

ORIGINAL ARTICLE

Prospective study on quality of newborn care

Khanam N¹, Quazi SZ², Goyal RC³, Athavale AV⁴, Gaidhane AM⁵, Agarwal SS⁶, Gaiki V⁷

¹Assistant Professor, ⁶Professor, Dept. of Community Medicine, PCMS&RC, Bhopal, MP, ^{2,3,5}Professor, ⁷Assistant Professor, Dept. of Community Medicine, Datta Meghe Institute of Medical Sciences' University, Nagpur, ⁴Professor & HOD, Dept. of Community Medicine, Chirayu Medical College & Hospital, Bhopal, MP.

Abstract	Introduction	Methods	Result	Conclusion	References	Citation	Tables
--------------------------	------------------------------	-------------------------	------------------------	----------------------------	----------------------------	--------------------------	------------------------

Article Cycle

Address for Correspondence: Najnin Khanam, Assistant Professor, Dept. of Community Medicine, PCMS&RC, Bhopal, (MP)
E Mail ID: dr.najninkhanam@yahoo.com

Citation

Khanam N, Quazi SZ, Goyal RC, Athavale AV, Gaidhane AM, Agarwal SS, et al. Prospective study on quality of newborn care. Ind J Comm Health, 25(4); 432 - 437

Source of Funding : Nil, **Conflict of Interest:** None declared

Abstract

Background: Quality of services provided by health care provider, the closest health functionary to the community has impact on neonatal mortality. **Aims:** Study on quality of newborn care in rural areas. **Settings and Design:** This is a prospective study in the field practice areas of J.N. Medical College and areas under primary health centre of public health care system in Wardha district. **Methods and Material:** Modified quality check list on the basis of PHC MAP module guidelines for assessing the quality of service-module 6-user's guide was prepared. Face to face interview with 205 (group-A/104 nos + group-B/101 nos) mother of newborn was method to collected information in three postnatal visits. **Statistical analysis:** Quality (verbal response) of each service was quantified as acceptable, average and worst. Quality of both the groups was compared by calculating P-value after utilizing Z-test. **Results:** Over all acceptable quality of medical history was 30.03%, physical examination was 21.73%, preventive service was 91.17% and counseling was 24.83%. Significant difference between two groups were found on history taking for (cry, breathing and body movement of baby), recording weight and counseling regarding exclusive breast feeding for first 6 month of life. Worst quality in this study were observed in history for anything applying to eyes, umbilical cord stump and complication of baby for which appropriate management was taken. Except for weight recording and examination of head and fontanelles all other variables under physical examination were not acceptable. Counseling regarding high risk condition of baby was only 13.66%. **Conclusion:** Existing newborn services except immunization is inadequate and needs to be strengthened especially physical examination and counseling services.

Key Words

Prospective study; Quality; Newborn care

Introduction

Neonatal mortality constitutes 61% of infant mortality and nearly half of child mortality in developing countries.(1) Neonatal mortality rate (NMR) in Maharashtra is 26/1000 live birth with approximately 29/1000 live birth for rural areas and 20/1000 live birth for urban

areas.(2) NMR is 35.02/1000 live birth in Wardha district.(3) To reach Millennium Development Goal 4 is to reduce child mortality to two thirds of its 1990 level by 2015, this problem needs urgent attention. With a quarter of neonatal deaths taking place in India (max. Percentage in rural areas), this country is integral to any successful global

effort.(4,5) The World Health Organization guidelines recommend that postnatal care for all newborns, including immediate and exclusive breastfeeding, warming of the infant, hygienic care of the umbilical cord, and timely identification of danger signs with referral and treatment can drastically reduce neonatal mortality.(6) This depends not only on quantity but also quality of services provided by health care provider, the closest health functionary to the community.(7)

Aims & Objectives

In this context we have studied and compared the quality of various services of newborn in rural areas of Wardha district.

Methods

Settings; Group-A includes areas under rural health & training centre (RHTC) Seloo and Deoli of field practice areas of J.N. Medical College, Sawangi (Meghe), Wardha. Group-B includes some areas under primary health centre (PHC) Zadshi and Deoli of public health care system in Wardha district of Maharashtra having almost equal number of population to that of Group-A. Study design; longitudinal (prospective) study. Study participants: Includes 205 (Group-A = 104 & Group-B = 101) registered mother of newborn from May-August 2008. Permission; A written permission from the Institutional Ethical Committee and from the District Health Officer was obtained to proceed for the study. Study period; 2008 to 2009. Data collection tools; A modified "quality check list" on various services of newborn was prepared on the basis of PHC MAP module guidelines for assessing the quality of service-module 6-user's guide.⁸ In the entire duration of study they were given three Postnatal visits, 1st visit within 1st day of delivery, 2nd visit at the end of 1st week and last visit at the end of 28 days of postnatal period were paid to find out the quality of services of newborn. Data

collection; Direct interrogation of investigator with participants (mother of newborn) after obtaining verbal informed consent. In the entire visits respondent were participants. Information on socio - demographic profile and services of newborn under various components (medical history, physical examination, preventive services and counseling) were collected during the three postnatal visits. Data Analysis: SPSS statistical software was used. Statistical methods applied were numbers, percentages and Z-test to calculate P-value. The response either positive or negative to each service under any component of newborn care during each visit was taken into consideration. The response to each service during each visit was determined by various technical & social aspects of services such as purpose for visit, description of nature of health problem, respect for client's privacy, conduction of proper physical examination and easily acceptable advice. Quality for services was calculated as acceptable (ACQ) (services provided by health care provider in all the 3-visits and in the manner which satisfied each client), average (services either provided in one or two visits or in the manner which did not satisfy client in any visit) and worst (WQ) (did not provide services in any one of the visit). Overall quality of services (medical history, physical examination, preventive services and counseling) of newborn in any particular area (group-A and group-B) was calculated by taking average of acceptable quality of all the services under each component.

Result

Maximum numbers of participants (mother of newborn) in both groups were of age grouping 20-24 years. More than three fourth of them belonged to Hindu religion followed by Buddhist. Approximately one fifth of participants in group-A&B were illiterate.

Maximum participants in group-A&B were belonged to education up to high school. No one in group-A&B belonged to Class-I and Class-II rather maximum number in group-A&B belonged to class-IV socio-economical status according to Prasad's classification.

From [Table 1](#); it was observed that over all acceptable quality of medical history asked for newborn was 33.38% in group-A and 26.62% in group-B. There was a significant difference between history regarding cry, breathing and body movement of baby in both the group, it shows group-A had better quality than group-B. The major areas of weakness for acceptable quality in medical history taking were h/o anything applying to eyes, anything applying to umbilical cord stump and baby had any complication for that appropriate management was taken.

From [Table-2](#); it was observed that over all acceptable quality of physical examination done for newborn was 24.46% in group-A & 18.96% in group-B. There was a significant difference between recording weights of the baby in both the group, it shows group-A had better quality than group-B. Except for recording of weight of the baby and examination of head and fontanelles all other variables under physical examination were poor.

From [Table 3](#) & [Table 4](#); it was observed that over all acceptable quality of preventive services to newborn was 94.23% in group-A & 88.12% in group-B. Over all acceptable quality of counseling given to newborn was 27.56% in group-A & 22.11% in group-B. There was a significant difference between counseling regarding exclusive breast feeding till 6 months of life in both the group, it shows group-A had better quality than group-B. Acceptable quality for counseling regarding high risk condition of baby was only 13.66%.

[Figure 1](#): Shows over all acceptable quality of medical history asked for newborn was 30.03%, physical examination done for newborn was 21.73%, preventive services to newborn was 91.17% and counseling given to newborn was 24.83%.

Discussion

Quality of newborn health services involve, technically competent health care providers who rely on clear guidelines or protocols for treatment; Provide information and counseling for clients on their health and health needs; Involve the client in decision-making, and see clients as partners in health care and active participants in protecting their own health.

Overall acceptable quality of medical history asked for newborn was 30.03% and history for anything applying to umbilical cord stump was 15.6%, according to A.H.Baqi et al (9) (7%) of the women had idea about clean cord care. Coverage evaluation survey-2006, All India Report, UNICEF (10) reported 43.8% cord treatment (nothing was applied).

Overall acceptable quality of physical examination done for newborn was 21.73%. Monika Agarwal et al (11) reported zero percentage response for physical examination. Birth weight was not recorded in 54.65% in this study but according to Das P et al (12) in 38.18% birth weights was not recorded. Umbilicus was examined 06.34% in this study. Coverage evaluation survey-2006, All India Report, UNICEF (10) showed 26.4% had undergone general checkups, 75.45% weight measurement, 76.5% Cord condition looked. Coverage Evaluation Survey 2009 - Maharashtra Fact Sheet (13) showed 37.3% had undergone general checkups.

Overall acceptable quality of counseling given to newborn was 24.83%, counseling regarding exclusive breast feeding was 33.05%, keeping

the baby warm after delivery 27.8%, advised regarding high risk condition of baby was 13.66%. A.H.Baqui et al (9) reported small proportion of the women (5%) received information about breast feeding and thermal care. Monika Agarwal et al (11) reported advice regarding breast feeding 36.5%. S.Srilatha et al.(14) reported advice regarding breast feeding 9.2%. G.O.I, RCH, Wardha (15) reveals only 40% of women was aware of danger sign of pneumonia in children.

Conclusion

This study has described the quality of various services provided to newborn by health care provider in rural areas and observed the deficiencies in the delivery of newborn care practices. Existing newborn services except few (immunization of BCG and OPV) is inadequate and needs to be strengthened especially physical examination that include examination of umbilicus, skin, eyes and measurement of length & head circumference. For strengthening counseling services health care providers should make every effort to have face-to-face encounter to give accurate information on various services. Services for counseling to be strengthened are prevention of hypothermia, exclusive breast feeding and high risk condition of the baby.

References

1. Abhay T Bang, Rani A Bang, Sanjay B Baitule, M Hanimi Reddy, Mahesh D Deshmukh. Effect of home-based neonatal care and management of sepsis on neonatal mortality, field trial in rural India. *The Lancet* 1999; 354 (4): 1955-61.
2. SRS Bulletin. Sample registration system registrar general, India, Vol. 40 No.1: New Delhi: Office of the Registrar General, India, Ministry of Home Affairs, Govt. of India; 2006
3. Government of India. District level reproductive and child health survey. Situation analysis of Wardha district; 2002.
4. Lawn JE, Cousens S, Zupan J. 4 million neonatal deaths (When? Where? Why?). *The Lancet* 2005; 365(9462):891-900.
5. Dadhich J, Paul V. State of India's newborns, New Delhi. National Neonatology Forum and Washington DC, Save the Children US; 2004.
6. Sabita Tuladhar. The determinants of good newborn care practices in the rural areas of Nepal. University of Canterbury ; 2010
7. Gunasekaran D, Adhisivam B, Arulkumaran A, Shanthi A. Antenatal counseling on breastfeeding - is it adequate? A descriptive study from Pondicherry, India. *International Breastfeeding Journal* 2008; 3(5).
8. Aga Khan Foundation. Assessing the quality of service, Primary health care management advancement programme, module- 6, user's guide; 1993.
9. A.H.Baqui, E.K.Williams, G.L.Darmstadt, V.Kumar, T.U.Kiran, D.Panwar, et al. Newborn care in rural Uttar Pradesh. *Indian journal of Paediatrics* 2007; 74(3): 241-47.
10. UNICEF. Coverage evaluation survey - All India Report. 2006.
11. Monika Agarwal, M.Z.Idris, U.Mohan. Quality of reproductive health care at primary care level, Upgraded dept. of community medicine, KGMC, Lucknow. *Indian journal of community medicine* 2001; 26 (3):119-26.
12. Das P, Ghosh S, Ghosh M, Mandal A. A study on delivery and newborn care practices in a rural block of West Bengal. *Indian J Public Health* 2008; 52(3):159-60.
13. Ministry of Health & Family Welfare. Coverage Evaluation Survey - Maharashtra Fact Sheet. New Delhi: Government of India; 2009.
14. Assessing the quality of antenatal care in Thiruvananthapuram District 2002. Project report KRPLLD - 6/99.
15. Ministry of health and family welfare. Quality assurance for district reproductive and child health services in public health system, an operational manual. New Delhi: Government of India; 2008. p8.

-----x-----

Tables

TABLE 1: QUALITY (ACQ) OF MEDICAL HISTORY ASKED FOR NEWBORN

Services	A{N=(104)}	B{N=(101)}	P value	Total(N=205)
Age of the baby.	44 (42.30)	40(39.60)	NS	84(40.97)
Cry, breathing and body movement of baby.	57 (54.80)	33(32.68)	< 0.01	90(43.90)
Baby's feeding habits.	44 (42.30)	40(39.60)	NS	84(40.97)
Baby's bladder and bowel habit.	43 (41.34)	33(32.68)	NS	76(37.07)
Anything applying to eyes.	19 (18.27)	13(12.88)	NS	32(15.60)
Anything applying to umbilical cord stump.	19 (18.27)	13(12.88)	NS	32(15.60)
Baby had any complication for that- AMT	17 (16.34)	16(15.84)	NS	33(16.09)
Overall quality	33.38 %	26.62 %	NS	30.03 %

Figure in parenthesis indicate percentages of participants. A: group-A, B: group-B, NS: not significant, AMT: appropriate management taken.

TABLE 2: QUALITY (ACQ) OF PHYSICAL EXAMINATION DONE FOR NEWBORN

Services	A{N=(104)}	B{N=(101)}	P value	Total(N=205)
Taken pulse and temperature.	20(19.23)	14 (13.86)	NS	34(16.57)
Measured length and head circumference.	18(17.30)	15 (14.85)	NS	33(16.08)
Recorded weight of the baby.	58(55.77)	35 (34.65)	< 0.01	93(45.35)
Examined head and fontanel.	43 (41.34)	33(32.68)	NS	76(37.07)
Examined eyes (for opacities, jaundice & infection)	18(17.30)	15 (14.85)	NS	33(16.08)
Examined skin (pallor, jaundice, petechiae & infection)	14(13.46)	16 (15.84)	NS	30(14.63)
Examined umbilicus.	07(06.73)	06 (05.94)	NS	13(06.34)
Overall quality	24.46 %	18.96 %	NS	21.72 %

Figure in parenthesis indicate percentages of participants, A: group-A, B: group-B, NS-not significant.

TABLE 3: QUALITY (ACQ) OF PREVENTIVE SERVICES TO NEWBORN

Services	A{N=(104)}	B{N=(101)}	P value	Total(N=205)
Given BCG/verifies baby received BCG at birth.	98 (94.23)	89 (88.12)	NS	187(91.17)
Given zero doses OPV.	98 (94.23)	89 (88.12)	NS	187(91.17)
Overall quality	94.23 %	88.12 %	NS	91.17 %

Figure in parenthesis indicate percentages of participants, A: group-A, B: group-B, NS-not significant.

TABLE 4: QUALITY (ACQ) OF COUNSELING GIVEN TO NEWBORN

Services	A{N=(104)}	B{N=(101)}	P value	Total(N=205)
Kept the baby warm after delivery.	29(27.88)	28(27.72)	-	57 (27.80)
Exclusive breast feeding till 6 month of life.	43(41.35)	25(24.75)	< 0.05	68(33.05)
Advised regarding high risk condition of baby.	14(13.46)	14(13.86)	-	28(13.66)
Overall quality	27.56 %	22.11 %	NS	24.83 %

Figure in parenthesis indicate percentages of participants, A: group-A, B: group-B, NS-not significant.

Figure

FIGURE 1: OVER ALL ACCEPTABLE QUALITY OF DIFFERENT NEWBORN CARE SERVICES.

