CLINICAL ARTICLE

**Assessmentof the quality of clinical documentation in India’s JSY cash transfer program for facility births in Madhya Pradesh**

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**Synopsis:** Poor clinical documentation inhibits the assessment of quality of intrapartum care. Improved clinical documentation practices would expedite improvements in obstetric care in Madhya Pradesh, India.

**ABSTRACT**

*Objective:* To gain insight into the quality of care in facilities implementing the *Janani Suraksha Yojana* (JSY) cash transfer program in Madhya Pradesh, India, by reviewing the level of documentation in the clinical records of women who delivered.

*Methods:* The present retrospective, descriptive study reviewed case records of women who delivered at 73 primary, secondary, and tertiary level facilities in three districts of Madhya Pradesh between 2012 and 2013. Twenty elements of care were assessed encompassing clinical history and admission details, care during delivery and postnatal period, and discharge details.

*Results:* A total of 1239 records were reviewed. The extent of documentation varied among the elements assessed—e.g. 24(1.9%) records documented advice at discharge, 171 (13.8%)documented postnatal blood pressure, 437 (35.3%)documented fetal heart rate, and1220 (98.5%) documented admission date. The extent of documentation was relatively better at higher level facilities.

*Conclusion:* The quality of clinical documentation in the JSY program was found to be unacceptably poor in Madhya Pradesh. Improving staff skills and practices in clinical documentation and record keeping will be required to enable clinical processes to be assessed and quality of care to be improved.

**1. Introduction**

Good quality obstetric care is essential to reduce maternal and neonatal mortality. Although considerable progress in increasing coverage of facility births has been made globally [1], the quality of care (QoC) provided at facilities in some areas is not always adequate [2,3].

There are many challenges to improving the quality of facility-based intrapartum care, including difficulties in measurement of QoC [4]. Among the three dimensions of quality—namely, structures, processes, and outcomes [5]—processes, which are critical to outcomes, are relatively difficult to measure [6]. Routine monitoring of maternal health programs incorporates impact measures, such as mortality rates, and outcome measures, including the proportion of facility births. However, processes of care (e.g., how complications are managed) are less frequently monitored at scale owing to difficulties in quantifying their quality. Short of direct observation, the most feasible way to assess processes is through clinical records, which can then be used to facilitate improvement in services through tools such as clinical audit [7,8]. Assessing processes through records is particularly useful to evaluate interventions focused on facilities.

In 2005, India implemented health system reforms by launching the National Rural Health Mission. A flagship intervention of this mission is the *Janani Suraksha Yojana* (JSY) [9] conditional cash transfer program, which aims to improve maternal health outcomes by financially encouraging women to deliver at healthcare facilities. In Madhya Pradesh*,* the JSY provides a cash incentive (~US$31 if rural, $22 if urban) to all women who deliver at a public sector health facility where delivery care is formally free of charge. The program has raised the proportion of institutional births in Madhya Pradesh from 31% in 2007 to 72% in 2012 [10].

The JSY has resulted in a steep rise in facility delivery across India; however, maternal mortality has continued to follow the secular trend in decline observed before implementation of the JSY. Indeed, studies have been unable to detect a significant effect of the program on maternal mortality [11,12]. One way to investigate reasons for this discordance would be to study the QoC in facilities, especially that of processes related to intrapartum care, which might be achieved via clinical records. In this approach, a first step would be to assess the clinical records maintained in facilities in the program setting to determine their adequacy to study the quality of processes.

The aim of the present study was therefore to determine the level of documentation maintained in the clinical records of women who delivered at maternity units in facilities implementing the JSY program in Madhya Pradesh province, India.

**2. Materials and methods**

The present retrospective descriptive review of obstetric case records was conducted in public facilities in Madhya Pradesh between February 1, 2012, and April 30, 2013. The study was approved by the Institutional Ethics Committee of the R.D. Gardi Medical College, Ujjain, India. Because the identity of patients was not obtained and data were collected retrospectively from records, informed consent was not required.

Madhya Pradesh province is divided into 50 administrative districts, three of which were purposively selected for the study after taking into consideration heterogeneity in sociodemographic profile and health indicators. For each study district, a list of public facilities providing delivery services was obtained from the district health office. Facilities that performed an average of 10 or more deliveries a month were invited to participate in the study.

The facilities encompassed the three levels of care available in the public healthcare system in India: namely, primary health centers (PHCs), community health centers (CHCs), and district hospitals (DHs) (Figure 1).At each of these facilities, nurses or auxiliary nurses conduct most of the deliveries, and doctors attend if called by nurses. All medical records are written by doctors and nurses, and records are stored centrally within the facility in custody of the nurse in charge. For the present study, trained data collectors (two doctors, one nurse) visited each study facility from February 1, 2012, to April 30, 2013, and obtained delivery records for the past 1 year.

A study tool was developed to capture key elements (of clinical history, processes, and events) in a delivery record. The Engender Health guide for assessment of facility records was used as a basis for designing this tool[13]. Consultation with an expert group that included senior obstetricians and public health researchers helped to finalize the tool. The tool examined 20key elements, including details of clinical history, findings at admission, delivery and postnatal care, and discharge details. The presence of these elements was documented for each case record.

The study was designed to review 1500 case records comprising 500 records from each study district. Within districts, the facility quota was determined in proportion to facility delivery load during the past 1 year. The required number of records at each facility, selected by systematic random sampling of the delivery register, was identified and reviewed via the study tool. If the record was not available, the next record in the delivery register was used instead.

Data were entered in RedCAP software [14]and analyzed in STATA version 12 (StataCorp, College Station, TX, USA). Data were reported as simple statistics, including number (percentage).

**3. Results**

Across the three study districts, 73 facilities were eligible for the study and all participated. The record review was successfully conducted at 42 facilities (Table 1). At 30 facilities (26 PHCs and 4 CHCs), records were not maintained; at one CHC, staff could not access the cupboard containing the records. As a result, the number of records assessed in the study was 1239instead of the planned sample size of 1500 records. At the 30 facilities with no case records, minimal clinical details were kept in delivery registers.

At most facilities, there was neither a designated place nor a uniform system for record storage. The records were kept in dusty store rooms or were scattered across the facility. Case records were bundled month-wise and stored in lockable cupboards or piled up in boxes. At most lower level facilities there was no segregation of case records by medical condition, whereas at DHs maternity records were stored separately. In some facilities, records were pinned together with pre-used injection needles, although steel pins were used in most. There was no system of compiling case notes from repeated visits of an individual in any of the facilities; thus, there was no means to review the past records of a patient.

Selected records were missing in varying proportions across the study facilities, and the randomly selected record had to be replaced in 10% of cases. There was no specific proforma for case documentation except at DHs, where record sheets with pre-printed variables and space for writing were used. The legibility of the documentation was limited.

To summarize the results of the record review, the 20 elements that were assessed were categorized in three groups: (1) clinical history and findings at admission; (2) delivery and postnatal care; and (3) discharge (Figure 2).

Regarding clinical history and admission, the date of admission was documented for 1220 (98.5%) of the 1239 records and the time was documented for 970 (78.3%).Although details of obstetric history were found in only 539 (43.5%) records, the patient’s parity was recorded in 1031 (83.2%)records. A patient’s blood group was considered to be recorded either if it was documented in the record or if there was evidence that a blood group investigation was advised; and this was seen in 285 (23.0%)of the records. The hemoglobin level was found in 362 (29.2%)of the records. Of the clinical examination findings at admission, blood pressure was noted in 481 (38.8%); similarly, per vaginum examination findings were documented in 600 (48.4%). Although the diagnosis at admission was documented in only 321 (25.9%), the plan of action such as admission in labor ward was noted in 890(71.8%).

Regarding delivery and postnatal care, per vaginum examination findings with time were noted in only 134 (10.8%) records, whereas fetal heart rate was documented in 437 (35.3%). Type of delivery was mentioned in 886 (71.5%) records; by contrast, only 642 (51.8%) documented administration of an uterotonic drug and only 627 (50.6%) documented newborn condition at delivery. Postnatal blood pressure documentation was found in only 171 (13.8%) records.

With regard to discharge, the date of discharge was recorded in 744 (60.0%) records, but only 148 (11.9%) records noted maternal condition at discharge and only 24 (1.9%) reported any advice that was given at discharge.

The extent of recording clinical details by facility level is presented in Table 2.In general, documentation was better in DHs than in CHCs or PHCs. For instance, time of admission was observed in 970(78.3%)of 1239 records across all levels of facilities, but varied from 127(53.4%) of 238 records at PHCs and 458(74.6%)of 614 records at CHCs to385(99.5%)of 387 records at DHs. These differences were more obvious for other variables, such as blood group, which was found in 4 (1.6%) of 238 records at PHCs, 66(10.7%)of 614 at CHCs, and 215(55.6%)of 387 at DHs. There were two exceptions to this trend: uterotonic administration and details of prenatal care. For example, 166 (69.7%)of 238 records reviewed at the PHC level documented uterotonic administration, as compared with only 125 (32.3%) of 387 at DHs and 351 (57.3%)of 614 at CHCs.

**4.Discussion**

The present study has described the status of obstetric records in the context of a large cash transfer program (JSY) for facility birth in India. Overall, the findings of the review of obstetric records indicate the poor quality of clinical documentation across facilities in three districts of Madhya Pradesh.

The present study has revealed very poor documentation, especially in terms of clinical details. Alack of key clinical information such as a patient’s hemoglobin level and blood group can result in delays in providing essential care in the case of an obstetric emergency such as hemorrhage. The same is true for blood pressure and other examinations that were rarely noted in the records. Similar findings have been reported from other countries with high rates of maternal mortality. For example, a review of clinical records of cesarean delivery in five low-income countries found poor quality record keeping with missing information on important clinical parameters [15]. In addition, studies of record keeping at facilities in African countries [16] and urban India [17] reported that records were non-existent, incomplete, or illegible.

In the present study, documentation was better at DHs than at lower level facilities for information such as checking of fetal heart rate, hemoglobin, per vaginum examination findings, and type of delivery; however, some parameters including postnatal blood pressure and uterotonic drug use were poorly documented at DHs. The fact that staff at DHs generally have higher qualifications than those at lower level facilities, that the obstetricians at DHs also contribute to writing clinical records, and that printed forms are available at some DHs might be reasons for the generally better documentation at these facilities. Other possible reasons might be the availability of cesarean delivery, the mix of cases including high-risk cases, and the fact that staff are used to routines of higher workload at DHs.

As part of the health system reform in India, an improved Health Information Management System (HMIS) [18] was made operational. Among the variables relevant to maternal–neonatal health, the system provides data on process indicators such as number and types of complication and the proportion of deliveries with active management of third stage of labor. An efficient HMIS can be useful only if the input data are sourced from good quality medical records. In the present study, the poor documentation found in case records reveals problems with generating valid information for the HMIS. Notably, although the JSY program was launched alongside proposed reforms in the health system, health facility environments remain characterized by staff shortages and managerial problems that might preclude improvements in clinical documentation. While information technology offers much hope for the improved availability and use of health-related data, it might be necessary to address system issues and human behavior problems that influence the quality of the data generated.

It is possible that certain examinations or care are provided but staff fail to appropriately record this care. In their framework for assessing the quality of institutional delivery care, Hulton et al. [19] indicated that individual case records are indispensable not only for case management and peer review but also for assessing the impact of programs. They argue that assessment of QoC should include a review of record keeping skills and practices. Poor documentation, as found in the present study, is itself an indicator of poor QoC in the JSY program and limits opportunities for quality improvement through clinical audit. In a study of records at public facilities in Pakistan, Jain et al. [20] highlighted the importance of good quality clinical data in the public system to aid monitoring the effectiveness of safe motherhood interventions.

The present study did not explore the reasons for the poor quality of documentation; however, the possible causes are likely to be multiple and systemic, as seen in other studies about QoC in the JSY. Staff in JSY facilities have been found to have limited competence and poor understanding of clinical elements of obstetric care [21], and therefore are unlikely to be able to appropriately document the care that is provided. Another study involving direct observations of intrapartum care in the JSY program indicated that staff at DHs are unlikely to find time to document clinical information adequately [22]. Staff may not value clinical documentation if they have not been exposed to a system with appropriate documentation standards during their pre-service and in-service training. The observations at study facilities and discussions with staff during visits for data collection for the present study indicated that workers are required to maintain several records such as patient registers and records, and drugs and supplies records—processes that are time consuming, may detract from clinical work, and may hamper the quality of documentation.

The present study indicates that there is a need to improve staff skills, attitudes, and practices in clinical documentation and record keeping. Focused training to improve these skills and routine use of clinical records for monitoring services, for example through regular clinical audits, are indicated. Information on methods to improve the quality of clinical documentation in low-resource settings is sparse. Pre-printed forms have been reported to be useful as job aids that remind midwives to perform specific tasks and that improve QoC [23]. A quality assurance project in Ecuador [24] has demonstrated successful use of a participatory methodology to improve the quality of obstetric records, especially for indicators of legibility, coherence, and completeness. However, further research is required to determine whether improved record quality is adequate to monitor changes in quality of obstetric care.

The study has some limitations. First, it was not possible to assess from the records the length of time that a woman was in the facility before she delivered. Women might have arrived just before delivery such that there was not enough time to carry out all clinical examinations. Second, although the study districts were representative of Madhya Pradesh, the generalizability of the findings to all districts in Madhya Pradesh or to other states is cautioned.

In conclusion, the quality of clinical documentation for obstetric care was found to be unacceptably poor in the JSY program in Madhya Pradesh, India. Improving staff skills and practices in clinical documentation is required to facilitate assessment of clinical processes and improve QoC. When launching cash transfer programs for facility-based care such as the JSY, it is important to ensure that adequate clinical documentation is undertaken. The present findings provide useful lessons for stakeholders interested in quality improvement for reducing maternal mortality in resource-poor contexts.

**Conflict of interest**

The authors have no conflicts of interest.

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Figure legends

**Figure 1** The three-tiered structure of the public health system in Madhya Pradesh, India.

**Figure 2** Results of the obstetric case record review in the JSY program in Madhya Pradesh, India.Abbreviations: BP, blood pressure; PV, per vaginum.

**Table 1**Study facilities and number of records reviewed by facility level.

|  |  |  |  |
| --- | --- | --- | --- |
| Facility level | No. of study facilities  | No. of study facilities with records maintained/available for review | No. (%) of records reviewed |
| Primary (PHC) | 53 | 27 | 238 (19.2) |
| Secondary (CHC) | 17 | 12 | 614 (50.0) |
| Tertiary (DH) | 3 | 3 | 387 (31.2) |
| Total  | 73 | 42 | 1239 (100) |

Abbreviations: CHC, community health center; DH, district hospital; PHC, primary health center.

**Table 2**Extent of documentation in case records by facility level.

|  |  |
| --- | --- |
| Element of assessment  | No. (%) of records documenting the assessed element |
| PHC (n=238) | CHC (n=614) | DH (n=387) |
| Clinical history and findings at admission |  |  |  |
| Prenatal care details | 79 (33.1) | 134 (21.8) | 74 (19.1) |
| Blood group | 4 (1.6) | 66 (10.7) | 215 (55.6) |
| Diagnosis | 16 (6.7) | 159 (25.9) | 146 (37.7) |
| Hemoglobin | 28 (11.7) | 119 (19.4) | 215 (55.6) |
| Blood pressure | 86 (36.1) | 201 (32.7) | 194 (50.1) |
| Obstetric history | 69 (28.9) | 212 (34.5) | 258 (66.7) |
| PV exam | 68 (28.6) | 228 (37.1) | 304 (78.5) |
| Plan of action | 122 (51.3) | 403 (65.6) | 365 (94.3) |
| Admission time | 127 (53.4) | 458 (74.6) | 385 (99.5) |
| Parity  | 174 (73.1) | 482 (78.5) | 375 (96.9) |
| Admission date | 236 (99.1) | 597 (97.2) | 387 (100) |
| Delivery and postnatal care |  |  |  |
| PV with time before delivery | 42 (17.6) | 41 (6.7) | 51 (13.2) |
| Postnatal BP | 49 (20.6) | 37 (6.0) | 85 (21.9) |
| Fetal heart rate  | 37(15.5) | 149 (24.3) | 251(65.0) |
| Uterotonic drug given | 166(69.7) | 351 (57.3) | 125(32.3) |
| Neonatal condition at birth | 88 (36.9) | 238 (38.8) | 300 (77.5) |
| Type of delivery | 94 (39.4) | 411 (67.0) | 380 (98.1) |
| Discharge |  |  |  |
| Advice at discharge | 3 (1.3) | 19 (3.1) | 2 (0.5) |
| Maternal condition | 3(1.3) | 22 (3.6) | 122 (31.5) |
| Discharge date | 98 (41.2) | 301 (49.0) | 345 (89.1) |

Abbreviations: BP, blood pressure; CHC, community health center; DH, district hospital; PHC, primary health center; PV, per vaginum.