ACKNOWLEDGEMENT

We are highly indebted to all the respondents who spared their valuable time to provide necessary information. Without their support, the study would not have completed.

We sincerely thank to NRHM, TMST and District Project Manager, Block Programme Officer, Block Accountant and Data Assistant, Medical & Para-medical staffs, NGO's, Rogi Kalyan Samiti, Gaon Kalyan Samiti of sample blocks for their valuable and in time support for successful completion of the rapid review. We sincerely thank to the contribution made by Ms. B.L. Sarangi and her team for their constant support and guidance throughout the process of review.

Most of all, our sincere appreciation goes to every member of the study team, who spared no pain to complete this work with a very short span. If this report turns out to be a useful one, the credit goes to the professionals and researchers, who toiled to collect reliable and adequate information. It was our pleasure to have worked with a skilled and dedicated team. We acknowledge the contribution of all the team members.

Study Team, CTRAN

CONTENTS

ACKNOWLEDGEMENT 1
Abbreviations 5
Executive Summary 6
Section One 9
State Health Scenario and Referral Transportation Systems 9
1.0 Orissa Health Scenario, Introduction 9
1.1 Initiatives of NRHM 10
1.2 Janani Express, its Background & Perspective 11
1.3 Similar initiatives at National Level 12
Section Two 15
Methodology and Assessment Process 15
2.0 Rationale of the assignment 15
2.1 Methodology and Tools 16
2.2 Sample Coverage16
2.3 Tools and Techniques 17
2.4 Study Process 19
Section Three 20
Performance Overview and Effectiveness 20
Referral Transportation Service in Orissa 20
3.0 Operational Approach of JE 20
3.5.1 Revenue Structure 22
3.5.2 Incentive structure 22
3.6 Janani Sewa [JS] Approach 23
3.6.1 Operational Process 24
3.7 Pros and Cons of JE & JS 25
3.8 Outreach- Janani Express 26
3.8.1 Geographical Outreach 26
3.8.2 Service Outreach27
3.9 Timeliness of JE 28
3.10 Frequency of mobility of JE 29
3.11 Comfort & Care during travel 29
3.12 Order of Birth and JE service Accessibility 30
3.13 Equipments and other facilities in JE 31
3.14 Behavioural Dimensions- Driver, Medical & Paramedical 31
3.15 Institutional health care system and Success of JE 32
3.16 Supportive arrangement 33
3.17 Monitoring and Supervision Mechanism 33
3.18 Call Monitoring and Tracking System 33
3.19 Performance Parameters 34
3.20 Revenue and Incentive Structure 34
3.21 Adequacy of JE 34
3.22 Financial Viability of JE 35
3.23 Overall Contribution of JE 36
Conclusion 38
Section Four 40
Recommendations 40
4.2 Decentralised Voucher Model 40
4.2.1 Overview of the model 41
4.2.2 Process Flow and map 42

4.2.3 Differential Valued Voucher 42
4.2.4 Distribution of Voucher 43
4.2.5 Utilisation of Voucher 44
4.2.6 Placement of Empanelled Vehicle and JE 44
4.2.7 Guidelines for empanelment & operation by NGO/Pvt. 44
4.2.8 Revenue and Incentive Structure 45
4.2.9 Roles and Responsibilities 46
4.2.9.1 Block Programme Officer [BPO] 46
4.2.9.2 Block Accountant & Data Entry Assistant [BADA] 46
4.2.9.3 Rogi Kalyan Samiti [RKS] 46
4.2.9.4 Medical Officer/ IC 46
4.2.9.5 District Project manager [DPM] 47
4.2.9.6 ANM/ASHA 47
4.2.9.7 Gaon Kalyan Samiti [GKS] 47
4.2.9.8 Driver – Empanelled Vehicle/ Janani Express 47
4.2.9.9 Non-Govt Organisation [NGO] / Pvt Agency 47
4.2.10 Supportive tools and arrangements 48
4.2.10.1Pregnancy Tracking System 48
4.2.10.2Call Centre 48
4.2.10.3Voucher register at BPO/ANM 49
4.2.11 Model Calculation Process 49
4.2.12 Financial Aspects 50
4.2.12.1Proportionate Base Slab Incentive Model 52
4.2.13 Advantage of the Model over existing arrangements 53
4.2.13.1Accessibility: 53
4.2.13.2Timeliness of service: 53
4.2.13.3Model of individual registered Cases: 54
4.2.13.4Motivation to NGO: 54
4.2.13.5Convergence with other Service: 54
F4.2.13.6 inancial appropriateness: 54
4.3 CENTRALIZED Operational Model [COM] 54
4.3.1 Overview of the model 55
4.3.2 Process Flow and map 56
4.3.3 Management and operational process 56
4.3.3.1 Guidelines for Engagement of NGO/Pvt Agencies 57
4.3.3.2 Revenue and Incentive Structure 57
4.3.3.3 Empanelment of JE 57
4.3.3.4 Placement and coordination of JE 58
4.3.4 Convergence with Other Schemes 59
4.3.5 Supportive tools and arrangements 59
4.3.5.1 Global Positioning and GIS system 59
4.3.5.2 System Architecture 59
4.3.5.3 CENTRALIZED Call Centre 60
4.3.6 Specific Advantage of the Model 61

Table 1-Demographic, Socio-economic and Health profile of Orissa State as compared to India 9
Table 2- Health Infrastructure of Orissa 10
Table 3-Various Ambulance Services and Helpline for Transport of Obstetric Emergencies 13
Table 4-Sample Blocks [Experimental and Control] Blocks 16
Table 5, Sample Respondents 17
Table 6-Approved Budget- Janani Express- One Block 22
Table 7-Janani Sewa Project- Sundergarh Project Block Details 24
Table 8-Cross Analysis of two referral transport models in Orissa 26
Table 9-Facilities in JE available in respective blocks 31
Table 10-Revenue and Incentive Structure of Sample JE and JS Blocks 34
Table 11- Operational details of JE in sample Blocks 35
Table 12- Expenses–Janani Express Model 35
Table 13- Expense Assumptions of JE 36
Table 14- Sample Block and District Institutional Delivery Information 36
Table 15- Suggestions for improvement of JE operation and health services 37
Table 16, Specimen Voucher Register 49
Table 17-Block specific [Soro] voucher range and target case load 49
Table 18-**Revised Monthly Expenditure sheet under Decentralised Voucher Scheme** 50
Table 19-Decentralised Model Janani Express Assumptions 51
Table 20-Ideal case load and cost calculation 51
Table 21-Fixed Slab Incentive Structure - Voucher Decentralised Model 52
Table 22-Proportionate Base Slab Incentive Structure - Voucher Decentralised Model 52

Figure 1- Institutional Delivery Status, DLHS 2007 9
Figure 2- Review Aspects 15
Figure 3-Process of Review 18
Figure 4- Study work flow 19
Figure 5- Janani Express Model- Process Flow 21
Figure 6- Process Map of JS Model 23
Figure 7-Process Flow - Decentralised Vouche Model 42
Figure 8-Process Flow - Centralized Model 56
Figure 9- GPS and GPRS vehicle tracking 60

ABBREVIATIONS

ANC	Antenatal Care
ANM	Auxiliary Nurse Midwife
AYUSH	Ayurvedic, Yoga, Unani, Siddha and Homeopathy system of health
BPL	Below Poverty Line
BPO	Block Programme Officer
CBO	Community Based Organization
CDMO	Chief District Medical Officer
CDR	Crude Death Rate
CHC	Community Health Centre
DDK	Disposable Delivery Kit
DHFW	Department of Health and Family Welfare
DLHS	District Level Household Survey
DPM	District Project Manager
DPMU	District Project Management Unit
EMRI	Emergency Response Service
GKS	Gaon Kalyan Samiti
GoI	Government of India
HP	Health Post
ICDS	Integrated Child Development Services
ID	Institutional Delivery
IEC	Information Education and Communication
IMR	Infant Mortality Rate
JE	Janani Express
JSK	Janani Sewa Kendra
JSY	Janani Suraksha Yojana
KBK	Kalahandi Bolangir and Koraput Region
MCH	Maternal and Child Health
MIS	Management Information System
MMR	Maternal Mortality Ratio
MoHFW	Ministry of Health and Family Welfare
NFHS	National Family Health Survey
NGO	Non Government Organization
NHP	National Health Policy
NPP	National Population Policy
NRHM	National Rural Health Mission
OBC	Other Backward Classes
PHC	Primary Health Centre
PPC	Post Partum Centre
PPP	Public Private Partnership
PRI	Panchayat Raj Institution
RCH	Reproductive and Child Health
RKS	Rogi Kalyan Samiti
SC	Scheduled Caste
SDPDS	Sundergarh District Periphery Development Society
SRS	Sample Registration System
ST	Scheduled Tribe
TFR	Total Fertility Rate
TMST	Technical Management Support Team
WCD	Women and Child Development

EXECUTIVE SUMMARY

Janani Express was introduced in the state on a pilot basis to provide free transport to pregnant women for institutional delivery [ID]. Based on earlier experiences of other states, it was envisioned that the transport facility would increase institutional delivery and support in reducing maternal and infant mortality. Initially, this transport service was introduced in 63 health service delivery units. A rapid review of Janani Express [JE] was conducted to understand the level of performance and effectiveness of Janani Express in fulfilling its objectives.

1. **Methodology**: Samples were drawn on purposive basis based on the concentration of beneficiaries' availed JE facility. Operational bottlenecks and management issues were captured through consultation with district health officials, Rogi Kalyan Samiti [RKS], JE operators and others. Available secondary information were reviewed to find out the performance trend and ID improvement made with the support of JE in the respective health institutions. Operational and financial understanding was developed based on the analysis of available primary and secondary information.

2. **Referral Transportation Models in Orissa**: There are two different means of operation of referral transportation in Orissa. The referral transport model in 63 blocks across 22 districts is termed Janani Express while the centralised operational model, termed Janani Sewa, is observed only in Sundargarh which covers 10 blocks of the district. Janani Sewa is more a centralised function while Janani Express is operated in a decentralised way. Due to decentralised operational system, performance of Janani Express is comparatively better than the Janani Sewa in terms of attending number of pregnancy cases.

3. **Service Outreach**: Focus of referral transportation service has been on rural areas and as per the norm; service outreach of JE is within the block where it is stationed. As per the findings, free transport facility is provided to the pregnant women and utilisation of JE for neo-natal and emergency cases of mothers after delivery is not observed in the sample districts. On an average, JE normally covers a distance of 12 Km in one side journey to cater to the need of pregnant women. Each JE, on an average, is facilitating ID cases within an easy approachable distance and its outreach to far off places or to inaccessible areas is limited.

4. **Service Accessibility**: It is observed in the sample that pregnant women, in different orders of birth, have accessed free referral transportation service. For first and second delivery, 47.5% and 29.4% women accessed JE service respectively. Of the total sample respondents, in 12.5% families, JE service is also availed by other pregnant woman. In the sample respondents, a declining trend in the home delivery is marked from 20.8% to 4.2%. As far as accessibility by social category is concerned, of the total sample, 10% families of general caste categories, 38% OBC families, 29% SCs and 23% ST families have accessed JE services. By economic category, 65% BPL families and 35% others have accessed the service of Janani Express.

5. **Service Quality**: Availability of the vehicle on-time at the beneficiary end is considered to be one of the service quality parameters and in this regard, it is assessed that JE takes around one hour to approach the case. Being dependent upon the distance and road condition, time consumed by the JE to travel from the beneficiary end to the institution is relatively more than

that from the health institution to the beneficiary end. The average maximum distance covered by JE in any month, since its inception, is 104 km and maximum numbers of trip taken up per day is 17 addressing a maximum of 8 cases on an average in a particular day. As per the beneficiaries, travel by JE is normally comfortable [89%] due to good condition [87.5%] of vehicles. In 93.4% cases, ASHA accompanied the pregnant women to the health institution for delivery. Pregnancy / delivery related complication/s during journey is not so prominent [2.7%] in the sample. On the other hand, there is limited scope with the JE to address emergency health care needs due to non-availability of prescribed facilities.

6. In 10.8% cases, no doctor was available in the health institution during arrival of the pregnant women. In 7.1% of the 10.8% cases, paramedical personnel were present in the health institution during the arrival of the pregnant women for delivery. Time of arrival of doctor varies between 0.30 hr. to 2 hours. During the absence of the doctor, paramedical personnel normally take care of the pregnant women. Paramedical personnel attended 11.8% critical cases transported by JE in the absence of the doctor.

7. **Operational Model**: Ownership of all the JE vehicles is with private bodies who receive a monthly rent of Rs.12,000/ to Rs.14,500/- irrespective of the number of cases transported. In addition, fuel expense, at the rate of 1 Lt for 10 km., is provided to the operator on actual basis. Looking at the expenditures, estimated cost per case is in the range of Rs.3513/- [Nuagaon, Nayagarh] to Rs 179/- [Soro, Balasore]. The average number of institutional delivery cases addressed by Janani Express varies from 110 [Soro, Balasore] to 6 [Nuagaon, Nayagarh]. The monthly average distance covered by Janani express is between 7513 km [Gandia, Dhenkanal] to 243 km [Nuagaon, Nayagarh].

8. **Recommendations**: Present level of JE performance can be further augmented through structural and functional adjustments. The assessment recommends change in the present operational model and restructuring of the payment structure. Two different operational models are worked out for the improvement of JE efficiency and effectiveness. Both the models are having the philosophy of increasing the outreach of free transportation and giving more options to people so that their sole dependency on JE will reduce. The prerequisites for these models are “introduction of pregnancy tracking system, promotion of differential valued entitlement vouchers, use of other private vehicles through empanelment or custom hire basis and introduction of call tracking system”.

    a. **Centralised Model**: The Centralised Model is having centrally coordinated functions for providing referral transport system by deploying a fleet of vehicles. Provision of round the clock free transportation to pregnant women is the prerequisite of this model. The request for accessing free transport would be taken up centrally through “call centre”, which would be managed by the selected NGO or private body. Along with the call centre, JE could also be managed and operated by the respective NGO/Pvt. agencies. All requests made for free transport facility would be routed through the centralised call centre and communicated immediately to respective vehicle driver who are placed in strategic locations, in a proximity to the target area. The targeted beneficiaries would be having vouchers of different values for free transportation. This voucher can be used for transportation through JE or private vehicle, based on the suitability and convenience of the beneficiary. At the institutional level, the beneficiary can reimburse the entitlement voucher if travelled on her own. When, a pregnant women access JE services for transportation, the

NGO/Pvt. agency operating the vehicle, would receive the respective voucher and would en-cash it. Though, structurally it is centralised, operationally, it is more close to target mass to address their transportation need.

b. **Decentralised Model**: In this model, the villages in the block are categorised as accessible and inaccessible and JE would be preferably in the inaccessible pockets based on the concentration of pregnant women. This will have fixed base slab incentive structure as well as proportionate based slab incentive structure. This will help them to achieve higher case load and reach the unreached areas. The pregnant women will be having entitlement voucher, which they can use for availing free transportation to institutions. The beneficiaries are free to choose any private mode of communication available at their village for travel to the nearest health institution. They can use empanelled vehicles or vehicles that are available openly and not empanelled. After reaching at the institutional point, the beneficiary can reimburse the entitlement voucher. The concerned JE would also work along with private vehicles to make transportation facility available at immediate reach of the beneficiary. In this model, availability of multiple options will minimise the difficulties faced by the pregnant women in accessible pockets for transportation. Apart from that, revenue structure of the operator is also suggested for modification based on number of cases addressed in a month out of the total expected cases.

Overall, it is evident that number of institutional delivery has increased in the institutions where JE is attached when compared to the level of achievements made earlier when JE was not there. Apart from JE, another factor which is responsible in this regard is increasing health awareness among the people and their health consciousness. JE, with transportation facility, has contributed in accelerating institutional delivery [ID] in the blocks in an average of 8 months of operation.

SECTION ONE
STATE HEALTH SCENARIO AND REFERRAL TRANSPORTATION SYSTEMS

1.0 ORISSA HEALTH SCENARIO, INTRODUCTION

[1]Health status of people in Orissa is affected by many factors like poverty [state poverty - 47%, 2001 census], limited access to usable resources, infrastructural facilities, traditional practices etc. The key health related issues account for about 65% of the diseases which encompass communicable diseases, pregnancy and childhood related ailments. As per the recently published data on Maternal Mortality Ratio of Orissa by Office of the Registrar General of India, the state is having mother mortality rate [MMR] of 303 which is higher than national average [India-254] [SRS 2006, GOI]. In Orissa, around 75,000 women deliver babies every year and out of which 2,500 women lose their life[2]. Along with mother mortality, infant mortality rate continues to be higher [71 per 1000] than that of the national figure [55 per 1000[3]]. It is recognized that about 60% infant deaths occur during neonatal period [first four weeks of life] and most of these deaths are due to pre-maturity, low birth weight, respiratory infections, diarrhoea and malnutrition. It is also acknowledged that infant mortality is higher in lower socioeconomic strata residing in backward tribal districts of the state. However, there is considerable hike in the institutional delivery rate in the state and it stands at 71% [2008-09] as per HMIS Routine reports[4]. Department of health, Government of Orissa has been trying systematically to improve this further.

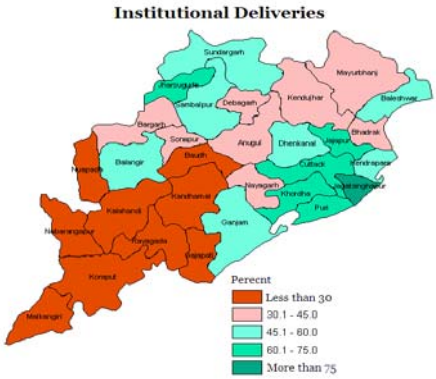


Figure 1- Institutional Delivery Status, DLHS 2007

Table 1-Demographic, Socio-economic and Health profile of Orissa State as compared to India

Item	Orissa	India
Population [Census 2001] [in millions]	36.80	1028.61
Decadal Growth [Census 2001] [%]	16.25	21.54
Crude Birth Rate [SRS 2007]	21.5	23.1
Crude Death Rate [SRS 2007]	9.2	7.4
Total Fertility Rate [SRS 2007]	2.4	2.7
Infant Mortality Rate [SRS 2007]	71	55
Maternal Mortality Ratio [SRS 04 - 06]	303	254
Sex Ratio [Census 2001]	972	933
Population below Poverty line [%]	47.15	26.10
Schedule Caste population [in millions]	6.08	166.64
Schedule Tribe population [in millions]	8.15	84.33

The maternal and child health services show visible improvements in quality and coverage. The institutional arrangements for medical care have also improved, both in rural and urban pockets. The existence of a number of sub-centres, primary health centres and community health centres have been giving comprehensive health care in a meaningful manner over the years. Introduction of multi-purpose health workers, increased number of

[1] *Source-DLHS – 3, 2007-2008, Ministry of Health and Family Welfare*
[2] *http://nrcw.nic.in/statistics%20tables/SexRatio.html*
[3] *Source- Sample Registration System 2007*
[4] *[National Family Health Survey 2005-06]*

sub-centres etc. have been supporting effectively in reducing the patient load per institution. In-spite of this, there is certain factors which hinder the progress like geographic inaccessibility, cultural barriers, ignorance, deep-rooted influence of traditional healers etc. There are certain factors which are basically external but contribute to the achievement made by the state with regard to health like improved literacy status, better access to safe drinking water, improving sanitation status, better communication network with better access to health services, increased awareness of people about health issues, expansion and penetration of mass media etc. are a few to mention.

Table 2- Health Infrastructure of Orissa

Particulars	Required	In position	shortfall
Sub-centre	7283	6688	595
Primary Health Centre	1171	1279	-
Community Health Centre	292	231	61
Multipurpose worker [Female]/ANM at Sub Centres & PHCs	7967	6768	1199
Health Worker [Male] MPW[M] at Sub Centres	6688	3392	3296
Health Assistant [Female]/LHV at PHCs	1279	726	553
Health Assistant [Male] at PHCs	1279	168	1111
Doctor at PHCs	1279	1353	-
Obstetricians & Gynaecologists at CHCs	231	-	-
Physicians at CHCs	231	-	-
Paediatricians at CHCs	231	-	-
Total specialists at CHCs	924	-	-
Radiographers	231	8	223
Pharmacist	1510	1984	-
Laboratory Technicians	1510	311	1199
Nurse/Midwife	2896	637	2259

***Source**: RHS Bulletin, March 2008, M/O Health & F.W., GOI]*

To strengthen the health infrastructure of the state further, it was realised that government alone may not be able to cater to the increasing health services demand especially when capital investment is required. So, partnership with private bodies in the health operation was thought of. Health care service, which predominantly was the sole responsibility of the state, was gradually shared with private sector encouraging direct investment and intervention. As a result, Public Private Partnership [PPP] arrangements evolved to provide improved health care services. Some of the areas where Public Private Partnership [PPP] initiatives have shown remarkable result include PHC [New] management, RCH service delivery through NGOs and operation of Janani Express.

1.1 INITIATIVES OF NRHM

Health is an important area in improving the quality of life of people. To achieve this, Government of India launched the National Rural Health Mission [for 2005-12] to carry out necessary architectural correction in the basic health care delivery system.

Goal

"The Goal of the Mission is to improve the availability of and access to quality health care by people, especially for those residing in rural areas, the poor, women and children".

Objectives

1. Reduction in Infant Mortality Rate [IMR] and Maternal Mortality Ratio [MMR]
2. Universal access to public health services such as Women's health, child health, water, sanitation & hygiene, immunization, and Nutrition.
3. Prevention and control of communicable and non-communicable diseases, including locally endemic diseases.
4. Access to integrated comprehensive primary healthcare.
5. Population stabilization, gender and demographic balance.
6. Revitalize local health traditions and mainstream AYUSH.
7. Promotion of healthy life styles

The National Rural Health Mission [NRHM] intends to bring dramatic improvement in the health system and the health status of the people, especially those living in the rural areas. It seeks to provide effective healthcare to the rural population with special focus on states which have weak public health indicators and/or weak infrastructure like that of Orissa. The Mission is an effort on the part of the Government to increase public spending on Health from 0.9% of GDP to 2-3% of GDP and promote policies that strengthen public health management and service delivery. NRHM has come a long way in achieving its desired objectives in providing an acceptable, affordable and quality health care across households in the country. NRHM plan of action has been structured around core and supplementary strategies to achieve its mandate. With the same objective, National Rural Health Mission was launched in Orissa with a special focus on the backward districts with weak human development and health indicators. The thrust of the Mission has been on establishing a fully functional, community owned, decentralized health delivery system with inter sectoral convergence at all levels. It supports simultaneous action on a wide range of determinants of health in a convergence manner like water, sanitation, education and nutrition on social and gender equality front.

Key Components of NRHM

1. Provision of a female health activist in each village
2. Preparing a village health through a local team headed by the Health & Sanitation Committee of the Panchayat
3. Strengthening rural hospitals for effective curative care and made measurable and accountable to the community through Indian Public Health Standards [IPHS]
4. Integration of vertical Health & Family Welfare Programmes and Funds for optimal utilization of funds and infrastructure.
5. Strengthening delivery of primary healthcare
6. Reproductive and Child Health-I [RCH-II]
7. Improved immunization coverage
8. National Disease Control Programme
9. Inter-sectoral convergence

1.2 JANANI EXPRESS, ITS BACKGROUND & PERSPECTIVE

Overall objective of **Janani Express** is to provide round the clock free transportation facility to the pregnant women to approach health institutions for delivery. It supports the pregnant women to cope with emergencies, which arise during pre as well as post-delivery periods and help pregnant women reach health centres for delivery.

Salient Features of the Scheme

A 24 HOUR FREE TRANSPORT SCHEME FOR PREGNANT MOTHERS & SICK BABIES

Creating better transportation facility for institutional accessibility at free of cost is the underlying principle of Janani Express. Its 24 hours availability for transportation on call helps pregnant women to reach health institutions for delivery.

COMPLEMENTING JANANI SURAKSHYA YOJANA [JSY]

It complements the JSY which provides cash incentives to women availing institutional delivery and the members supporting them in the process like ASHA.

PARTNERSHIP WITH PRIVATE SECTOR

Acknowledging the constraints of quality service delivery and infrastructural inadequacy, partnership fostered with private bodies to operate the Janani Express in a public private partnership [PPP] mode under RCH-II of NRHM.

EASY ACCESSIBILITY WITH FACILITIES:

With the provision of necessary facilities, Janani Express was attached to different heath institutions for easy accessibility of the target mass. Further, the driver of the vehicle was equipped with a cell phone to establish contact and provide on-time service. In order to make its presence visible and aware people, Janani Express is imprinted on both front and rear of the vehicle, along with the contact no. of the driver and land line telephone number of the hospital.

The National Population Policy [NPP] 2000 and NRHM, have laid emphasis to reduce maternal mortality to less than 250 per 1,00,000 live births in Orissa by the year 2010. In this connection, Janani Express is one of the programmes that address the issue of maternal mortality by facilitating free of cost transportation for pregnant women to the health institutions. In the pilot phase, JE was provided to those health institutions [at block level] where institutional delivery was on an average 50 per month. In this phase, Janani Express was piloted in 63 blocks of 22 districts in a PPP mode. Under a different centralised model, 10 blocks of Sundergarh district were also covered with similar transportation provision. As per the norm, Janani Express is expected to cater to the need of [1] all pregnant women irrespective of caste, religion, age for to and fro travel for institutional deliveries [2] emergency referral services for women before and after deliveries and [3] sick neo-natal, infants and children below 1 year for emergency care.

1.3 SIMILAR INITIATIVES AT NATIONAL LEVEL

Among the major attributes of pregnancy-related mortality; delay in reaching to an appropriate health facility centre is considered to be one of the prime attributes. This normally happens either due to lack of readily available and affordable transport facility or inaccessibility / distance for which people fail to access institutional health services. Establishing linkages between the community and health institutions is an essential component for the promotion of institutional delivery. Different states have different models for providing effective transport for institutional delivery. Janani Express Yojana, in a public private partnership [PPP] mode, is being adopted not only in Orissa but also in some other states like Madhya Pradesh and West Bengal.

While many models originally envisaged as a readily available transport scheme for women with obstetric emergencies, EMRI model has been different by contributing as an ambulance services catering for all kind of health emergencies. The Emergency Management and Referral Institute [EMRI] model has shown good results in Andhra Pradesh and is now being adopted by some other states. Many states are using central help lines/call centres for managing the referral transportation

[JSY help lines in Chhattisgarh, Jharkhand and Manipur, Madhya Pradesh & Rajasthan] services. Cashless transportation services rendered in different states and their operational model is reflected in the table.

Table 3-Various Ambulance Services and Helpline for Transport of Obstetric Emergencies

Operational Model and Year of Initiation	State	Brief Description/Outcomes
Free Bus Passes [2005-2007]	Andhra Pradesh	Free bus passes to SC/ST and BPL pregnant women in rural areas to enable them to get at least one ANC check-up with a qualified medical doctor. Eight lakh free bus passes have been issued
Janani Express Yojana [2006-2007]	Madhya Pradesh	An ambulance service to enable BPL women overcome the problems from lack of access to suitable transport through district-level partnerships with private providers **Outcomes**: [1] Implemented in 204 blocks [2] 54, 202 women transported, of which half were for institutional delivery [3] Over 52% from BPL category Transported 68% multifarious women had not previously delivered in institutions
Call Centre with Network of Ambulances for Ob/Gyn/Newborn [2006-2007]	Madhya Pradesh	The 24/7 emergency transport and call centre is an effort to enable women and sick children to reach health care facilities for institutional deliveries, through providing round-the-clock emergency transport, which the community can access through a call centre set up in the district hospital with a toll-free number **Outcomes**: [1] 5,026 women transported [2] Network of 24 vehicles at district level
Ambulance Scheme [2006-2007]	West Bengal	Provision of round-the-clock emergency transport for obstetric and other medical emergencies, through a fleet of ambulances outsourced to NGOs with a communication network through fixed and mobile phones **Outcomes**: [1] Caseloads are increasing, given the widespread community awareness on the scheme. All ambulances are equipped with mobile phones. One third of all cases were pregnancy and delivery-related [2] Proportion of BPL cases transported [in three blocks] ranges from 35% to 57%
Rural Emergency Health Transportation Scheme [2006-2007]	Andhra Pradesh	An ambulance service for transporting emergency cases of pregnant women and children [and other emergencies] to the nearest facility. The scheme has the provision for a District Maternal and Child Health emergency control room in every district headquarter, with a toll-free telephone available for 24 hours **Outcomes**: [1] 732 ambulances, one ambulance makes around eight trips a day [2] Average reach time of the ambulance is 14 minutes in urban areas and 21 minutes in rural areas [3] MoU with 4,000 hospitals and nursing homes in different parts of Andhra Pradesh and 1,500 police stations linkages [4] Covers 147 million population and around 5,700 emergencies have been handled [5] Ambulance use by SC/ST/BC socioeconomic categories is 83% [6] Pregnant women using the ambulance for delivery—22%
Obstetric Helpline [2006-2007]	Rajasthan	The focus of interventions is on addressing the second delay by mapping transport facilities, instituting a toll-free number, involving an NGO to engage local taxis and to escort women to the health facility [apparently the CHC], as well as negotiate the services and ensure timely payments of financial entitlements **Outcomes**: [1] High utilisation of the service by women in the BPL category [2] Almost 100% correlation between calls and women delivering in institutions [3] Increase in numbers of caesarean sections at the CHC
Emergency Medical Services [2006-2007]	Bihar	Ambulance service and medical help/tele-line. Control room operational 24 hours in the divisional headquarters of the State
JSY Helpline [2006-2007]	Mizoram	JSY helpline implemented by NGO
District Maternal and Child Health Control Room [2006-2007]	Andhra Pradesh	The public will be informed about this facility and will be encouraged to call this number in the case of any maternal, infant/child emergency. On receipt of the information, the NGOs responsible for the ambulance will transfer the patient to the nearest hospital

Janani Surakshya Vahini [2007-2008]	Karnataka	Janani Surakshya Vahini is a part of JSY under which ambulances are placed in 176 *taluka* hospitals for transportation of emergency cases for pregnant women and children
Aarogya Kavacha Scheme [2008-2009]	Karnataka	Scheme similar to EMRI of Andhra Pradesh
JSY Helpline [2008-2009]	Chhattisgarh	Tele helpline to promote institutional deliveries and reduce the three delays to be managed by a JSY cell within the directorate. The services will be contracted out to a private organisation, at a reimbursement of, on a call basis, at the rate of Rs. 5 per call. JSY cell to monitor quality through sample Checks
JSY Helpline [2008-2009]	Jharkhand	A helpline in the district headquarters, functioning 24/7, connected to all CHCs and PHCs, and providing immediate medical care to mothers in case of emergencies, through provision of ambulances for referral transport. A data bank will also be available for providing information on the status of ambulances
Voucher Scheme for Referral Transport [2008-2009]	Uttar Pradesh	A voucher scheme for providing transport to the BPL patients. The District Society/ Rogi Kalyan Samiti [RKS] at the block level will identify and accredit transport providers to facilitate transportation to BPL clients. The BPL families will be provided vouchers, which will be distributed through ASHAs. On reaching a health facility through an accredited private transporter, the driver/owner will be paid Rs. 250 at the health facility by the designated officer from the transport component of the JSY funds. In this case the transportation amount will not be paid to either the client or ASHA
Emergency Management and Referral Institute [2008-2009]	Assam	An EMRI with a toll-free number will be set up in Guwahati and will include emergency ambulance services in partnership with a non-profit organisation. The ambulances will be placed strategically in the districts and will function 24/7 to cater to any kind of emergency with three teams: Information team [call taking, call processing and call dispatch], Response team [ambulance] and Care team [pre-hospital medical care]. A state wide toll-free emergency number will connect informants to the Emergency Response Centre in Guwahati. It will be launched state wide in November 2008 in a phased manner
Rural Ambulance to Transport Women with Obstetric Emergencies and Sick Newborns [2008-2009]	Tripura	A scheme that provides ambulances for emergency referral transport for pregnant women and high-risk babies from sub-district hospitals to district hospitals. The scheme was launched in 2006-07 and will be extended to three PHCs in 2008-2009
Ambulance Services and Helpline for Transport of Obstetric Emergencies [2008-2009]	Goa	An EMRI with an emergency transport placed in all *talukas* 24/7 for transportation of cases of obstetric emergencies. The EMRI has three teams: Information team, Response team and Care team. There has been positive response to the EMRI So far, 2,464 emergency calls received in a month, 1,253 medical emergencies responded and 35 lives saved [till September 2008]
Doli Initiative [2008-2009]	Tripura	Referral transport in the form of a *doli* or palanquin for ensuring access to services for the people in the remote areas of the State, piloted in one district. The *doli* will be used by the villagers/porters for transportation of sick mothers and children from the villages to the health facilities. The State expects to have 500 porter services in a year

Source- DFID directory of innovations

SECTION TWO
METHODOLOGY AND ASSESSMENT PROCESS

2.0 RATIONALE OF THE ASSIGNMENT

Janani Express was introduced in the state during 2008 to facilitate free transportation facility to pregnant women. In order to understand the effectiveness of the JE and to explore the possibilities of alternative options for rendering transportation services, rapid review of JE was conducted with the support of NRHM and TMST. The overall objective of the assessment was to have a better understanding of strengths and weaknesses of the scheme and finding out alternative strategy, to make it cost effective and beneficial. The objective also encompasses to assess the strengths and weaknesses and recommend improvements in the design and operation of JE in the state.

Figure 2- Review Aspects

Scope of the Rapid Assessment

1. To assess the strength and weakness of the scheme
2. To assess the operational adequacy of the JE in the defined boundary of operation
3. To review the JE service delivery
4. To access the effectiveness of the monitoring mechanism of the activities of the driver and the vehicle.
5. To assess the financial viability of the JE scheme [the business plan] under the current arrangement for the private bodies
6. To review the payments system to the JE operators [private agencies]
7. To rapidly review and analyse the definition of the Catchment Areas and its clarity and : are they clearly defined, in operations
8. To review the skills of Rogi Kalyan Samiti [RKS] and Medical Officer [MO] for contracts management process of Janani Express at the district level
9. To review and assess alternative arrangements
10. To recommend improvement in existing process arrangements

2.1 METHODOLOGY AND TOOLS

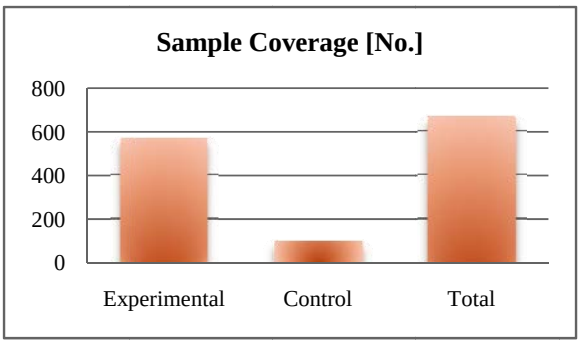
The project scope along with expected output outlined above gives a comprehensive framework for the study objectives. After perusal of the project scope and rationale, seven key focus areas were identified for rapid assessment of the JE i.e. [1] Outreach / coverage [2] accessibility [3] impact [4] viability [5] preference [6] JE operation and [7] quality of services.

2.2 SAMPLE COVERAGE

Based on the objectives of the assessment, six experimental blocks where JE is in operation and two control blocks, where JE is not in operation, were selected. The blocks were selected on ***purposive sampling*** basis. The processes followed for selection are as follows.

Table 4-Sample Blocks [Experimental and Control] Blocks

District	Block	Type of Sample	Name of the Institution	Criteria -	Geographical
Balasore	Soro	Experimental	Soro-CHC	High performing Block- "JE-Beneficiaries till 30.06.2009"	Coastal Zone
Dhenkanal	Gandia	Experimental	Srimachandrapur [CHC]	High performing Block- "JE-Beneficiaries till 30.06.2009"	Central Zone
Sundergarh	Sargipali	Experimental	Sargipali, PHC	Low Performing Block- "JE-Beneficiaries till 30.06.2009" and Model District with 10 institutions running JE	Western Zone
Gajapati	Parlekhmundi	Experimental	DHH	Addressing Cross Border issues	Southern Zone
Nuapada	Khairiar	Experimental	Khairiar, UGPHC	Low performing KBK Block- "JE- Beneficiaries till 30.06.2009"	KBK [Western Zone]
Nayagarh	Mahipur	Experimental	Mahipur, CHC	Low performing Block- "JE-Beneficiaries till 30.06.2009"	Eastern Zone
Nuapada	Komna	Control	Komna PHC	To get the perspective of KBK	KBK
Nayagarh	Khandapada	Control	Nuagadiasahi CHC,	To get the perspective of coastal control block	Coastal



As per the available secondary information, total numbers of beneficiaries accessed JE by the assessment period were 30246 nos. With 95% confidence level and 5% margin of error, total sample size estimated to be 379 nos. So, a total of 379 beneficiaries were covered from 6 experimental blocks on equality basis i.e. 63 beneficiaries from each block. The samples were drawn from villages with better accessibility, villages with moderate accessibility and villages with poor accessibility. All the selected villages were categorised to aforementioned categories based on the experience of the local health institution personnel. Minimum of 5 villages and a maximum of 10 Villages were selected from experimental and maximum of 3 villages were selected from control area, based on the distribution of JE based ID cases. In the experimental blocks, a total of 10% of the total sample [379] beneficiaries were covered

who availed ID without availing JE facilities. A total of 38 Non-JE ID beneficiaries were covered from 6 experimental blocks representing each block equally. A total of 10% of the JE beneficiary sample were covered from two control blocks representing each block equally i.e. 38 in each block. Wherever the block was not having required number of beneficiaries as finalised after sampling, the shortfall in number of respondents were covered from other blocks. Apart from elucidating primary information from the JE beneficiaries, perception of Driver, RKS, GKS, ASHA, medical officer, BPO and NGO/Pvt. agency was captured to understand JE functioning and its operational achievements and constraints. At the district level interviews were conducted with CDMO and DPM. Focus group discussions [FGD] were also conducted with NGO/Pvt. agencies at the district level.

Table 5, Sample Respondents

			Experimental Blocks						Total Experimental	Control Blocks		Total Control	GT
SN	Sample Typology	Mode	Balasore-SOROO	Sundergarh, Sargipali	Gajapati, Parlekhmundi	Nuapada, Khariar	Nayagarh, Mahipur	Dhenkanal, Gondia	6	Nuapada	Nayagarh	2	
			SOROO-CHC	Sargipali-CHC	Parlekhmundi, DHH	Khariar	MAHIPUR, CHC	Sriram Ch. Pur CHC		Komna	Khandapada		
1	JE Beneficiary	Interview	82	79	67	80	19	81	408	0	0	0	408
2	ID without JE	Interview	7	8	6	8	13	6	48	0	0	0	48
3	Non-JE	Interview	0	0	0	0	0	0	0	40	40	80	80
						Total Primary Respondents							536
4	RKS	Block Level	1	1	1	1	1	1	6	1	1	2	8
5	GKS	Village Level (Sample Village)	5	5	6	5	5	5	31	3	3	6	37
6	ASHA	Interview	5	5	7	7	9	7	40	3	3	6	46
7	Medical Oficer/Doctor	Interview	1	1	1	1	1	1	6	1	1	2	8
8	BPO	Interview	1	1	1	1	1	1	6	1	1	2	8
9	DPM	Interview	1	1	1	1	1	1	6			0	6
10	CDMO	Interview	1	1	1	1	1	1	6			0	6
						Medical, Paramedical and Administrative Support							119
11	Driver	Interview	1	1	1	1	1	1	6	0	0	0	6
12	NGO/Pvt.	Interview/ FGD at District Level	1	1	1	1	1	1	6	0	0	0	6
						Service Provider							12
	Total	Interview	106	104	93	107	53	106	569	49	49	98	667

2.3 TOOLS AND TECHNIQUES

To capture different information, a range of stakeholders, associated with the JE operation process were covered through structured and semi-structured formats. The tools used for the assessment were beneficiary schedule, schedule for non-beneficiary but having ID, FGD checklists, structured format for ASHA, driver, medical officer etc. and semi-structured focus group discussion format for RKS, GKS and NGOs. Besides interaction with stakeholders, secondary database were reviewed for better understanding of JE operation and its coverage. Records like vehicle log books and institutional

delivery registration at PHC/CHC/UHC and other documents were examined to find out numbers of beneficiaries serviced by JE. Documents / literatures referred and analysed to have a better understanding of the JE operation were, operational guidelines of JE, contract management process of JE at the district level, payment arrangements etc. Consolidation of available secondary data provided insight on number of ID cases addressed through JE; distance coverage; transit time, etc. which supported to measure the effectiveness and constraints in the JE. Besides review of available secondary information, efforts were made to understand the operational process through participant observation of JE in the experimental block.

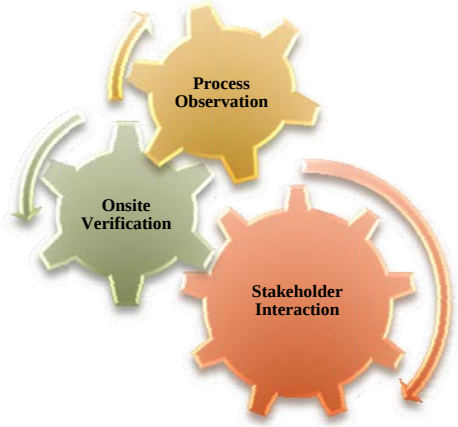


Figure 3-Process of Review

Points of Analysis

- **Break Even Analysis**:- A Break Even analysis was attempted based on the available information to look at the viability of the Janani Express and explore possible alternatives. Actual cost per case in the sample district was calculated to assess the economy of the scheme.
- **Seasonal Variation in availing JE facilities:** This analysis captured the pattern of utilisation of JE in respect to changes in different seasons. This was correlated with connectivity status.
- **GIS Mapping:-** Effective GIS mapping and analysis in GIS was done by the project authorities, TMST of NRHM with support from field level information.
- **Cost Analysis:-** The cost structure of the present operation was analysed and accordingly financial model was proposed with existing arrangements of the scheme to look at the financial viability vis-a-vis the operational viability of JE.

2.4 STUDY PROCESS

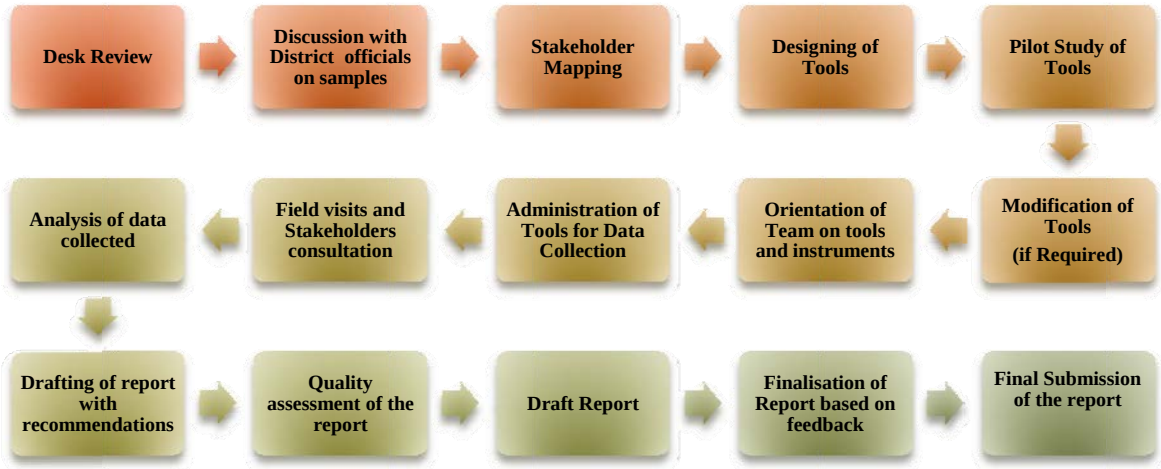


Figure 4- Study work flow

SECTION THREE
PERFORMANCE OVERVIEW AND EFFECTIVENESS

REFERRAL TRANSPORTATION SERVICE IN ORISSA

In Orissa, referral free transportation service is provided through two different operational structures. While Janani Sewa approach is followed only in Sundargarh district, Janani express is adopted in 63 pilot blocks of 22 districts of the state. In conformity with the overall objective of free transportation facility to pregnant women for institutional delivery, both the approach has its own merits and demerits.

3.0 OPERATIONAL APPROACH OF JE

Each JE, being attached to a block, is having its geographical boundary and catchment to cater to the need of the pregnant women. As discussed earlier, it is operated with the support of NGO / private agencies based on the signed agreement. The concerned NGO / private agency ensures the availability of vehicle and driver/s for the said objective at the predetermined health institution level. Janani Express along with drivers is attached to the concerned health institutions under the overall supervision of medical officer [MO] or in-charge [I/C]. The vehicle is expected to be used for rendering pregnancy related transportation services based on the received request calls. To keep the track of mobility, the driver maintains log book [not standardised] recording kilometre coverage, place of visit etc. The movement of the vehicle is checked and verified by the appropriate and competent authority and expenses are reimbursed accordingly by the concerned RKS.

In order to ensure successful operation of JE round the clock and making free transport facility available for pregnant mother for safe and timely institutional delivery, support is being rendered by medical officer and paramedical staffs, NGO/Private agencies as the service provider and the ASHA as the support staff. CDMO, being the final decision making authority, try to ensure the availability of medical and paramedical personnel to attain the cases.

The beneficiary or ASHA contacts directly either to the driver, the doctor or service provider to send the vehicle as and when required. On receiving a request call from the beneficiary and getting it authenticated from ASHA or Medical Officer, the driver moves from the attached health institutions to pick up the beneficiary from the residential location to the institution. Similarly, after successful completion of delivery, it is provisioned that the beneficiary should be dropped at her residential location by the vehicle. As per the operational structure, establishing contact with the private agency and successful implementation of the programme is the sole responsibility of the concerned RKS. RKS has the right to cancel the contract of the operating agency if they are not satisfied with the quality of service.

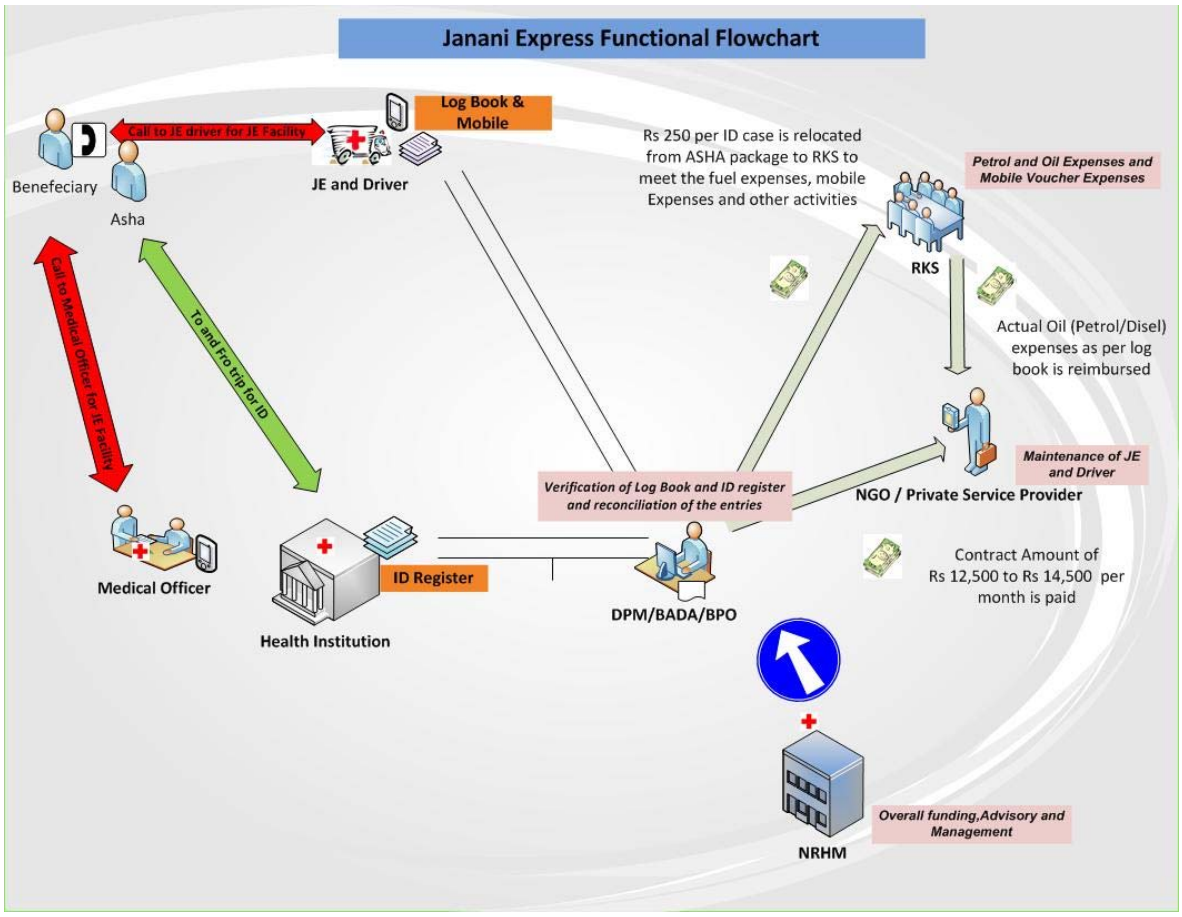


Figure 5- Janani Express Model- Process Flow

As the driver of the vehicle plays an important role in the overall process, the concerned operator ensures orientation of the driver with the support of the RKS. The attached health institution provides required first aid items from time to time. The maintenance of the vehicle, availability of different facilities with the JE, and the remuneration of the driver is the responsibility of the vehicle operator. In the event of breakdown of the vehicle or absence of the driver, the concerned operator is expected to make immediate alternative arrangements. Proper maintenance of the log book is the responsibility of the driver of the JE. To make people aware of JE and to disseminate information on JE, walls are imprinted with the benefit of Janani Express. Further, in order to bring in physical evidence of the services provided, the driver is supposed to wear a uniform by the NGO while operating JE.

3.5.1 REVENUE STRUCTURE

In order to make the private participation viable, a monthly rent up to Rs. 12,000/ to Rs 14,500/-, as per the lowest tender, is paid to the private agency/NGO by RKS. Fuel expense, at the rate of 1 Lt per 10 km, is paid by the concerned RKS based on the logbook data. This recurring cost for fuel of the vehicle is met from the JSY package i.e. transport cost of Rs. 250/-, which is payable to ASHA is deducted and paid towards transportation. For sick neo-natal, the same is proposed to be met from the referral cost. The deducted amount towards transportation cost i.e. Rs. 250/- per case is transferred to RKS account for payment of fuel cost of the vehicle. A separate account is maintained by the RKS for receiving the deducted amount and making payment to the concerned operator.

Table 6-Approved Budget- Janani Express- One Block

BUDGET: Janani Express Model [NRHM]	
Programme Expenditure:	
Vehicle Running Cost:	
[a] Hiring of a vehicle @Rs.12,000 pm X 12 months	Rs. 1,44,000.00
Mobile Phones:	
[a] Mobile phone for Driver @ Rs. 250 X 12 months	Rs.3000.00
[b] Mobile phone for Doctor at Health Unit @Rs.250 X 12 months	Rs.3000.00
Total	**Rs.6, 000.00**
Grand Total	**Rs 1,50,000.00**

3.5.2 INCENTIVE STRUCTURE

An incentive of Rs.10/- for each additional case, after attending 50 cases [to and fro transportation of pregnant mother] and Rs.50/- for a minimum coverage of 1500 km per month is suppose to be paid to the driver as an incentive. This provision has been made to ensure that the driver caters to the transportation needs of remote villages along with increasing ID. Similarly, for every additional case above 100 institutional deliveries with a minimum mileage of 2500 km per month, Rs. 20/- is given to the driver as an incentive. The incentive amount is paid out of RKS fund. But, the assessment reveals that no such prescribed incentive arrangement is in practice. As a result, there is less motivation on the part of the operator to attend more number of cases. Secondly, as vehicle hiring cost is not linked to the realisation of number of cases, concerned vehicle operator does not take any interest for more case coverage.

3.6 JANANI SEWA [JS] APPROACH

The existing operational model of JE in most of the blocks can be termed as a decentralised model with block as the unit of operation. Contrary to that, the operational model followed in Sundergarh can be termed as a centralised model as administrative and operational control lies centrally at the district level. Here, district is considered as one operational unit and the model is termed as Janani Sewa [JS] Model. The project is addressing 10 blocks of the district and supported by Sundergarh District Periphery Development Society [SDPDS]. While in JE model, overall operational control lies with the institution to which JE is attached, in the centralised model, all the vehicles are regulated from the district headquarter.

This project aims to act as a nodal point for helping pregnant women to overcome the transportation barrier and minimise the transit time in accessing health institutions. Unlike JE, in [JS], ambulances are provided by the SDPDS which are managed by the respective RKS. The unique feature of JS model is the availability of telecommunication facility which creates awareness on certain health issues and provides information regarding availability of support services like blood etc. at the district hospital. The Janani Sewa Kendra [JSK], associated with the project, is having a round the clock helpline. In contrast to the JE model of operation, JS is also having the facility of tele-counselling for pregnancy related issues and acts as a common point of interface for free transportation.

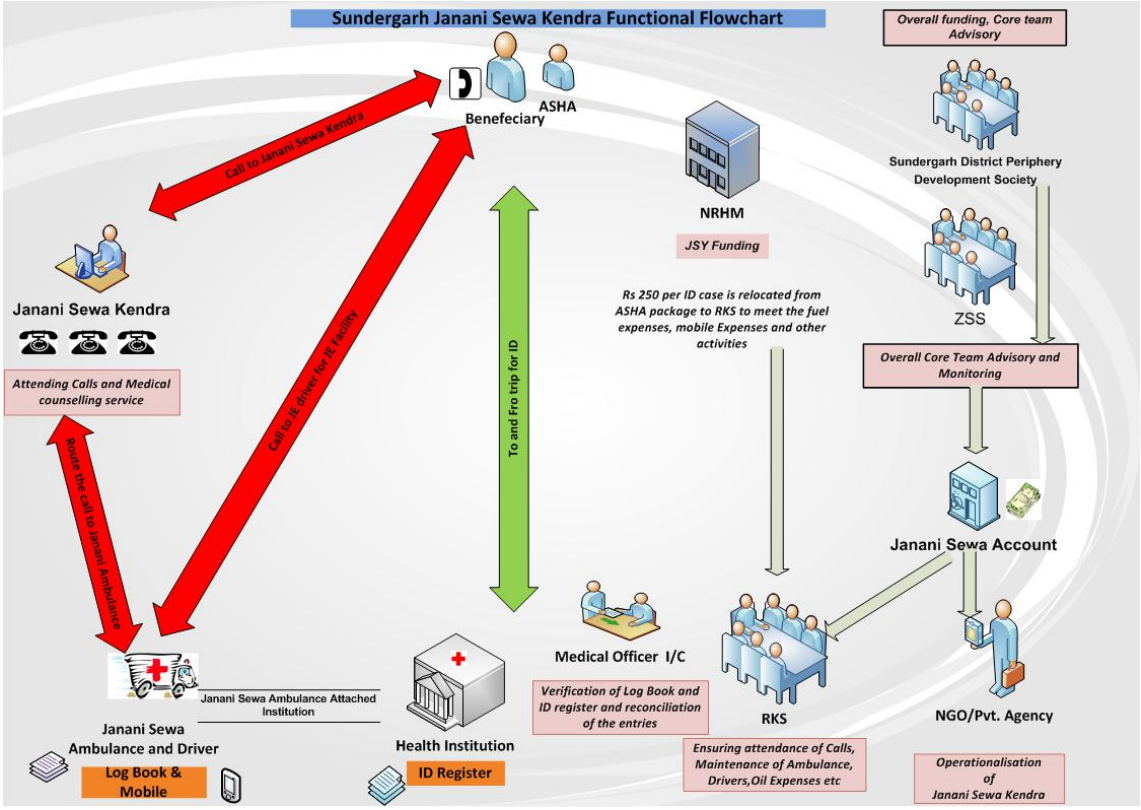


Figure 6- Process Map of JS Model

3.6.1 OPERATIONAL PROCESS

The operational responsibility of the JSK lies with the Zilla Swasthya Samiti [ZSS], Sundergarh; RKS of the hospital and collaborating partner NGO.[*Sewak- Sundergarh*]. ZSS is responsible for overall advisory, coordination, supervision and monitoring of the project. ZSS is considered to be the competent authority to take necessary steps, as and when required, for the success of the project. The partner NGO is responsible for the operation of the round the clock helpline i.e. "Janani Sewa Kendra". They are expected to ensure recruitment of project staff and their capacity building. Besides providing tele-counselling, they also facilitate in directing the free referral transport to the requisite beneficiaries.

Zilla Swastya Samiti [ZSS] along with RKS of the hospital facilitates the operation at the ground level. They are responsible for maintaining the Janani Sewa ambulances stationed at the hospital. The overall operational system of the ambulance is regulated by the concerned RKS. All expenses for the operation of the Janani Sewa ambulance is borne by RKS which include the driver salary, mobile expenses, fuel expenses, etc. MO/IC of the RKS acts as the monitor of the project and ensures the attendance based on the request made by Janani Sewa Kendra for the free transportation of pregnant mothers.

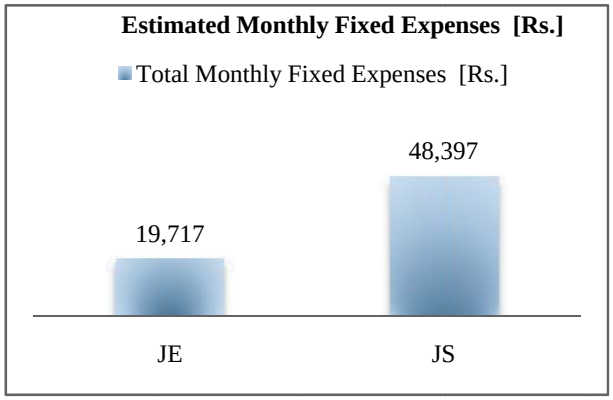
Table 7-Janani Sewa Project- Sundergarh Project Block Details

Sl. No	Name of the Block/ ULB	Name of the Hospital	Month of Inception	Description of Janani Sewa Ambulance	Name of the managing committee of the hospital
1	Sadar	DHH, Sundergarh	June,08	TATA 407	RKS, DHH Sundergarh
2	Rourkela	RGH, Rourkela	June,08	Maruti Omni	RKS,RGH, Rourkela
3	Biramitrapur	CHC II-Biramitrapur	Sept,08	Mahindra Marshall	RKS, Biramitrapur
4	Hemgiri	UGPHC, Hemgiri	June,08	Mahindra Marshall	RKS, Hemgiri
5	Lephripara	CHC,Sarigipali	Sept,08	Mahindra Marshall	RKS, Sarigipali
6	Balisankara	CHC, Kinjirikela	Nov,08	Mahindra Marshall	RKS, Kinjirikela
7	Bargaon	CHC, Bargaon	June,08	Mahindra Marshall	RKS, Bargaon
8	Subdega	UGPHC, Subdega		Mahindra Marshall	RKS, Subdega
9	Bisra	CHC,Bisra	July,08	Maruti Omni	RKS,Bisra
10	Lathikata	PCH, Birkera	June,08	Maruti Omni	RKS,Birekera

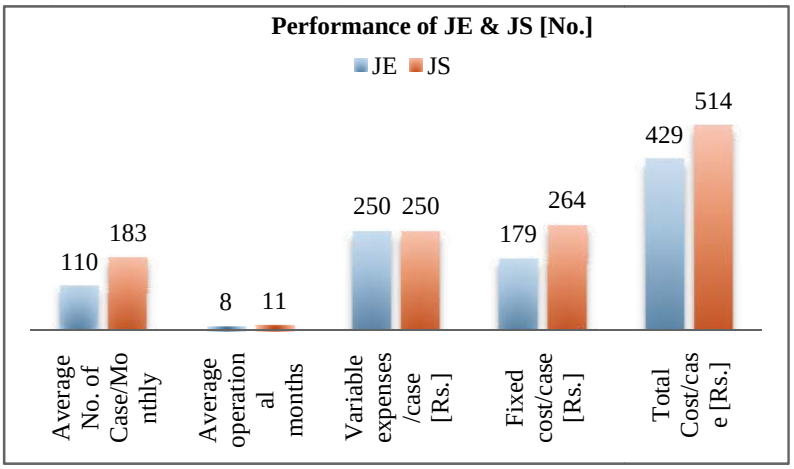
The annual budget for the project operation gets approved by SDPDS which pays the required amount to ZSS to manage the project. The establishment and operation cost for running the Janani Sewa Kendra is borne by Sundargarh District Periphery Development Society [SDPDS] with the monitoring and supervision support of ZSS. A separate Janani Sewa account is opened to bring in transparency in financial transaction process which is operated jointly by CDMO and district administrative manager [DAM]. The cost of operation and maintenance of Janani Sewa ambulance is borne by the RKS. RKS account gets credited with Rs 250/- per case meant for referral transport for institutional delivery under JSY package.

3.7 PROS AND CONS OF JE & JS

Both the models have beneficial dimensions and operational constraints. Though, in both the cases, Rs.250/- is paid for transportation of a case, still the overall expenditure incurred per case under the centralised model is substantially higher than that of the cost per case incurred under Janani Express [JE]. The Janani Sewa project having its call centre, expected to address more number of institutional deliveries by virtue of a central helpline and tele-counselling. Yet as on June 2009, after remaining in operation over a year[5] in ten blocks, the average number of cases addressed in the district per month is estimated to be 183 [secondary source of information] and average number of cases attended per block [10 blocks] is 18. Against JS, average number of cases attended by JE per block is 59 [calculated from secondary information]. Even, the cost per case under JS model is relatively higher at Rs.514/- against Rs.429/- in Janani Express [refer the models for details]. So, neither from the view point of the cost nor on attendance of cases, JS seems viable in comparison to JE. Though, centralised operational model expected to be more effectively regulated and systematic, still this model in Sundaragarh had its functional lapses for which JE seems more efficient and objectively driven than the JS model of operation.



The participation of NGO/private agencies makes the Janani express model better performance oriented in comparison to JS where operational responsibility lies with the RKS with the assured operating support for Janani Sewa ambulance by SDPDS, irrespective of the performance. Secondly, in-spite of the provision of better communication facility in JS in comparison to JE, there is a gap in coordination and regulation of the vehicles. As a result, number of cases addressed over a period of one year appears to be minimal.



[5] *[average month of operation-11 months- Janai Sewa Model /against 8 months under Janani Express Model]*

Table 8-Cross Analysis of two referral transport models in Orissa

Cross Analysis:		
Operational Aspects	**Janani Express**[6]	**Janani Sewa Project**[7,8]
Model	Decentralised	Centralised
Unit of operation	Block is the unit	District is the unit
Mode of operation	Janani Express operated by NGO	Janani Sewa is operated by RKS
Centralised Call centre Support	There is no such support	Janani Sewa Kendra acts a nodal point to take request for referral transport from the beneficiaries in the whole district
Revenue	All expenses are borne by NRHM	1. SDPDS fund the establishment cost of the Janani Sewa Kendra [JSK] and Janani Sewa Ambulance. 2. The operation cost of JSK is also borne by SDPDS. 3. The operational cost of Janani Sewa Ambulance is carved out from the ASHA package
Catchment area of free referral transport facility	Block is the catchment area	Even though they are placed in individual blocks there is a overlap of catchment area across project block

3.8 OUTREACH- JANANI EXPRESS

A **catchment area** is the area and population from which a city or individual service attracts visitors or customers. For example, a school catchment area is the geographic area from which students are eligible to attend a local school[9]. As per the estimation, on an average, about 165 pregnancies / deliveries conducted every year for 5,000 populations. Based on this estimation, it can be said that, if the population of a block is 1,00,000, on an average there would be 250- 275 delivery cases in every month and 8- 9 cases per day. So, it is expected that the transportation facility is required for 8-9 pregnant women per day and for 250-275 pregnant women in a month's period. As JE is placed at the block level, it can be expected to cater to the needs of this entire target population. But, operationally it is not so viable due to factors like inaccessibility, poor transport infrastructure, high transit time etc. The study attempted to understand the outreach of JE in two important areas i.e. geographical outreach and service outreach.

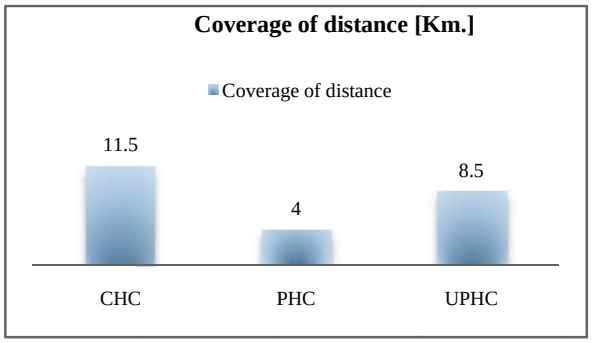
3.8.1 GEOGRAPHICAL OUTREACH

Normally, JE is expected to cover all the villages coming under the administrative purview of the block. Under the existing arrangements, where the JE is stationed at health institution, one delivery case requires 2 trips [involving to and fro from health institution to village in each trip] for pick-up and drop-in facility. In terms of geographical outreach, JE normally covers a distance of 11.5 Km in one side journey to cater to the need of pregnant women. JE attached with CHCs normally cover a longer distance as it is in a distant place. Coverage of more distance results with relatively higher transport expenses. So, in terms of profitability, RKSs of PHC manage to generate relatively higher amount of surplus out of Rs.250/- per case in comparison to CHCs. Secondly, excluding the financial aspect and examining the present performance of JE in terms of area coverage, each JE, on an

[6] *Based on the actual information of Soro Block, Balasore*
[7] *Based on the actual information for Average case-[HMIS] and District Budget Head, for Janani Sewa Project*
[8] *Detail financial calculation in annexure*
[9] http://en.wikipedia.org/wiki/Catchment_area_[human_geography]

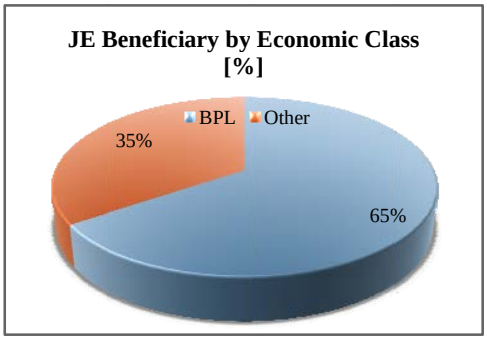
average, is facilitating ID cases within an easy approachable distance and its outreach to far off places or distant / inaccessible pockets is very nominal.

It cannot be put logically that case load in nearby area of the institution is higher than the distant place for which JE mobility is higher in such areas. Secondly, in the absence of call monitoring mechanism, it is difficult to deduce the call attendance by JE out of total call received from such remote / distant areas. With one JE attached to a block, it is viable to address desired number of cases [8-9 deliveries a day] only in closely accessible villages within a radius of 10-15 km but coverage of distant and inaccessible area remains a problem.

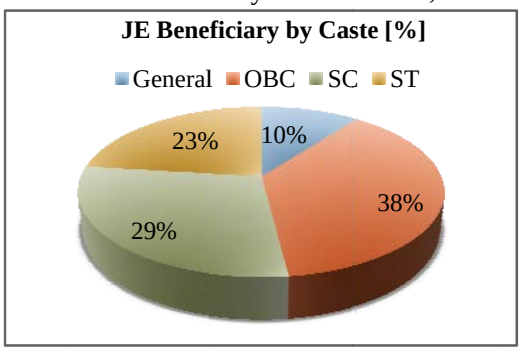


Examining the situation from the JE perspective, sometimes it is also not viable to cover a longer distance because of the road condition and inaccessibility nature of the region. Secondly, higher transit time does not make the vehicle convenient to approach a point. Mobility to such places may demand extra expenses in terms of operation and maintenance of the vehicle due to poor road condition. Most of the sample villages having JE beneficiaries are linked to the health institutions with all weather road barring a few, and most villages have pitched or semi-pitched connection. So, geographical outreach of JE for service delivery is mostly to the well connected villages within an average distance of 12 Km.

3.8.2 SERVICE OUTREACH



As JE is attached mostly with the PHCs and CHCs, by design, it caters to the need of the rural people where demand of such type of services is high. Other institutions having JE like district headquarter hospital, sub-divisional hospital etc., though placed in urban or semi urban set ups, they are also catering to the need of the rural mass as major numbers of case flow through JE is from rural areas. With limited local transportation options and poor socio-economic condition, it is not always feasible for a rural pregnant woman to approach the health institution for delivery. In such cases, JE has emerged as a supportive option. Secondly, the expense incurred by the economically poor families which is calculated to be Rs.376.65 [based on primary analysis findings] on an average for transportation, is a direct saving for the families accessing JE service. Field observation reveals that many families mortgaged their household assets to avail private transport facility to approach health institutions for delivery. Availability of JE for transportation is a great relief for such families. Service outreach of JE to the families living below



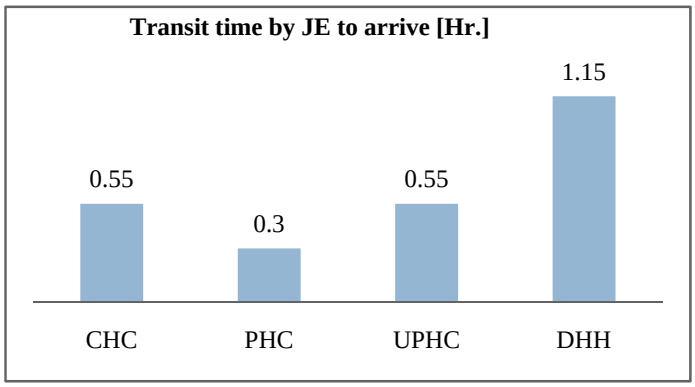
the poverty line [BPL] has helped them not only to save the expected expenditure to be incurred for hiring private vehicle but also promoted safe delivery. Beyond the service outreach to different economic segments, in the social front, JE proved to be an advantageous transportation means for the people belonging to different social segments. So, JE has been a preferred means of transportation for both socially and economically backward population segments in rural pockets.

Service quality is dependent on reliability, responsiveness and on-time availability of services. Quality of service provided under the free transport for delivery even become more vital. Unless backed with information on registered pregnancy cases, it is difficult to estimate and keep track of the transportation service requirements which will affect the quality of services. A common pattern which is observed in all the ID cases, irrespective of the accessibility to JE services for ID, is the "pregnancy registration". It is observed that all the pregnant women, those accessed free referral transportation, are registered. The highly significant correlation between ID and pregnancy registration is basically the contribution of JSY and thereby attached financial and non-financial provisions. These beneficial aspects seem motivating pregnant women to avail the cashless services of JE more and more.

In-spite of this, the assessment observes a synergy gap between pregnancy registration under JSY and planning for transportation facility through JE. There is no formal process in place to share the number of pregnancy registration with the JE operator and chalking out a transportation demand plan on monthly basis. With the infusion of technology and activating pregnancy tracking system, information consolidation as well as forecasting the demand for Janani Express would be easier. It would also support effective planning and placement of the vehicle as per the case concentration. In-building technology within the existing structure and effective facilitation in registration and information dissemination can help in improving the performance of Janani express in addressing maximum number of cases with reduced transit and waiting time.

3.9 TIMELINESS OF JE

Around 30%[10] of all women need emergency care during delivery and more than 90% of maternal deaths in India are preventable[11]. Delay in providing safe delivery raises the risk and increase the chances of maternal death. As the assessment reveals, on an average, the JE is made available for attending delivery cases within one hour of making call or contacting the responsible person [as per EMRI model, it takes 20 minutes[12]]. Time taken for arrival of JE at the beneficiary end normally varies by institution type that has JE services.



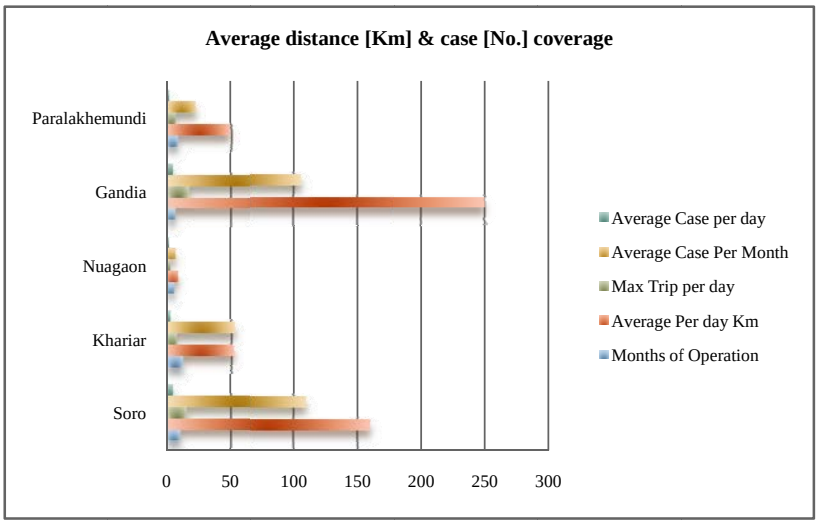
The vehicles attached with PHCs, normally take less time to arrive at the residential location of the beneficiary in comparison to other health institutions having JE. This is

[10] http://jsk.gov.in/maternal_mortality_ratio.asp
[11] FOGSI- www.prlog.org/10023999-more-than-90-of-maternal-deaths-in-india-are-prevantable-fogsi.html
[12] Study of Emergency Response Service - EMRI model-2009, MOHFW

basically due to the availability of the service at the closure by area. High transit time in other cases is basically due to distance factor and road condition.

So, from easy transportation point of view and making the vehicle available on-time to the beneficiary, operation of JE from PHCs or from any other nearest health institution seems more suitable. If it is estimated that the vehicle requires 2 minutes to cover one Km, then within one hour time, it can cover a maximum of 20 Km [start up and information dissemination time of 10 minutes after receiving the call is deducted]. So, average distance covered by JE for service delivery and time consumed by it is having a direct relation with each other. This signifies that free transport service of JE is more to the nearby accessible places rather than to distance / inaccessible places [time to be consumed in approaching inaccessible pockets expected to be more].

3.10 FREQUENCY OF MOBILITY OF JE



The mobility of the vehicle and total Km coverage varies from block to block based on various factors like local topography, distance of the location, request for vehicle etc. The average distance covered by Janani Express since inception as on Aug, 2009 estimated to be 104 km ranging from 250 km to 8 km per day. The maximum trip per day made by Janani express is 17 numbers attending nearly 8 cases in that particular day. A trip is understood as to and fro movement from health institution. In the existing arrangement, effectively two trips are made by the vehicle for each case which adds cost to JE operation.

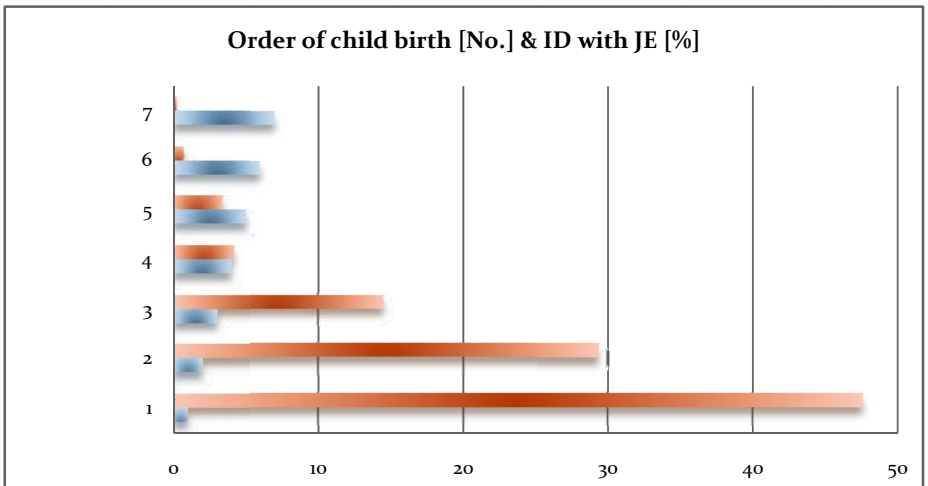
3.11 COMFORT & CARE DURING TRAVEL

From user's perspective, the vehicles used as JE, were normally comfortable [89%] and 87.5% users found the vehicle in good condition. Of the total users, 67.9% pregnant women travelled to the respective health institution by sitting, while 31.9% travelled by sleeping in the JE because of better comfort. In 93.4% cases, local ASHA accompanied the pregnant women along with the family member/s of the pregnant women. In around 95% cases, behaviour of the accompanier expressed to be satisfactory and supportive.

As per the common estimation by the beneficiary, average time taken by the JE to reach to the medical institution is one hour and more than that. Time consumed by the JE to travel from the

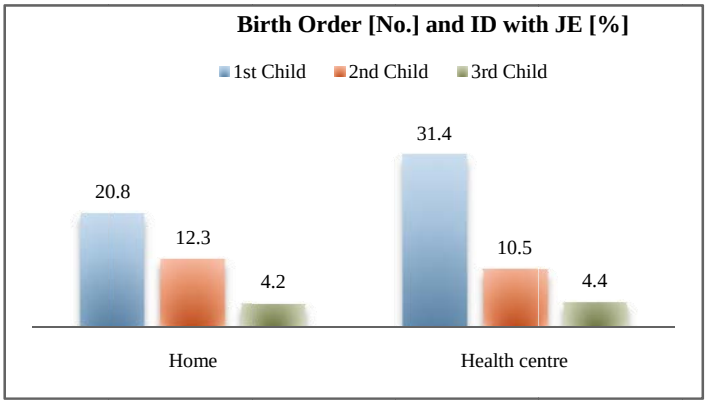
beneficiary end to the institution is relatively more than that from the health institution to the beneficiary end. Which means, during onward journey to the hospital, driver preferred to drive slow so that the pregnant women feels comfortable during the journey. This seems a very positive sign that driver is having due concern for the comfort of the pregnant women during journey. Perhaps, because of careful driving by the concerned drive coupled with road condition, arrival of the vehicle to the health institution, carrying the pregnant women, sometime gets delayed [11.3%]. The rate of pregnancy / delivery related complication during journey is not so prominent [2.7%].

3.12 ORDER OF BIRTH AND JE SERVICE ACCESSIBILITY



	1	2	3	4	5	6	7
ID with JE [%]	47.5	29.4	14.5	4.2	3.4	0.7	0.2
Order of Birth	1	2	3	4	5	6	7

It is commonly perceived that people prefer institutional care and delivery support for their first and/or second child. But, it is not always the first or second birth when women have accessed JE services for institutional delivery. In 23% cases, women preferred to have higher order of birth at the institution level. Accessibility to JE for first [47.5%] and second order birth [29.4%] is relatively high and together they comprise 77% of the total JE based ID. So, it can be inferred that accessing service of JE is not confined only to first or second order of birth. Secondly, with the increasing level of awareness and with the realisation of the benefit of institutional delivery [both financial and non-financial], there is a gradual shift in the delivery pattern at the rural areas. With JE facility; preference for institutional delivery is showing increasing trend and there is gradual reduction in home delivery. Availability of JE is one of the attributes for which women prefer to give birth to their child, even of higher order, at the health institutions.



Comparing the order of birth and place of delivery, it is evident that there is a gradual decline in the rate of home delivery and delivery in other places [excluding home and health institution] with order of birth. While cases of home delivery and birth of child in other places has declined significantly, institutional delivery rate for the first child with the use of JE is at its highest i.e. 31.4%. Even 12.5% families reported that JE services are availed by other pregnant women of their family. Of the total sample, 86% respondents are of the view that other families in the village also accessed JE service. Increasing demand and acceptance of JE service by people is basically attributed to availability of cashless transportation [96.6%] by which people manage to reduce the burden of expected expenditure.

3.13 EQUIPMENTS AND OTHER FACILITIES IN JE

As per the guideline, the JE should have certain minimum facilities like Stretcher, Ladder, Oxygen cylinder, emergency delivery kit, first aid kits etc. but in most cases, it is observed that limited facilities are available with the JE instead of all the prescribed facilities. For this reason, at the time of need, the driver or the accompanier is not in a position to meet the health requirement of the pregnant women, if so emerge on the way. As per the norm, it is the responsibility of the concerned NGO and RKS to provide these essential items on “as and when” basis. Non-availability of most of these health supportive materials has got a direct bearing on the cost factor and in turn it supports to both RKS and NGO to accumulate a greater amount of surplus at both the end.

Table 9-Facilities in JE available in respective blocks

SN	District	Block	Facilities				
1	Balasore	Soro	Antiseptic	Bandage	Cotton Wool	Water	Stretcher
2	Gajapati	Paralakhemundi	Water	Stretcher			
3	Nuapada	Khariar	Ladder	Water	Stretcher	Window curtain	
4	Nayagarh	Nuagaon	Stretcher				
5	Sundargarh	Lephripada	Stretcher				
6	Dhenkanal	Gandia					

There are some other facilities which are provided exclusively to operate JE effectively like supply of mobile phone to the driver, monthly recharge voucher to the medical officer and driver [Rs.200/- to Rs.250/-] etc. This helps in coordinating the overall operation of JE along with attending calls from ASHA / beneficiary, directing vehicle movement etc. As per the opinion of the drivers, in most cases, mobility of the vehicle to attend cases depends upon him. He attends the cases when he receives a call. There is no such system in place to know the place of call or how many calls he has attended against the total call received. As there is no such monitoring mechanism, it is easier to attain cases, as per the desire of the driver. Secondly, as there is no target of attending cases is attached, this makes the situation easier for the driver to avoid attending distant cases.

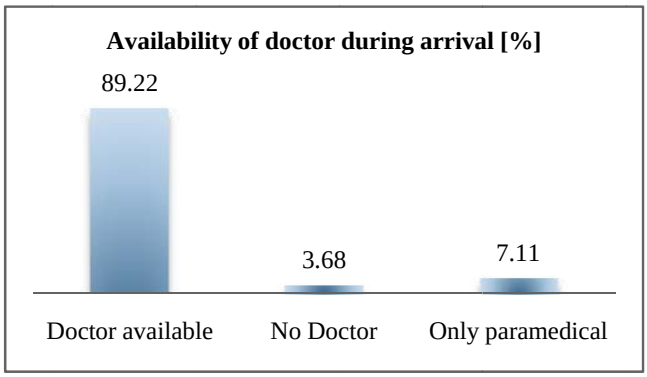
3.14 BEHAVIOURAL DIMENSIONS- DRIVER, MEDICAL & PARAMEDICAL

For accessing JE, local ASHA has been instrumental in a majority of cases [88.2%]. But, at the same time, it is also observed that deduction of Rs.250/- from the financial incentive of ASHA is de-motivating for which a few ASHA workers do not encourage free transportation of pregnant women through JE [case of Nayagarh]. Rather, they prefer to advice for the use of private vehicle for in-time

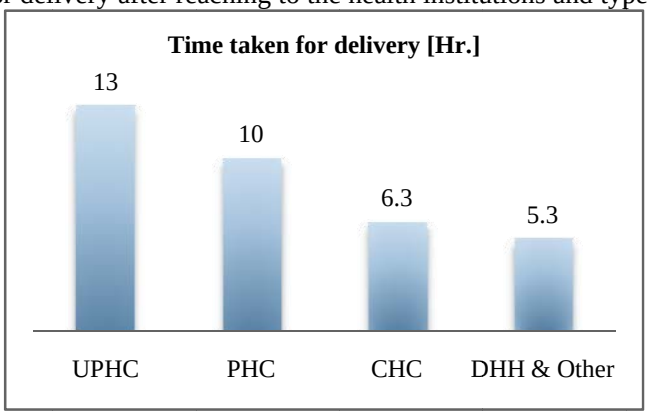
transportation of pregnant women to health institution for delivery. Use of private vehicle for transportation helps them to save Rs.250/- per case which is normally deducted from the ASHA package towards transportation.

Though, making any payment by the beneficiary to avail the facility of JE is prohibited as per the norm, it is observed that as low as 2.9% beneficiaries have paid [average of Rs.118/-] informally and amount of payment made in case of CHC is comparatively more [average of Rs.127/-] than that of PHC [average of Rs.72/-]. Payment is made either to the ground level health service providers or to the medical personnel. But, it is not a common practice as majority of the beneficiary deny of making any payment for availing JE

3.15 INSTITUTIONAL HEALTH CARE SYSTEM AND SUCCESS OF JE



Availability of health facilities and presence of medical personnel, where the pregnant women is approaching for delivery, play a crucial role. It can be established that quality of service delivery at the institutional level and care of medical personnel significantly contribute to augment the institutional delivery rate. Of the total JE availed ID cases, in majority cases, the doctor was present in the hospital during the arrival of the pregnant women for delivery. In 11.5% cases, doctor arrived late in the hospital for attending delivery and the time of arrival varies between 30 minutes [in 6.6% cases] to 2 hours after the arrival of the pregnant women. In the absence of the doctor, it is mostly the paramedical personnel who took care of the pregnant women. Along with general pregnancy cases, critical cases, transported by JE [11.8%], were also attended by paramedical personnel in many cases. Time taken for delivery varies by case and estimated average time of delivery, after reaching to the institution, is estimated to be 9 hours and after leaving home is 10 hours. When compared the time taken for delivery after reaching to the health institutions and type of health institutions pregnant women approach for delivery [where JE is there], it is observed that time consumed for delivery after reaching to the institution vary by institution type and highest time taken is by UGPHC. As, transportation facility was provided through JE to the pregnant women, there was little scope for the beneficiary to approach any other health institution. Secondly, for delivery, many families [46.6%] have paid to the medical / paramedical personnel at the health institution and the amount of payment vary from Rs.20/- to Rs.20,000/-. Average amount of payment made by the families at UGPHC level is comparatively high [Rs.1258/-] than CHC [Rs.438.5], PHC [Rs.387.5] and other health institutions [Rs.472/-].



3.16 SUPPORTIVE ARRANGEMENT

Examining the situation from driver's point of view, service of a driver is expected 24 hours a day which is not humanly possible. As a result, reluctance of the driver seems quite genuine. It results in avoidance of cases from attending, which ultimately affect the ID rate of the district / block. As there is no extra driver provision in the JE vehicles, non-attendance of calls or avoidance of call seems a common practice. On the other hand, the operator is expected, as per the contract, to place supportive arrangement in case there is a breakdown of the vehicle. There have been instances from the sample blocks where support service was provided during the breakdown of the vehicle.

3.17 MONITORING AND SUPERVISION MECHANISM

Internal Control and Monitoring Mechanism for every scheme is necessary to ensure that the scheme is operational in adhering to guidelines and achieving the desired objective effectively, efficiently and economically. As it is assessed, RKS is basically responsible for making payments to the vehicle operators. Due verification of vehicle log book with ID register is done by MO/IC, based on the findings; RKS make necessary payment on actual basis. But, the log book and institutional delivery register are not standardised which makes it difficult to capture important information accurately. Secondly, it also does not help to generate standard and uniform information and hence does not act as an essential document for monitoring. There is no defined monitoring and supervision guideline for reconciliation of log book with the institutional delivery register. This gives rise to inconsistency in recording of cases in log book versus institutional delivery register which supports the scope of manipulation of the log book. As per the design, the number of cases reflected in the logbook should have mentioned in the ID register. But observation reveals that there are differences and both the registers does not reconcile. As a part of the practice, monthly performance report in the prescribed format is submitted to CDMO/DPMU by the JE attached health institution. This is again compiled and consolidated in a prescribed reporting format at the district level by DPMU for submission to NRHM, Orissa.

3.18 CALL MONITORING AND TRACKING SYSTEM

Janani Express being a round the clock transportation scheme for institutional delivery, service accessibility is based on communication of information with the use of telephone. With high mobile penetration, JE service is accessible easily by making a call either to the health institution or to the driver. As, the medical officer and driver, both are given a cell phone, this has been an operational advantage of the scheme.

In order to facilitate the on-time availability of services of JE, the movement of vehicle as well as call needs to be tracked which would necessarily bring in systematic tracking of the whole operations. This would enable better service quality and increase the effectiveness of the free transport model. Under existing arrangement, there is no scope for call tracking which makes it difficult to monitor the number of calls and the responses of the service providers. This could have ensured an internal check on the driver's mobility and response along with devising supportive arrangement to attend the cases. Tracing each call made to JE can help in ascertaining the actual cause of delay and bring in effective changes to improve the level of performance. The readiness and willingness of the drivers or service

providers can be addressed effectively and by this improvement can be made in the effectiveness of the scheme. This would build confidence among community by setting standards of responsiveness, reliability and availability of the services. Importance and contribution of call tracking system can be assessed from the EMRI operational model. With adequate number of ambulances, call tracking system ensures that ambulance reaches the beneficiary within 20 minutes[13]. Even though the EMRI model is capital intensive, yet it is able to achieve the desired results with the support of such monitoring and tracking system.

3.19 PERFORMANCE PARAMETERS

In the whole operation of JE, the vehicle operator plays an important role in ensuring on-time availability of the vehicle at the beneficiary end. It is basically the responsibility of the concerned RKS to monitor the performance of the operators. But, no such performance assessment parameters are in place to judge the performance of the operators and to take suitable measures accordingly. As basic performance standards are not fixed along with less adherences to incentive and penalty provisions, performance of JE operators is not influenced to increase case load per vehicle.

3.20 REVENUE AND INCENTIVE STRUCTURE

Table 10-Revenue and Incentive Structure of Sample JE and JS Blocks

Particulars	**Level**	**Cost norm for JE**	**Cost norm for JE**	**Cost norm for JE**
Paralakhemundi	Block	Rs.15800/- per month towards the vehicle rent	Fuel cost – 1 Lt./10 km	Mobile allowance of Rs.250/- to driver paid by RKS
Gandia	Block	Rs.14500/- paid to vehicle owner on monthly basis	Fuel cost – 1 Lt./10 km	Mobile allowance of Rs.250/- to driver paid by RKS
Soro	Block	Rs 14800/- paid to vehicle owner on monthly basis	Fuel cost – 1 Lt./10 km	Mobile allowance of Rs.250/- to driver per month, Incentive of Rs.10/- for each additional case above 50 cases and 1500 Km per month. Rs. 20/- for additional case above 100 with a minimum of 2500 Km per month.
Nuagaon, Nayagarh	Block	Monthly Rs.14000/- paid to vehicle owner on monthly basis	Fuel cost – 1 Lt./10 km	Mobile Allowance of Rs 250 to driver paid by RKS
Khariar, Nuapada	Block	Rs 12000/- paid to vehicle owner on monthly basis	Fuel cost – 1 Lt./10 km	Mobile Allowance of Rs 250 to driver paid by RKS
Lephripada, Sundargarh	Block	Operation expenses borne by RKS	Fuel cost – 1 Lt./10 km	Mobile Allowance of Rs 250 to driver borne by RKS

Source: Secondary information from district and block health units

3.21 ADEQUACY OF JE

Vehicles of different types and models are used as JE in the sample districts. Based on the geographical area of the block, it is observed that the coverage of JE varies from a high of 872 villages [in Paralakhemundi block of Gajapati] to a low of 43 villages [Lephipada block of

[13] *Study of Emergency Response Service - EMRI model, National Health Systems Resource Centre*

Sundargarh]. Accordingly, population catered by the JE also varies between 83081 [Sundargarh] to 301185 [Gajapati]. As per the estimation, expected number of annual pregnancy / delivery to be incurred per 1,00,000 population is 3000 which means an average of 250 cases per month and 8 cases per day. Based on this calculation, if Paralakhemundi block is considered, expected annual delivery would be 9000 [as population is just above three hundred thousand], i.e. 750 cases per month and 25 cases per day. Attending one case per day, with the existing arrangement, requires on an average 4 hours i.e. one JE can attend a maximum of 6 cases in a day while requirement of addressing 25 cases per day is there in this block. So, it is not possible for any single vehicle to attend such demand alone for which other options need to be explored which can cater to all delivery cases efficiently, contributing to the ID growth. Two options seem more feasible in this regard i.e. either increase in the number of JE in such blocks or incorporate private vehicles for transportation in collaboration / empanelled mode to attain maximum ID.

Table 11- Operational details of JE in sample Blocks

SN	District	Block	JE Inception Year/Month		JE Coverage Villages	GPs	Population
			Year	Month			
1	Balasore	Soro	2008	Nov	284	22	136000
2	Gajapati	Paralakhemundi	2009	Jan	872	24	301185
3	Nuapada	Khariar	2008	May	114	18	116428
4	Nayagarh	Nuagaon	2009	April	220	20	90000
5	Sundargarh	Lephripada	2008	June	43	19	83081
6	Dhenkanal	Gandia	2009	March	165	27	137525

Source: NGO and Driver

3.22 FINANCIAL VIABILITY OF JE

As per the scheme design, cost is incurred at three different levels, i.e. by NRHM, by JE operator and by the concerned RKS, under different heads. As calculated, cost per case incurred by RKS out of the receipt of Rs.250/- is Rs.207/- while NRHM incurs an expense of Rs.429/- for ensuring one institutional delivery [example of Soro]. Expenditure details with assumptions are reflected in the table below.

Table 12- Expenses–Janani Express Model

[Modelled with Balasore- Soro Block average case load and distance]* with assumptions

Expenses Sheet	NGO in Rs.	RKS in Rs.	NRHM in Rs.
Capital Cost			
Mobile/facilities Phone cost	2,000	-	
Uniform cost	1,000	-	-
Annual IEC expenses	-	-	5,000*
Operating Cost monthly			
Lump sum payment	-	-	14,800
Deferred Revenue Expenditure			417
Mobile/facilities Phone cost[monthly apportioned]	167		-
Uniform cost [monthly apportioned]	83		
Maintenance expenses	1,000	-	-
Rental- Vehicle	7,000	-	-
Driver Salary	3,000	-	-
Driver Mobile Voucher	300	300	

MO Mobile Voucher		300	
other Administrative expenses	500		4,500*
Fuel Expenses	-	21,654	27,500
Other facilities expenses[First Aid Kit, etc]	-	500	
Total Expenses	**12,050**	**22,754**	**47,217**
Cost per case		207	429
Fixed expenses			19,717
Variable			250
Fixed cost per case			179
Note: Kindly refer the worksheet for detail assumptions*			

Table 13- Expense Assumptions of JE

[Modelled on Soro Block- Balasore]	
Monthly Vehicle Rent [Rs.]	7,000
Life of a mobile in months [No. of months]	12
Life of Uniform in months [No. of months]	12
Life of other facilities in months [No. of months]	24
Driver monthly salary [Rs.]	3,000
Lump sum Payment to NGO [Rs.]	14,800
Mobile Top Up Voucher [Rs.]	300
Block Covered [No.]	1
Petrol cost per litre [Rs.]	45
Per case Transportation cost reimbursed [Rs.]	250
Rate of reimbursement per km/litre [Km.]	10
Consolidated monthly salary of DPM,BPO,BADA [Rs.]	30,000*
Actual Average Km travelled per month [Km]	4,812
Actual Average Case per month [No.]	110
Note - Kindly refer the worksheet for detail assumptions*	

3.23 OVERALL CONTRIBUTION OF JE

Looking at the situation of sample districts, it is evident that status of institutional delivery has increased significantly where JE is attached. Though, availability of JE service has contributed appreciably for increasing ID situation, still it cannot be considered as the single factor for improving ID. There are many other factors which are responsible in this regard like increasing health awareness among the people, exposure to outside environment, and financial provision under JSY for ID etc. But, JE with transportation facility accelerated the process of ID in the block in an average of 8 months time. If with one JE, ID status of the block / district can improve when they cater to only a part of the total pregnancy cases, with more number of such facilities, ID status can be augmented further achieving the overall mandate of the NRHM. So, it is highly essential to develop a model that can add value to the existing arrangement making it more viable operationally and also feasible from cost point of view.

Table 14- Sample Block and District Institutional Delivery Information

Particulars	Level	Pregnant Women	Institutional Delivery	
			2007-08	**2008-09**
Sundargarh	District	12285 [Up to Aug 2009]	INA	INA
Lephripada	Block	INA	INA	INA
Dhenkanal	District	INA	68%	81.40%
Gandia	Block	INA	INA	INA
Balasore	District	2007/08-38529, 2008/09-37176	63.93 %	72.34 %
Gajapati	District	2007/08-12591, 2008/09-14099	32 %	41%

Table 14- Sample Block and District Institutional Delivery Information

Particulars	Level	Pregnant Women	Institutional Delivery	
Soro	Block	2008/09-3347	INA	INA
Nuagaon, Nayagarh	Block	INA	INA	INA
Nayagarh	District	2007/08-18701, 2008/09-18519	10778 No.	12857 No.
Khariar, Nuapada	Block	INA	INA	INA
Komna, Nuapada	Block	2008/09-3574	553 No.	874 No.
Nuapada	District	2008/09-16254	40 %	52 %

Institutional delivery percentage is out of the total registered cases
Source: Secondary information from district and block health units

When there was no JE facility, accessibility of the pregnant women to the health institutions was basically through various other localised means. Apart from hiring the local vehicles / private vehicles, pregnant women were also travelling to the health institutions by means of cycle, trolley, tractor, manual carriage using cot, using personal bike or bike of other families etc. First of all, reaching to the health institution by these means was not safe and secondly the problem was getting aggravated especially during night time. With the provision of JE, these sorts of problem have minimised to certain degree but some of these means are still adopted by people due to various reasons.

Table 15- Suggestions for improvement of JE operation and health services

Respondent's perception
Requirement of more number of JE to meet the increasing demand
Refraining medical / paramedical personnel from financial demand
Provision of required no. of beds in the health institution
Provision of more medical staff to take care of the delivery cases
Behaviour of medical staff need to be changed
Health care facility required with JE during travel
Financial demand by ASHA & driver need to be stopped.
JE amount to be increased as beneficiary pay to medical staff
Provision of waiting hall for attendant & ASHA at Hospital
Sleeping provision in JE can help to pregnant women
Two way transportation facility
Doctors demanding money for giving discharge certificate need to be stopped
Making alternate driver provision with JE
Bucket, Saline stand, water should be there with in JE
Emergency Medicine should be available with JE
ASHA should aware community on JE
For 2nd referral case [false pain case], JE should be provided
Provision for using JE in other medical emergencies
Measures to minimising the distance of JE station from village
Arrival of JE in time should be mandated

Successful delivery of service by JE in many pockets have created more expectation among the people and demand for more number of JE in their area while, related to health services, people are having different expectations which are basically related to improving the quality of services rendered by the health institutions where JE is attached. As it is evident from the assessment, JE has contributed significantly in terms of making transportation facility available at people's door step. With the provision of free transportation, it has contributed to the improvement in overall institutional delivery in concerned blocks. As per the analysis of available secondary information, in all the sample

blocks, contribution of the health institution where JE is attached is significant and in all cases. While, in blocks like Lephripara where contribution of JE attached health institution to the overall ID of the block is 100%, in all other blocks it is more than 80%. In blocks like Khariar, Nuagaon etc. overall contribution of the JE attached institution to the block ID reflects a declining trend because of the accessibility of people to other government and non-government health institutions for delivery in the given catchment as well as to outside.

CONCLUSION

Adhering to the basic premise of rolling out of Janani Express to provide free transportation facility for pregnant women to health institutions, it seems that the scheme is heading steadily towards its objective. As the operation of the scheme is on an average eight months old, it will be early to judge the impact. As the trend shows, it has contributed significantly in providing transportation facilities to the pregnant women in rural areas. By this, it has contributed in improving the ID situation at the block level. Round the clock free referral service has also made significant contribution in reducing the heath related expenses of the families. With the active participation of private agencies in the operation of transportation system, it has created a scope for improvement of service quality and performance.

The focus of the referral transportation is to cater to the need of the beneficiaries in the overall catchment area. But the penetration of service is limited to the nearby places of the JE attached health institutions. For better case attendance and expanding service outreach, the operational system in place is assessed to be inadequate for which approaching to distant places remains to be a constraint. Due to the availability of free referral transportation, preference of people for institutional delivery has gone up and in many families; more than one pregnant woman have accessed the service. It has resulted with declining of home delivery. On the other hand, though it is provisioned to have certain support facilities in the vehicle for attending emergency cases, still in many vehicles such provisions are either not available or not adequate as per the laidout norm. Concerns also remain when doctor is not available at the health institution during the arrival of pregnancy cases and paramedical personnel attempt to handle the situation. Though, such cases are not common, still this type of incidences affect the overall objective of institutional delivery promotion. Looking at other side of the service quality, it is evident that the normal time taken by the vehicle to reach at the beneficiary end is around one hour which is required to be reduced through appropriate operational arrangement. This is basically due to non-availability of required system in place for call tracking and directing the vehicle movement.

The study observes that in many cases, operation of JE has induced changes in the ID status but cost of operational is not so economically framed. Non-availability of any incentivising or penalising provision neither motivates to the operator nor does it help to improve the performance. As a result, expected achievement is not realised in many JE attached health institutions. Present structural and operational arrangement contributes less in enhancing the performance standards. As per the present arrangement, free referral transportation is confined only to the availability of the JE vehicle whereas there is potentiality to make use of other transportation means. The present placement arrangement of the JE vehicle contributes in increasing transit time and hence its availability during critical needs is not ensured.

Based on the findings and realising the scope of performance improvement, it is important to restructure the existing operational model and accordingly, two models are envisioned i.e. decentralised operational model and centralised operational model. Restructuring is in terms of

introducing two important components i.e. call tracking and pregnancy registration. Apart from that, it is suggested to have differential entitlement vouchers making it free for the pregnant women to access any vehicle, convenient to them, for transportation. Provision of referral transport system with target based incentive structure is expected to be the overall contributing factor in enhancing the ID situation of the state. Both the models would support flexibility at the end of the beneficiary to use different vehicles and empowering the beneficiary. These suggested models also strength the performance parameters in a public private partnership approach.

SECTION FOUR
RECOMMENDATIONS

Based on the assessment findings, the study team here by recommend restructuring of the existing operational model of JE, which is more objective driven and having less operational bottlenecks. Secondly, the proposed model is framed in such a manner that it is more financially viable with reduced cost per case with targeted case load per vehicle. The proposed model/s of structural and functional adjustment is based on the understanding of the team members during the study process.

4.1 Reasons of Structural and Functional Adjustments

1. Janani express, being placed at the tagged institution, makes it operationally difficult to reach to the interior / relatively less accessible pockets when required.
2. The transit time is more in case Janani Express travelling from the tagged institution to the beneficiary village and pick up the beneficiary back to the institution. Due to time consuming process, the beneficiary prefers to use private vehicle for the purpose of transportation.
3. Due to the same reason, utilisation of Janani express is more frequent in village in accessible proximity to the institution. While, villages at a distant place having less accessibility due to poor communication infrastructure get the least benefit of Janani Express.
4. The present operational arrangement along with monitoring & reporting system of Janani Express creates scope for under utilisation of Janani express and by that addressing less number of ID cases as no such ID target or coverage is attached to it.
5. There is no such facility in place to track the number of calls made to avail the facility of Janani Express against the number of times call has been duly attended
6. There is a scope of registering false cases which increase the operating cost of the JE
7. JE being attached to one institution make it mandatory for the beneficiary to go to that institution only irrespective of her choice and geographical constraints.

In order to address the above issues, attempt is made to devise a workable model by which Janani Express can perform in a more efficient and cost effective manner contributing to the overall goal of the NRHM in terms of increasing the institutional delivery rate.

4.2 DECENTRALISED VOUCHER MODEL

"Decentralisation *is the process of dispersing decision-making governance closer to the people and/or citizen. It seeks to redistribute authority, responsibility and financial resources for providing public services among different levels of governance. It is the transfer of responsibility for the planning, financing and management of public functions from the central government or regional*

governments and its agencies to local governments, semi-autonomous public authorities or corporations, or area-wide, regional or functional authorities"[14]

The model is about empowering the process and structure at the bottom which would bring about radical changes at the top. The Decentralised Model of JE operation is to create more options at the people's end in order to exercise their entitlements along with augmenting the ID growth rate in the state. As the decision making process in this operational model is based on people's choice, and JE operation is regulated more on expected ID prevalence rate, this model is suitably termed as Decentralised Operational Model.

4.2.1 OVERVIEW OF THE MODEL

This model of providing free transportation to pregnant women for promoting institutional delivery would work with block as a unit. All the beneficiaries under that block would be provided with an entitlement voucher [differential value] with specific value [voucher value will be calculated based upon specific parameters which are elaborated later in this section] which can be used for transportation to institutions for delivery. The beneficiaries are free to choose any private mode of communication available at their village for travel to the nearest health institution, which is having the facility and provision for handling institutional delivery cases. At the institutional point, the beneficiary can reimburse the entitlement voucher by approaching to the competent authority after reaching to the health institution. Again, the private vehicles to be used can be of two types, i.e., empanelled vehicles [vehicles registered / listed with the local NGO or ASHA or with health institutions for the purpose of ID cases] and vehicles that are not empanelled but can be used at the time of requirement. This will give more options to the expecting mothers to avail the transportation facility in time for institutional delivery.

In this model, Janani express would also work along with private vehicles and empanelled vehicles to make transportation facility available at immediate reach of each beneficiary. The villages / GPs in the block will be segregated as accessible and inaccessible areas for the purpose based upon the communication facility and distance from the health institution/s having required delivery facility. The segregation of accessibility and inaccessibility would be based on the road network and communication facilities available. This would help in placing the Janani Express in inaccessible area and relying more on private and empanelled vehicles in the accessible areas.

The basic premise on which this model is placed related to the primary field observations are

1. Beneficiaries are finding it difficult to access Janani Express since it is located at PHC/CHC which takes a lot of time to come to their place and pick them up for delivery.

2. The revenue structure of NGO/Pvt. agencies are not linked with cases addressed which makes a great gap in addressing their performance. The incentive given to them linked with cases addressed will bring in competitive environment and address the objective of increasing institutional delivery rate.

[14] http://en.wikipedia.org/wiki/Decentralization#Administrative_decentralization

4.2.2 PROCESS FLOW AND MAP

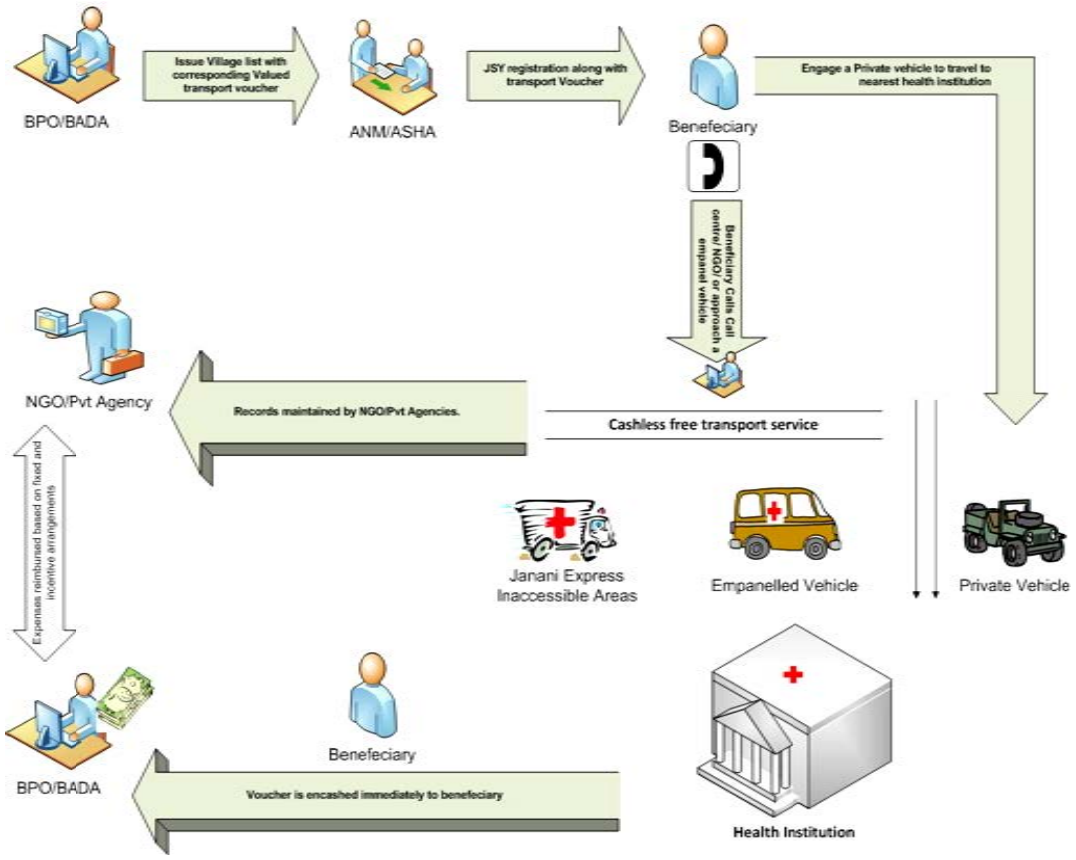


Figure 7-Process Flow - Decentralised Vouche Model

4.2.3 DIFFERENTIAL VALUED VOUCHER

Differential valued voucher would be used to average out the expense on transportation for each case so that the overall expenses would remain the same and the objective of addressing beneficiaries at far of areas under the scheme can be fulfilled.

In earlier arrangement, the reimbursement to RKS per case was fixed at Rs 250/-, who in turn could able to manage the surplus generated from cases from nearby villages for travel of Janani Express to far off places. In this voucher scheme since the power to en-cash the amount of transportation remains directly with the beneficiary, so the utilization of surplus to address higher transportation cost at far of places cannot be exercised. For the same, differential valued voucher would be introduced which would widen the scope of mode of transportation facility along with accessing scheme benefits. This

will also help to the beneficiary to choose easy means of transportation as per her convenience and selection of health institution where she wants to deliver her child.

For the introduction of the differential valued vouchers, villages under each block would be segmented to 4 different levels. Categorisation of villages to different levels would be based on the standard approachable distance of that village to the nearest health institution capable of handling institutional delivery cases [PHC/CHC/SDH/DHH] and having its presence within the block. So, each village will be mapped as far as its distance from such institution/s is concerned considering the distance of the village from the nearest health institution as the benchmark.

Value of the vouchers would be determined based on the actual expenses expected to be incurred with certain amount of service charges in each level/range of villages. Based on the above range, vouchers of different value would be introduced which is to be distributed to the beneficiaries of the respective village during the registration of pregnancy. A record of issued voucher will be kept at ANM/ASHA level and a copy of the list will be submitted to all the health institutions operating within the administrative boundary of the block having delivery facility.

The self adhesive voucher would be of different value based on the discussed parameters and would capture valuable information which can be utilized further to track the ID cases by village, GP, block and institution.. Each voucher of different range may be of different colour for easy identification with printed value of the voucher.

Specimen of a Voucher [To be crossed / stamped after payment]]			
Voucher number	*District code*	*Block Code*	*Village Code*
Voucher Range [A/B/C/D/E]	*XXXXX*	*Amount- Rs XXX*	*Institution Attached*
JSY Card number	*Sign MO/IC*	*Sign of the beneficiary/representative*	
Mode of transport	*Pvt. Vehicle Seal- BADA*	*Empanelled Vehicle Sign Driver*	*Janani Express Sign Driver*
Crossed after Payment		*Cashless Seal- to be paid to NGO/Pvt Agencies*	
Voucher must accompany JSY card for payment. In no case money should be disbursed to the beneficiary, if travelled by empanel vehicles or Janani Express			

4.2.4 DISTRIBUTION OF VOUCHER

In order to streamline the distribution of free transport vouchers for institutional delivery, administrative set up used for distribution of JSY card could be engaged. This would bring in discipline as well as increase the internal control mechanism. The vouchers would be self adhesive ones which need to be pasted either on the front or on the rear part of the JSY card. This would make self authentication of the voucher encashment process. So, in all the delivery cases, carrying JSY card with fixed voucher could be made mandatory and as a result, scope of manipulation will be prevented.

Each ANM / ASHA [whoever is felt suitable for the purpose] would be given differential valued vouchers based on the category of villages they cover. To make the process simple, detail list of villages and the specific value of the voucher attached to each village would be provided to the ANM / ASHA before hand to facilitate distribution of appropriate value of vouchers to each beneficiary

based on the village they belong to. In-case of existing JSY card holders, ASHA under the guidance of ANM would distribute the vouchers to the pregnant women and paste the same behind the JSY card.

4.2.5 UTILISATION OF VOUCHER

In the decentralised voucher model, one can avail the cashless facility with the voucher by using empanelled vehicle available at the village/GP in case of accessible range of villages or Janani Express in case of villages at inaccessible range. . In case, if someone is availing JE or empanelled vehicle for transportation, in such cases, she will not be entitled to en-cash the voucher rather the value of the voucher will be reimbursed to the managing NGO / private body. The driver of the empanelled vehicle and Janani Express managed by NGO/Pvt. would cross the voucher for their reimbursement. This would waive the requirement of instant cash for travel.

4.2.6 PLACEMENT OF EMPANELLED VEHICLE AND JE

In order to make transportation facility available to each beneficiary at their door step, the facility of empanel vehicle is introduced. NGO would be the facilitator to empanel local vehicle for transportation of pregnant mothers for institutional delivery as well as for other emergency health services. Empanelment of vehicle would be facilitated at each GP/Village level to meet the objective of making transportation facility available at people's door step.

Each village/GP would have a list of empanelled vehicles, which along with other private vehicles would support the scheme in accessible villages. By this, JE would be relatively free to cater to the need of the people at remote / inaccessible / distant villages. Janani Express will concentrate in inaccessible / distant villages along with the empanelled vehicle and other private vehicles. The empanelment would be review by NRHM authorities with specific guidelines

4.2.7 GUIDELINES FOR EMPANELMENT & OPERATION BY NGO/PVT.

Janani express would work along with private vehicles and empanelled vehicles placed at each Village/GP to make transportation facility available at immediate reach of each beneficiary . Janani Express would operate under existing guidelines and terms and condition with modification in the revenue structure to make it target oriented and cost effective. In the re-casted revenue structured, provision of incentive and fixation of bottom slab for addressing ID is proposed so that cost incurred by NRHM can be recovered in shape of achieving growth in ID cases. Along with this, it is proposed to place JE in inaccessible / distant areas to facilitate effective and timely transportation of beneficiaries from such places.

To facilitate the placement of Janani express in inaccessible / distant places, all the villages in the block will be segregated as accessible and inaccessible / distant areas as discussed earlier. Janani express would be strategically located in inaccessible areas based on two parameters

- Registered Pregnant Mothers
- Population Density
- Expected numbers of Delivery cases- On Month or fortnight basis

This would help in placing the Janani Express in inaccessible area where probability of request for the facility is higher. NGO are free to empanel as many number of private vehicles with a minimum cap and prescribed guidelines. This would help them to increase their operational efficiency. Apart from using empanelled vehicle for institutional delivery transportation support, they are free to use these vehicles for any emergency response services [ERS] with standard payment from citizens. It will help in increasing the financial viability as well as improve the existing mode of ERS.

4.2.8 REVENUE AND INCENTIVE STRUCTURE

As per the existing arrangements, the NGO/Pvt. agencies are being paid a lump sum of Rs 12,000 to Rs 14,500 along with the actual oil expenses @ 1 Lt per 10 Km to manage the Janani Express. This fixed lump sum amount is being paid irrespective of number of cases addressed by the JE in a month's time whereas fuel expenses is dynamic and dependant on the distance coverage as reflected in the logbook. Practically, neither any incentive structure is in place to motivate the NGOs for facilitating more ID nor any penalty provision is there by which there will be deduction from the fixed amount if minimum ID cases or distance is not attended. As a result, it happens that some NGOs have not paid required attention in promoting ID and very less coverage is reported by them [case of Nayagarh]. Secondly, from the point of view of cost effectiveness, expenses incurred are not compensated with increased or sizeable number of ID. So, looking at the prevailing situation, it is proposed to have a minimum level of ID target per each JE [based on the findings of pregnancy tracking system or based on the projected number of expected pregnancy cases] on monthly basis for certain amount. Beyond the minimum level of achievement, incentive structure is thought of in different slabs of ID achievement. Introduction of incentive structure in the existing arrangements would help in monitoring and improving the performance of the NGO/Pvt. agencies and would in turn motivate them to achieve maximum number of cases through the JE facilities.

The fixed lump sum revenue, received earlier by the JE operators would be restructured with proper incentive arrangements with a base case load or average distance coverage per month. Over and above, the attractive incentive structure would be introduced with differential range of ID targets.

They JE operators will receive the same amount as mentioned in the voucher of the beneficiary on helping the beneficiary to reach to the nearest health institution, either through JE or empanelled vehicles. Over and above the value of the voucher, they will receive an incentive upon achieving a prescribed number of cases in both accessible and inaccessible areas. The JE operators are free to devise their own incentive structure for the vehicles empanelled under them in consultation with the empanelled vehicle owners.

The Incentive Structure is devised in two different models

- Fixed Base Slab Incentive Model
- Proportionate Base Slab Incentive Model

The above arrangements will motivate the NGO/Pvt. agencies to attract maximum number of cases in accessible areas through empanelled vehicles as well as create a space of incentive in inaccessible areas. This will help the system in motivating the NGO/Pvt. agencies to participate in the process effectively and in turn ensure that maximum numbers of institutional deliveries are address through free transport facility. This will reduce the scarcity premium paid by the beneficiaries to private vehicles for transportation to health institutions.

4.2.9 ROLES AND RESPONSIBILITIES

4.2.9.1BLOCK PROGRAMME OFFICER [BPO]

The BPO would be the authority to prepare the range of villages as mentioned above and allocate value of voucher to each village. The list thus prepared would be circulated to ANM and if required would be updated at BPO's end. He would ensure proper accounting of the vouchers issued, distributed and collected covering the whole cycle of voucher system. The disbursement of amount to beneficiaries or NGO/Pvt. agencies would be at his disposal with support from BADA and due verification by MO/IC.

4.2.9.2BLOCK ACCOUNTANT & DATA ENTRY ASSISTANT [BADA]

BADA would be the key person in proper accounting of voucher system and payment of the same to beneficiary instantly and NGO/Pvt. agencies in predefined interval [weekly/fortnightly/monthly]. He would maintain a voucher register where each cash payment made to the beneficiary is recorded against the submitted voucher and its reference number, if the beneficiary availed private vehicles for transportation. In no case payment should be made to the beneficiary if she travelled through cashless facility, i.e. either though empanelled vehicle or through Janani Express.

On production of log book at the end of any predefined intervals for empanelled vehicles and Janani Express, it would be verified with the ID register placed at the institutions and corresponding entry in Voucher register. Once it is verified and authenticated by BPO and MO/IC, payment would be released to the NGO or Pvt agencies through RKS

4.2.9.3ROGI KALYAN SAMITI [RKS]

RKS would be the performance evaluator for the NGO/Pvt. agencies. They would make sure that NGO adhered to the base targets provided in accessible and inaccessible areas. They will also assist NGO in addressing more cases to avail the incentive. The RKS would be responsible to replenish emergency delivery kit and minimum first aid facilities to ASHA and Janani Express on as and when required basis. All payments to be made to NGO would be made through RKS as per the existing arrangements after due verification by BPO/BADA and MO/IC

4.2.9.4MEDICAL OFFICER/ IC

Upon production of voucher by the beneficiary, MO/IC would verify the authenticity of the beneficiary carrying the voucher and approve it for payment.

4.2.9.5 DISTRICT PROJECT MANAGER [DPM]

Monthly utilisation of vouchers would be reviewed by the DPM to oversee the process and disbursement of money from Govt to BPO to facilitate the process. Apart from that, Pregnancy Tracking System [PTS] would be monitored by the DPM and accordingly placing of JE in inaccessible pockets can be ensured from time to time as per the expected rate of delivery.

4.2.9.6 ANM/ASHA

ANM/ASHA has the major role in proper distribution and awareness generation in empowering the beneficiaries about the change in the free transport scheme of pregnant women. ANM would be guided by the list of villages prepared by the BPO and would distribute the actual value of voucher assigned to a specific village as mentioned in the list. ASHA would make sure to get the emergency kit from ANM who in turn would receive it from RKS and keep an accounting of it. They would facilitate at beneficiary end in availing cashless facility of transportation, i.e., empanelled vehicles or Janani Express.

4.2.9.7 GAON KALYAN SAMITI [GKS]

GKS will support the RKS in performance evaluation of NGO operated empanelled vehicles and Janani Express. They will be responsible to spread awareness of empanelled vehicles and Janani Express attached to their village.

4.2.9.8 DRIVER – EMPANELLED VEHICLE/ JANANI EXPRESS

It is the responsibility of the driver of the empanelled vehicle or Janani Express to cross / stamp the voucher available with the beneficiary if travelled with their vehicle so that they will be eligible for payment. A logbook needs to be maintained at their level for effective monitoring of the cases addressed through their vehicles capturing all relevant details available in the voucher. In order to make the logbook “verification cum information” tool, it is essential to standardise the log book format across the state.

4.2.9.9 NON-GOVT ORGANISATION [NGO] / PVT AGENCY

It is the responsibility of NGO to submit the logbook for Janani Express and list of cases addressed by the empanelled vehicles with appropriate village code, voucher code and JSY card number on weekly / fortnightly / monthly basis. Any discrepancies of information would be the responsibility of the NGO.

In order to facilitate the availability of empanelled vehicle in accessible areas, it would be the responsibility of NGO to develop awareness and communication strategies to ensure that the information of empanel vehicles and Janani Express is available with GKS, Sarpanch, ASHA, ANM, local chemist shop, beneficiaries etc.

4.2.10 SUPPORTIVE TOOLS AND ARRANGEMENTS

Along with the existing arrangements like logbook, ID register and other supporting, the model proposes to have the followings not only to strengthen the JE operation but also to keep track of the improvement made through the model in achieving augmented ID cases.

4.2.10.1 PREGNANCY TRACKING SYSTEM

Effectiveness of this model can be further augmented through the introduction of pregnancy tracking system at each health institutions covering all the villages coming under its service jurisdiction. With reference to the JSY card identification number, a list of pregnant mothers could be prepared by each village consolidated at GP and health institution level. For this, all pregnancy cases will have to be registered and reported on frequent basis, either by the ANM or by the ASHA, to the concerned health institution. It will help to develop a detail data base of pregnancy cases within the jurisdiction of the concerned health institution/s. On case to case basis, expected date of delivery can be deduced and concentration of expected delivery cases by month or fortnight can be mapped by village / GP or by accessible / inaccessible / distant place. Based on this, prevalence of expected cases of delivery in any village / GP during any month can be chalked out from the data base. Based on this prevalence rate of expected delivery, especially in distant / inaccessible pockets, JE may be placed with the nearest institution where expected delivery during that month or fortnight is high. By this, more number of pregnant women can have easy access to the service provision in the distant / inaccessible pockets. Introduction of this system would also be of immense help in mapping the exact ID cases, ratio of ID to the registered pregnancy cases and putting concentrated effort for ensuring higher rate of ID through JE and non-JE efforts. This will also be helpful to fix the minimum target slab for the NGO / Pvt. that are running the JE operation.

Asymmetry of information has been a great constraint in the smooth operation of Janani Express. In order to streamline and place vehicles in appropriate location, pregnancy tracking system would be of great help. Once a pregnant mother is registered for ANC, information about the concerned potential beneficiary, who is expected to be covered under the scheme, would be made available by village at the BPO level. This information can be maintained manually as well as online mode where the NGO can access the information of potential beneficiaries in different village and can instruct the empanel vehicles to take help of ASHA and be at readiness for making the benefit available on time. Similarly this information will help to evaluate possible pregnancy cases in certain period in inaccessible areas and thereon Janani express can be placed strategically to cater to the requirements.

4.2.10.2 CALL CENTRE

A central call centre at district/block level would help in coordinating not just free transportation system for institutional delivery but also would be supportive in converging other schemes. It would act as a consolidation point of all information and can disseminate the information of NGO/Pvt agencies, beneficiaries, and others. A dedicated call centre can facilitate tele-counselling, awareness campaign, health grievances centre, etc. and can bring in addition performance evaluation methods to the whole system.

This call centre if attached with NGO personnel can act as a one point of contact for Janani Express as well as for empanelled vehicles. This will help in tracking each and every calls made to NGO [drivers of Janani express or directly to NGO for empanelled vehicles] and calls attended by them.

4.2.10.3 VOUCHER REGISTER AT BPO/ANM

A voucher issue register would be maintained at BPO level which would capture the different value of vouchers created and issued to respective ANM. Once ANM issues voucher to the beneficiary, respective voucher would have its JSY card number entered in that register. At the time of encashment of vouchers, voucher register would have corresponding entry. This will help in checking the duplication of log book and bring in more transparency in the system.

Table 16, Specimen Voucher Register

Issue date	*Voucher code*	*Village Code*	*JSY Card Number*	*Travel mode*	*Date of Travel*	*Date of payment*	*Amount Paid [Rs.]*	*Remarks*

4.2.11 MODEL CALCULATION PROCESS

The basic premise of decentralised voucher model is that, the model is based on empowering the beneficiaries while containing the operating cost at existing level. Apart from that, it has got an inbuilt incentive structure for NGO/Pvt. agencies while taking care of their basic operating expenses. Since the demographic situation of each block is different along with number of villages / GPs, it is obvious that number of expected pregnancy cases would differ to certain degree which in turn will influence the allocation of number of vouchers of different values, setting the base case load, categorising villages as accessible and inaccessible / distant and the overall incentive structure. A step by step process of calculation is illustrated with taking Soro block under Balasore district as an example.

Table 17-Block specific [Soro] voucher range and target case load

Range of Voucher	Distance to nearest Institution [PHC/CHC]	Cost of Voucher[15]	No. of villages	Population	Potential Beneficiaries[16]	Actual Beneficiaries'[17]	Institutional Delivery Case per Month
Voucher Value Range-A	12	150	161	87984	2,903	2,613	87
Voucher Value Range-B	18	200	107	42001	1,386	1,247	42
Voucher Value Range-C	23	250	15	6843	226	203	7
Voucher Value Range-D- JE	29	300		0	-	-	-
Voucher Value Range-E- JE	34	350		0	-	-	-
		250	283	136828	4,515	4,064	135
					Total beneficiaries		**135**
					Minimum target[18]		**108**

[15] Fixed service charges over the actual expenses is Rs 40 per case
[16] Assumed that 165/5000 population is the pregnancy rate in block with population of 100000
[17] Registration percentage of pregnant women with JSY is 90% of the potential beneficiaries

A list of villages under each range in Soro Block is prepared and case load and cost is calculated accordingly. Villages under distance as mentioned under Range- A-C can be termed as accessible villages where empanelled vehicles and private vehicles would be the key source of transportation under the model. Villages under the Range of D and E can be termed as inaccessible/distant villages and Janani Express can focus in these villages with placement of vehicles according to potential case load, population density etc. as discussed above.

4.2.12 FINANCIAL ASPECTS

As compared to the existing Janani Express model, where the operating expenses per month is estimated to be Rs.46019/-[19], in the proposed model, expected operating expenses would be Rs 47,609/-. Keeping the variable expenses of fuel per case constant at Rs 250/-, there would a minimal difference in fixed expense with the proposed scheme. Expected fixed expenses per month would be Rs.19,717/- against the existing arrangement of Rs.19,017/- [a minimal hike of Rs 700/-]. This minimal hike in fixed expenses would remodel the scheme and ensure increase the number of cases addressed with appropriate incentive structure. This nominal hike in the cost pattern seems productive and beneficial as it provides better entitlement opportunities to the pregnant women for institutional delivery along with increasing the institutional delivery rate with the scope for flexible transportation.

Though, overall there is a hike in the fixed expenses, still expenses incurred per ID case is less than the existing arrangement. This nominal hike would be recovered by incentivising the lump sum amount paid to the NGO / private body on monthly / annual basis keeping intact the base expenses incurred by the NGO. As per the proposed arrangement, cost per case will reduce from Rs.429/- to Rs.397/- when maximum case of 135 is addressed against the highest actual case of 110 in Soro, Balasore. Similarly, even if a minimum case of 108 is attended in the proposed arrangement, then also there is as per case reduction in cost from Rs.429/- to Rs.425/-. If, the hiked amount of Rs.700/ in the fixed expenses is distributed across the attended cases in the proposed arrangement [minimum 108 and maximum of 135 when measured against the highest of 110 of Soro Block], then also the total cost to be incurred is less than the present expenditure.

Table 18-Revised Monthly Expenditure sheet under Decentralised Voucher Scheme

Actual Expenses Sheet	NGO in Rs.	RKS in Rs.	NRHM in Rs.
Capital Cost			
Mobile/facilities Phone cost	7,000	-	
Uniform cost	1,000	-	-
Annual IEC expenses	-	-	5,000
Operating Cost monthly			
Fixed Revenue	-	-	13,000[20]
Deferred Revenue Expenditure			417
Mobile/facilities Phone cost [monthly apportioned]	194		
Uniform cost [monthly apportioned]	83		

[18] As per Govt. Of Orissa target, minimum target to achieve is 80% of the registered cases under Institutional delivery

[19] Model Case load Calculation Sheet- Decentralised Mode-v2

[20] Based on Minimum fixed slab incentive scheme

Maintenance expenses	1,000	-	-
Rental- Vehicle	7,000	-	-
Driver Salary	3,000	-	-
Driver Mobile Voucher			300
MO Mobile Voucher			300
other facilities expenses	-		500
other Administrative expenses	1,500		4,500
Emergency ID Kit	-		
Fuel Expenses	-		27,092
Total	**12,778**	**-**	**46,109**
Fixed* Minimum Case Load			**19,017**

Table 19-Decentralised Model Janani Express Assumptions

Decentralised Model Janani Express Assumptions	**Specification**
Monthly Vehicle Rent [Rs.]	7,000
Life of a mobile and facilities [in months]	36
Life of Uniform [in months]	12
Driver monthly salary [Rs.]	3,000
Lump sum Payment to NGO [Based on minimum payment under Fixed Slab incentive scheme, in Rs.]	14,500
Mobile Top Up Voucher [Rs.]	300
Block Covered [No.]	1
Petrol cost per litre [Rs.]	45
Per case Transportation cost reimbursed [Rs.]	250
Emergency kit per case cost [Rs.]	-
Rate of reimbursement per km/litre [Km]	10
Consolidated monthly salary of DPM,BPO, BADA [Rs.]	30,000
Facilities with Janani Express to be provided by NGO includes Mobile, Stretcher etc. [Rs.]	7,000
Annual IEC expenses for the block for both free institutional delivery promotion [Rs.]	5,000
Other facilities expenses includes basic first aid kit etc. to be borne by NRHM which was earlier borne by RKS from the surplus generated [Rs.]	500
Assumption that DPM, BPO and BADA allocate 15% of their time for this scheme amounting to their monthly service fee as [%]	15%
Minimum Case load required	108

With an minimum / ideal case load of 108 nos. as proposed above, the cost per case to be incurred by NRHM is Rs.425/- whereas with the existing arrangements of Janani express with the actual average case load of 110 nos. addressed at Soro-CHC, cost per case estimated to be Rs 429/-. This model is not focussed in reducing the cost per case but to increase the case load with incentive structure for NGO/Pvt. agencies while containing the line of existing expenditure.

Table 20-Ideal case load and cost calculation

Ideal case calculation [Case based Target]	**Min case fixed**	**Max Case fixed**	**Earlier arrangements**
Case Fixed	108	135	110
Variable Cost- Fuel	250	250	250
Variable Cost- Emergency Kit	-	-	-
Fixed Cost	19,017	19,965	19,717
Ideal Fixed Cost per case	175	147	179
Total Cost per case	425	397	429

Reflecting to the basic premise of this model, it is to give immediate access to the beneficiary, residing in the inaccessible / distant places with transportation facility by placing Janani Express near inaccessible areas as well as empanelling vehicles in every village and GP along with opening the scheme to private vehicles. This will help to minimise the transit time and reduce the burden of scarcity premium paid by the beneficiaries.

On the other hand, the proposed incentive structure within the existing expenditure limit is objectively designed to motivate NGO/Pvt. agencies to address more ID cases covering population within their operational / geographical jurisdiction. An exemplary model incentive structure for Gandia Block with maximum and minimum case load is calculated for reference.

Fixed Base Slab Incentive Model

Table 21-Fixed Slab Incentive Structure - Voucher Decentralised Model

Fixed Slab Incentive Structure- Voucher Decentralised Model								
Fixed Base Payment in Rs.	**Minimum target in Inaccessible areas listed above**	**Percentage of Total Beneficiaries**	**Total Case Slabs to achieve**	**Incremental**	**Incentive Paid per case in Rs.**	**Incentive Paid in Rs**	**Total Expenses reimbursed to NGO in Rs.**	**Total Payment to NGO in Existing arrangement [Rs. Lump Sum]**
13,000	0	80%	108	-	-	-	13,000	13,000
13,000	0	87%	118	9	10	95	13,095	13,000
13,000	0	94%	127	19	25	474	13,474	13,000
13,000	0	100%	135	27	35	948	13,948	13,000

The base lump sum payment to NGO is fixed at Rs 13,000 taking the standard monthly operating expenses of Rs.12778/- expected to be incurred by the NGO to operate the scheme under the new model irrespective of number of cases. Under the present operational model, the payment structure is designed to distribute the lump sum expenses paid to the JE operator in a fashion which would motivate the NGO to achieve a higher order slab to get the incentive. This structure would ensure that even if the voucher are distributed and all beneficiaries avail private transport yet the Janani Express and Empanel vehicles would be there to support the free transport.

4.2.12.1 PROPORTIONATE BASE SLAB INCENTIVE MODEL

To make it more competitive for the NGO/Pvt Agencies so that they won't get the advantage of getting the desired benefit of lump sum payment without attaining any case, proportionate base slab model is designed.

Table 22-Proportionate Base Slab Incentive Structure - Voucher Decentralised Model

Proportionate Base Payment Slab in Rs.	**Proportionate Base Payment based on Actual Achievement**	**Minimum target in Inaccessible areas listed above**	**Percentage of Total Beneficiaries**	**Actual Achievement**	**Total Case Slabs to achieve**	**Incremental**	**Incentive Paid per case in Rs.**	**Incentive Paid in Rs.**	**Total Expenses reimbursed to NGO in Rs.**	**Total Payment to NGO in Existing arrangement [Rs. Lump Sum]**
13,000	5,998	9	80%	50	108	-	-	-	5,998	13,000
13,500	12,601	9	87%	110	118	9	10	95	12,696	13,000
14,000	13,194	10	94%	120	127	19	25	474	13,668	13,000
14,500	13,809	11	100%	129	135	27	35	948	14,757	13,000

The target case slabs have been distributed from a minimum of 108 nos. to a maxim of 135 nos. which is feasible to achieve in a block during a month's time on average basis. This has been derived based

on the population of the block as described earlier. This target is the whole universe which would be catered through Private vehicles and NGO operated Janani Express and Empanel vehicles. In order to fix ideal target maximum and minim target for NGO, a pilot study is required to assess the pattern of voucher usage in different mode of transportation.

Contrary to the earlier arrangements, the NGO is not paid a fixed lump sum irrespective of its performance. Rather, the payment is made in different slabs/order which creates opportunity to perform as well as address higher number of cases. The savings in each slab will be utilised in providing the incentive in the next slab which makes sure that the financial expenditure is contained as per the existing arrangements. The incentive paid per case is adjusted with a sensitivity analysis so that the maximum amount paid to the NGO is contained within Rs.14,500/- as paid earlier to the JE operator.

This is a progressive incentive structure which would bring in not only more number of cases but also it has got the provision of addressing a minimum number of cases from inaccessible areas. The said target has been distributed from the actual beneficiaries to be addressed from village in Range- D and E which are termed as inaccessible villages on the basis of their distance from the health institution. Since in Soro block, there are no villages in that range, so automatically the minimum target fixed doesn't cover the same. This will ensure that even though NGO is operating in an incentive structure, with private vehicle and empanelled vehicles in respective villages, yet through Janani Express they would increase their reach to inaccessible areas.

Once the pregnancy tracking system is in place, these targets can be dynamically fixed based on the actual information of the beneficiaries. This will give us actual number of case load to address and in turn will help us in restructuring the incentive structure dynamically.

4.2.13 ADVANTAGE OF THE MODEL OVER EXISTING ARRANGEMENTS

The decentralised model of engagement of vehicle for transportation of pregnant women involving active participation of NGO/Private agencies will help in addressing the constraints in the existing arrangements discussed above

4.2.13.1 ACCESSIBILITY:

Flexibility of usage of any mode of transportation would address the accessibility of free transportation to beneficiaries at their door step. They can avail the cashless facility by availing the empanelled vehicles and additional facility of Janani Express in inaccessible areas. They have the liberty to avail the private facility and get the voucher en-cashed to support the transportation cost incurred

4.2.13.2 TIMELINESS OF SERVICE:

With the creation of opportunities for the use of different modes of transportation, it will drastically reduce the transit time to health institutions. Ready availability of vehicles covered under the scheme would overcome the waiting time for Janani Express.

4.2.13.3 MODEL OF INDIVIDUAL REGISTERED CASES:

The whole structure of the model is based on individual cases. In accessible areas, voucher would be the enabling factor for each JSY registered cases and it would ensure that each registered beneficiary gets the facility at the time of registration. It overcomes the constraints of availability of Janani Express and create scope to avail the free transport facility. Each beneficiary is empowered with the voucher to access different mode of transportation ranging from private vehicles to empanelled vehicles and Janani express to choose.

4.2.13.4 MOTIVATION TO NGO:

With attractive incentive structure in place, NGO would operate in coordination with ASHA to identify the ID cases and attract them to avail the facility. It will not only help in improving service quality but also increase the scope of operation. The NGO would operate with empanel vehicle in accessible areas competing with private vehicle which would help in addressing more cases in a competitive way.

4.2.13.5 CONVERGENCE WITH OTHER SERVICE:

The call centre created to support the model will help in ensuring benefits of other schemes. This would act as a converging point for all health schemes along with health system tracking and tele-medicine. Besides that, NGO will have the liberty to utilise empanelled vehicle for catering emergency response services on payment basis after addressing a base number of ID cases. This will help to address a much larger health issue in the rural areas.

F4.2.13.6 INANCIAL APPROPRIATENESS:

The new incentive structure would be managed with the same operating cost of Rs 250/- per ID case and the lump sum cost as earlier paid to the NGO ranging from Rs 12000 to Rs14500. This would facilitate improvement in the process with the same cost incurred earlier. The number of cases to be addressed for promotion of institutional delivery would radically increase since the whole model is ID case centric and increasing the scope and mode of transportation facilities under the scheme by empowering beneficiary derive the benefit without any constraints.

4.3 CENTRALIZED OPERATIONAL MODEL [COM]

A centralised system is one in which overall operation is centralised and most communications are routed through one or more major central hubs. Such a system allows certain functions to be concentrated in the system's hubs and freeing up resources in the peripheral units so that they can concentrate upon achieving the set target.

The Centralized Model of JE operation is basically a centrally coordinated approach towards providing referral transport system, bringing in flexibility and efficiency by redefining and deploying

fleet of specific ambulances / vehicles and managing information centrally. The administration process would be managed centrally which would bring in systematic approach to the requirement of the targeted beneficiaries.

4.3.1 OVERVIEW OF THE MODEL

This model will facilitate provision of round the clock free transportation to pregnant women for promoting institutional delivery in a centralized way. The request for accessing free transport would be taken centrally through a dedicated "call centre", managed by the selected NGO or private body placed at district headquarters hospital. Along with the call centre, JE could also be managed and operated by the respective NGO/Pvt. agencies. There may be provision for one NGO or private body to operate both or it may be segregated assigning responsibility to more than one NGO or private body to bring in internal control system. All requests made for free transport facility would be routed through the centralized call centre and immediately communicated and confirmed to respective vehicle driver who are in strategic locations, attached to sub-centres or PHC, in a proximity to the target mass.

The targeted beneficiaries would be having free transport vouchers, like that of decentralised model, which can be used along with the JE or private vehicle, based on the suitability and convenience of the beneficiary at the point of requirement. At the institutional point, the beneficiary can reimburse the entitlement voucher if travelled on her own. While, a pregnant women access JE services for transportation, the Ngo/Pvt. agency operating the vehicle, would receive the respective voucher and en-cash it at in the pre-determined stipulated time interval.

Contrary to JS model of Sundergarh, here NGO/Pvt. agency could be considered as responsible collaborator to manage and operated the call centre as well as steering the movement of the JE. For attending maximum ID from inaccessible pockets, the villages / GPs in the block can be segregated as accessible and inaccessible areas based upon the communication facility and distance from the health institution/s having required delivery facility. This would help in providing fixed standard time to approach each case for transportation to health institution along with case target to be achieved by the vehicle operator with a period of stipulated time frame [one month or quarter].

This model intends to further improvise the process by bringing in important learning from EMRI model and JS model.

The basic premises on which this model is placed are as follows.

- To have a centralized system which can augment effective administration of the JE as well as information of the beneficiaries
- Beneficiaries are finding it difficult to access other health institutions as JE is attached to a particular PHC/CHC. As per the norm, institutional delivery has to be made in the same institution where JE is attached.
- Higher transit time under the existing arrangements to pick and drop the beneficiary.
- The revenue structure of NGO/Pvt. agencies are not linked with cases addressed which makes a great gap in assessing their performance. As a result, cost per ID is not economic.

- Absence of performance based intensive structure does not motivate the operator to address more cases.
- Present engagement of NGO/Pvt. agencies is based on lump sum payment arrangement under existing arrangements rather than viability gap funding practice.

4.3.2 PROCESS FLOW AND MAP

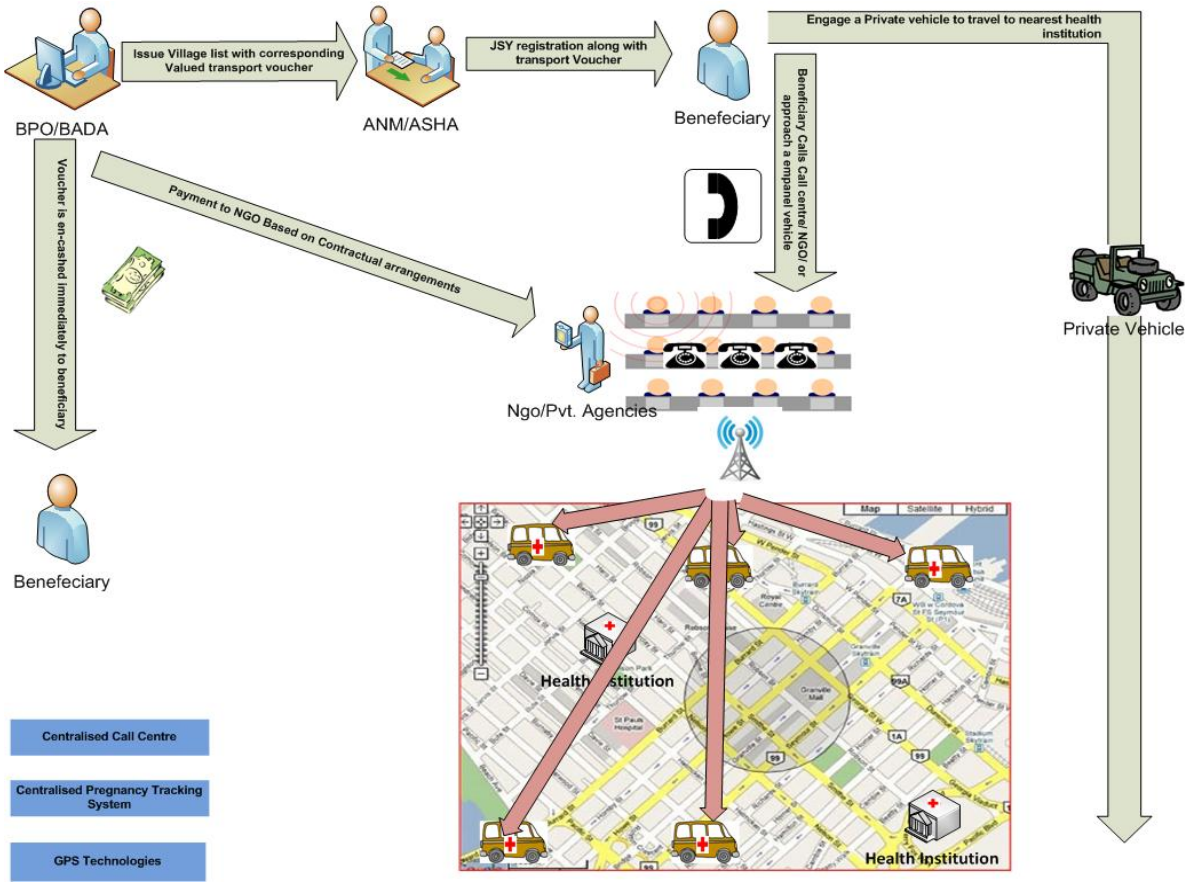


Figure 8-Process Flow - Centralized Model

4.3.3 MANAGEMENT AND OPERATIONAL PROCESS

For effective operation and meeting the stipulated target of institutional delivery, it is proposed to manage the centralized operational system in collaboration with NGO/Pvt. agencies with two set ups. While, the call centre would be placed centrally at district/block level to oversee the operation and movement of the vehicle, JE would be placed in the proximity to the community and may be attached with PHC, CHC or sub-centre. It is expected that more proximity of the vehicle to the community will

support in accelerating ID cases by increasing people's accessibility. The whole operation would be managed by the collaborated NGO/Pvt. body with appropriate target and incentive structure. To widen the scope of increasing institutional health care accessibility beyond the delivery cases, the operator may be allowed to use the vehicle/s for other health care purposes. The NGO/Pvt. Operator may be allowed for such activities only after attaining the desired case load target set for the month / quarter. It is quite important that other Emergency Response Service [ERS] should be planned in such a way that it should not hamper the institutional delivery.

4.3.3.1 GUIDELINES FOR ENGAGEMENT OF NGO/PVT AGENCIES

The state can be divided to different zones and the NGO/Private agencies would be called for each zone. District specific Ngo/Pvt. body may be selected instead of zone specific to bring a competitive working environment. If so wished, NRHM may appoint a nodal agency, at the state level to coordinate all the JE functions of the state or else, NRHM may coordinate it directly. The Ngo/Pvt. agencies would be selected either through a competitive bidding process or invited to express their willingness to operate in respective zones / district with their appropriate model and viability gap funding requirement. The financial model of the agencies expected to meet the minimum requirements and performance standards decided by the NRHM authorities for that particular zone. The ideal case load, standard time taken to travel from villages to health institutions with cost for case in that particular zone would be a yardstick to select the private agencies. Such agencies may be identified and engaged through an open tender system with predefined guidelines would bring process and product efficiency. The NGO/Private agencies would be funded with the viability gap, as agreed, as well as they can en-cash the value of the voucher received after addressing each pregnancy case.

4.3.3.2 REVENUE AND INCENTIVE STRUCTURE

The NGO at the time of empanelment would be provided viability gap funding as required to operate JE with requisite targets and performance standards. The empanelled NGO/Pvt. body would be eligible to receive vouchers from beneficiaries and en-cash them at regular intervals. Besides the voucher payment, they would be provided with agreed viability gap funding after attaining the performance standards and targets. In case of non-attainment of the desired performance standards and targets, penalty would be enforced by proportional payment / no payment of the proposed viability gap fund. This would ensure and motivate the NGO/Pvt. agencies to achieve the minimum case targets based on the case prevalence. As the centralized model also looks at effective coverage of distant / inaccessible pockets, revenue structure may be fixed accordingly. Terrain topography of the district should also be taken in to account while fixing the viability gap fund provision.

4.3.3.3 EMPANELMENT OF JE

The NGO/Pvt. agencies under the overall guidance and supervision of NRHM would add ambulance to his fleet as well as empanel vehicles to act as JE with requisite emergency health care facilities. It may be thought of to place GPS in the vehicle to track the vehicle movement and regulate health care services and people's approachability accordingly on the rout itself. The GIS system and other necessary facilities may be placed for ID tracking. The ideal number of ambulance required per catchment area would be based on the population density as well as expected number of case load to

be addressed in that location. With referring to the EMRI model[21] criteria, one ambulance is expected to cater to one lakh population but it may not be possible due to geographical variations of different district especially the KBK districts like Kalahandi, Malkangiri, Koraput etc. So, in accordance to the district topography, number of vehicles in a district could be decided. Apart from that, it wouldn't be possible to address cases effectively with that distribution fixed for every catchment area.

While deciding the adequate number of JE required to address all cases effectively population density, approachable distance of villages to the health institution, average case load to address needs to be taken into consideration. NGO/Pvt. body are free to empanel as many number of private vehicles with a minimum cap and prescribed guidelines. This would help them to increase their operational efficiency. Suitable modification in the JE operation, fixing cost effective revenue structure and making it target oriented, it is expected that the basic objective of achieving growth in institutional delivery can be achieved covering the distant and inaccessible pockets. In the re-casted revenue structure, provision of incentive and fixation of bottom slab for addressing ID could be suitably framed.

Apart from using empanelled vehicle for institutional delivery transportation support, they are free to use these vehicles for any emergency response services (ERS) with standard payment from citizens. It will help in increasing the financial viability as well as improve the existing mode of ERS.

4.3.3.4PLACEMENT AND COORDINATION OF JE

The proposed centralized call centre system would be having a data base of expected pregnancy cases as per the pregnancy tracking system [PTS] to coordinate and direct the vehicles after receiving request calls. Based on the estimated pregnancy cases per month, monthly case load will be estimated by habitation pockets. The vehicle may be placed accordingly within a minimum approachable distance so that it can reach at the case end within a minimum time period. The movement of JE would be constantly monitored centrally at the call centre using GPS technology. On receiving call request from beneficiaries, the nearest available vehicle would approach the case which can be tracked through the GPS technology. The placement of JE would not be a static one rather it would be dynamic and will keep moving accordingly to the request. The more closer the ambulance is to the beneficiaries the better is the approach in addressing the institutional delivery process. For effective placing of the vehicle, three important supportive arrangements are essential i.e. result of pregnancy registration tracking system with the estimation of expected monthly case load, population density of the area and topography of the region.

If during the operational process the ambulance is at farther distance and would require more time than the standard time to reach the beneficiary, then NGO/Pvt. would have to take help of various other empanelled vehicles for attaining the services effectively. The time of request for the vehicle and the time to reach to the beneficiary and health institution can be tracked through the GPS system. This will help in internal control and monitoring of the performance standards which needs to be enforced to the NGO/Pvt. agencies. Each beneficiary would be provided with a toll free number to access the call centre that in turn would facilitate free transportation through JE or empanelled vehicles. Effective advertisement and awareness of the process would be taken care by NGO/Pvt.

[21] EMRI Evaluation Report-2009

agencies or by NRHM directly with the support of ASHA/ANM and other health personnel operating at the ground.

4.3.4 CONVERGENCE WITH OTHER SCHEMES

In order to move through a process of convergence, the facility of free transport for institutional delivery system need to be converged with different other ongoing health facilities provided under other schemes. As per the national E-Governance plan, different agencies are mandated to open information Kiosk (Common Service Centre-CSC). As per the government mandate, every six revenue village would have a CSC connected with internet and other facilities. These CSCs, with appropriate institutional tie up, can provide substantial help in the process of providing free referral transport for institutional delivery. They can be used like “hub and spoke” by the NGO/Pvt. bodies to augment the process of operation.

4.3.5 SUPPORTIVE TOOLS AND ARRANGEMENTS

The centralised model of JE would work with backward support arrangement from two different other systems i.e. Pregnancy Registration and Pregnancy Tracking System. The pregnancy cases that have been registered would be tracked at different levels and regional case load will be deduced accordingly for placing of vehicle and achieving ID growth rate.

4.3.5.1 GLOBAL POSITIONING AND GIS SYSTEM

The NGO/Pvt. agency opting to provide the service would be mandated to install GIS and GPS technology in the Janani Ambulance. This technology would help in tracing the placement /movement of vehicle and in turn make it reach the desired destination in a shorter period of time. It will help in reducing the longer transit time taken to pick and drop the beneficiaries from village and hospital respectively effectively. This technology will also assist in effective management of the vehicles as well as tracking the call received and call dropped to the centre.NGO would be free to use other advanced and cost effective technology to achieve the desired objective.

4.3.5.2 SYSTEM ARCHITECTURE

The centralized model should comprise of two distinct modules which could be rather divided into sub modules.

- Vehicle tracking system
- Call-centre model

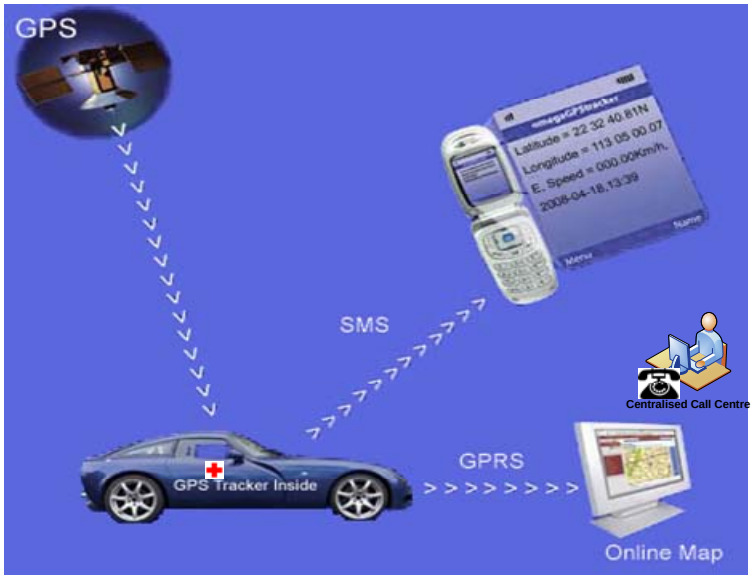


Figure 9- GPS and GPRS vehicle tracking

Functional parts of the vehicle tracking system:

1. GPS(Global Positioning System) device installed on the locomotive
2. VTU(Vehicle Tracking Unit) scheme sim cards provided by the service provider.
3. Central server
4. SMS(Short Messaging Service) server
5. Communication module to access/display the servers to generate reports.

Functional parts of the call center model

1. GIS server storing GIS data
2. Accessing module
3. programme tracking module
4. routers to handle the calls
5. An interface s/w to convert the calls from the router to database format.
6. Server to store voice and retrieve.

This system would help in easily tracking each vehicle and the fleet summery can be taken using the tracking device so that one can easily monitor the movements of the vehicles. The call center can easily track the records; store the location so that necessary facility can be easily given on immediate requirements. The server can automatically store some of the solutions (counseling/ conversation) so that there will no manual intervention is required at the call centre for primary counseling

4.3.5.3CENTRALIZED CALL CENTRE

A central call centre operated by NGO/ Pvt agencies would be placed at district/block level as felt necessary taking call load into consideration. It would help in coordinating with the Janani Ambulance driver in managing the operation using GPS and GIS technologies.

Besides free transportation system for institutional delivery it would be supportive in bringing convergence other schemes. It would act as a consolidation point of all information and can disseminate the information of NGO/Pvt. agencies, beneficiaries, and others. A dedicated call centre can facilitate tele- counseling, awareness campaign, health grievances centre, etc. and can bring in additional performance evaluation methods to the whole system. This call centre would act as a one point of contact for Janani ambulances. This will help in tracking each and every calls made to NGO (drivers of Janani ambulances or directly to Call centre) and calls attended by them.

4.3.6 SPECIFIC ADVANTAGE OF THE MODEL

The centralised model of engagement of vehicle for transportation of pregnant women would bring in effective control mechanism and in turn would increase the number of cases to be addressed. The whole structure of the model is based on individual cases. The revenue and incentive structure of the NGO/Pvt. agency operating the service is oriented towards the attainment of individual cases. They would receive specific vouchers based on case attendance.

With attractive incentive structure in place, NGO would operate in coordination with ASHA to identify the ID cases and attract them to avail the facility. It will not only help in improving service quality but also increase the scope of operation. The NGO would operate with empanel vehicle in accessible areas competing with private vehicle which would help in addressing more cases in a competitive way. Besides, the NGO can operate the vehicle for other emergency response service after meeting the performance targets.

The incentive structure, proposed here by would be managed within the same operating cost of Rs.250/- per ID case and the lump sum cost as earlier paid to the NGO/Pvt. Incentivizing the achievement would facilitate improvement in the process with the same cost incurred earlier. The number of cases to be addressed for promotion of institutional delivery would radically increase since the whole model is ID case centric without disturbing the cost factor.