corresponding years.

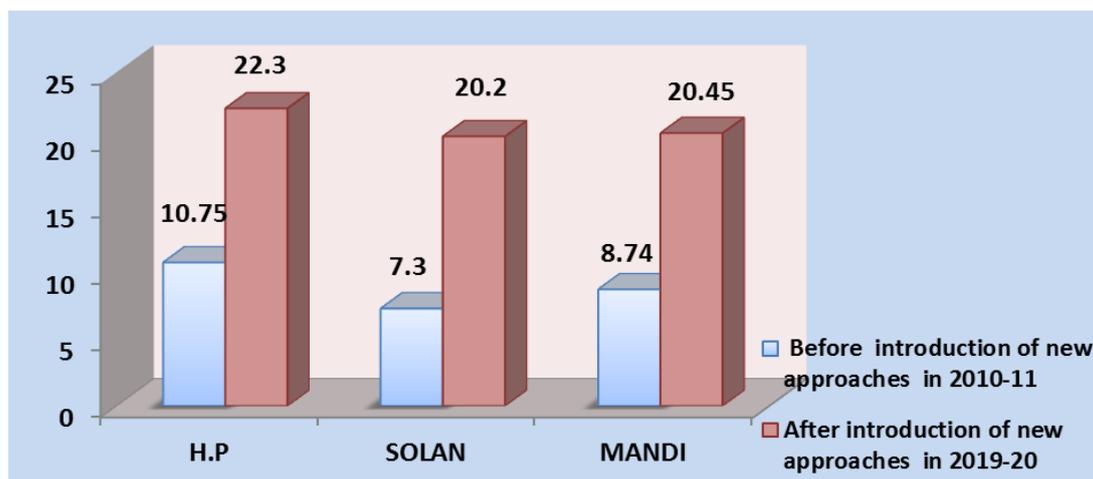


Fig. 2: Showing C-section deliveries conducted at (public+private) facilities.

DISCUSSION

There has been constant hike in institutional deliveries in Himachal. Comparing figures of institutional deliveries conducted in 2010-11 with 2019-20 there is gain of 46.9 % in H.P, 38.8% in District Solan & 94.8% in Mandi District. Similar results were obtained in study done by Pandey D, *et al*; in Jabalpur district which showed that 5.84% were delivered at home. Domiciliary deliveries in their study were due to lack of enough time in 42.86%, tradition in 33.33 and lack of transport facility in 9.52%.^[7] B. Barman, *et al*; did a study with the help of secondary data collected from National Family Health Survey-4 conducted in 2015–16. In his study it was found that in India 79% reproductive-aged women were delivered at an institution in 2015–16 (NFHS-4) which was only 14.6% in 1992–93 (NFHS-1). The changes between NFHS-3 (2005–06) and NFHS-4 (2015–16) was very high in rural (29% in 2005–06 and 75% in 2015–16 i.e. 46%) areas compared to urban (68% in 2005–06 and 89% in 2015–16 i.e. 21%) areas. The higher quantum of improvement in the Institutional deliveries in rural areas can be explained by the fact that we have a good field force like ANMs, ASHAs, and AWWs posted in rural areas to counsel the importance of institutional deliveries to the beneficiaries.^[8] In our study institutional deliveries conducted in Himachal Pradesh are 92.79% which is marginally less than figures of India i.e. 94.5% for the year 2019-20. Kumar, *et al*; conducted a descriptive, cross-sectional, community based study regarding utilization and perception regarding Janani Suraksha Yojana (JSY) in a rural area at Agra. JSY is a maternal protection scheme that promotes institutional delivery by providing cash incentive to the mothers who deliver their babies in a health facility. With the purpose of improving maternal and neo-natal mortality and morbidity indicators, the investment and emphasis on JSY was continued. They interpreted that nearly half (53.25%) of the mothers had an institutional delivery and were eligible for the JSY benefits. Postnatal home visits by ASHAs were done in 48% of home and 100% of institutional deliveries. Nearly half 48.09% of the pregnant women were benefited by free transport facility under JSY. Although all of the health care providers

perceived JSY as benefit for improving maternal health, 44% of them had the notion that cash incentives under JSY can have a negative effect on family planning practices.^[9] Singh *et al*; carried out a cross-sectional analysis of 108 ambulance records from six states for one year. The numbers, proportions, and characteristics of pregnant women and obstetric emergencies transported by the '108' ambulance service are described Pregnant women who called '108' between 1st April 2013 and 31st March 2014 in five states where had been fully functional for more than 3 years were included in this analysis. One state was selected randomly from North, South, Central, West and East of India. These were Himachal Pradesh, (undivided) Andhra Pradesh, Chhattisgarh, Gujarat, and Assam. The estimated proportion of pregnant women transported by '108' ambulance services ranged from 9.0 % in Chhattisgarh to 20.5 % in Himachal Pradesh. The '108' service transported an estimated 12.7 % of obstetric emergencies in Himachal Pradesh, 7.2 % in Gujarat and less than 3.5 % in other states. Women who used the service were more likely to be from rural backgrounds and from lower socio-economic strata of the population. Across states, the ambulance journeys traversed less than 10–11 km to reach 50 % of obstetric emergencies and less than 10–21 km to reach hospitals from the pick-up site. The overall time from the call to reaching the hospital was less than 2 h for 89 % to 98 % of obstetric emergencies in 5 states, although this percentage was 61 % in Himachal Pradesh. Inter-facility transfers ranged between 2.4 % –11.3 % of all '108' transports.^[9]

Singh, *et al*; in their study analyzed data from district level household survey data 4 (DLHS-4) combined individual level dataset for 19 states/UTs of India comprising 24,398 deliveries resulting in 22,111 live births for year 2011. of the study is to quantify the prevalence of cesarean section births in public and private health facility, and also to determine the factors associated with cesarean section births. Of 22,111 live births analyzed 49.2% were delivered at public sector, 31.9% at private sector and 18.9% were home deliveries. Prevalence of cesarean section births was 13.7% and

37.9% in the public and private sectors, respectively. Their findings show that cesarean section births are nearly three times more in private as compared to public sector health facilities. The higher rates of cesarean section births, especially in private sector, not only increase the cost of care but may pose unnecessary risks to women. They concluded that the government of India need to take measures to strengthen existing public health facilities as well as ensure that cesarean sections are performed based upon medical indications in both public and private sector health facilities.^[10] In present study all 100% of these healthcare facilities were having availability of National Ambulance Services (108). Study was done by Dr Hitesh Bhabhor, *et al*; in which they found that out of total 97.40 % deliveries conducted in the Health Facility and 108 services to reach out the facility used by 39.02% of mothers.^[11] In a similar study Kanabar, *et al*; found 39.1% mothers used 108 for transport from their place to a health facility.^[12] Chauhan, *et al.* did a study on Newborn Care Corner (NBCC) in selected health care facilities in Bihar and found that only 22.8% of the NBCCs were fully functional, majority (68.4%) were partially functional, and 9% were nonfunctional.^[13] In Himachal also NBCC equipped with radiant warmers have proved fruitful to combat hypothermia.

Cesarean sections have a great role in managing high risk pregnancy for better foetal and maternal outcome. Comparing figures of 2010-11 with 2019-20 C-section deliveries in H.P increased by 107.4%, in Solan by 176 % and in Mandi District by 134%. It has increased more than double. Similar study was done by Mrigesh Bhatia, *et al*; based on data collected from NFHS-4 (2015-2016), and NFHS-3. Over 10 years, from the NFHS-3 to the NFHS-4, the overall rate of cesarean deliveries increased from 8.5% to 17.2%. The cesarean delivery rate in public health care facilities increased from 7.2% in the NFHS-1 to 11.9% in the NFHS-4. In private health care facilities, the rate increased 3-fold, from 12.3% in the NFHS-1 to 40.9% in the NFHS-4. More increase in Caesarian sections in Private sector can be attributed to increase number of health facilities being operational in field.^[14] There can be other unexplained reasons can be there. Comparing with our study C-section delivery in H.P is higher than all India by 1.8 % only for the year 2-019-2020.

CONCLUSION

Institutional deliveries conducted in 2019-20 increased by 46.9% in H.P, 38.8% in District Solan & 94.8% in Mandi District than that of 2010-11. This increase in institutional deliveries has been possible by launch of 108 ambulances where Emergency Medical Technicians (EMT) have also been trained to conducted deliveries in emergency situation during transportation of pregnant women to delivery points. Community based awareness by ASHAs have also proved a facilitator to convinces family members for opting institutional deliveries. Enhancement of Information Education Communication

(IEC) activities by health care professionals regarding promotion of institutional deliveries will definitely yield better outcome.

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