RESEARCH BRIEF

Setting up a Quality Assurance Model for Newborn Care to Strengthen Health System in Bihar, India

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Background: A Quality Assurance model was rolled out in Bihar, India. It had two components: external and internal monitoring and giving feedback for action. The parameters included infrastructure and policy, equipment maintenance, stock supply and aseptic measures. **Methods:** The performance and gradation into good/average/poor was measured based on the scores translated from the data collected after giving appropriate weights. **Result:** 12%, 63%, and 25% units were categorized as good, average and poor based on infrastructure. For equipment, 68% of units performed poorly; for stock maintenance 64% and 35% of NBCCs fell under good and average categories respectively; most (54%) NBCCs had average scores for aseptic measures; 30% fell in the poor category. **Conclusions:** Involvement of government in monitoring and feedback mechanism, establishing a system of data collection at the grass root level and analysis at the state level were the positive outcomes.

Keywords: *Facility based, Health system, Newborn care, Quality assurance.*

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In India, neonatal mortality constitutes one third of infant deaths and 52% of all Under 5 deaths [1]. Neonatal mortality rate in India stands at 31 per 1000 live births. The rate has shown a gradual decline but the decline is slower as compared to post-neonatal rates. A great deal of variation is observed among the states. Few states that contribute to the huge national burden are Madhya Pradesh (44%), Odisha (42%), Uttar Pradesh (42%), Chhatisgarh (37%) and Bihar [1].

The state of Bihar has a network of 8 Special Newborn Care Units (SNCUs) and 463 Newborn care corners (NBCCs). Besides strengthening the facility based care, it also strives to improve and maintain the standards of performance of the units. With this objective, a model on quality assurance (QA) was planned in the state. This manuscript describes the model and gives the assessment at the baseline.

METHODS

A model on quality assurance of newborn care units encompassed quality assessment (based on periodic monitoring) and quality improvement strategy (addressing the gaps identified during assessment).

External assessment comprised of periodic assessments done every quarter by a pool of trained people from the government using a structured questionnaire. The assessment covered the four basic domains reflecting quality- infrastructure and policy, equipment, stock, and aseptic measures. Internal assessment, on the other hand, was a reflection of the practices of the staff.

The model covered the entire state over a period of six months. During the process, data collection tools were finalized, teams formed and training imparted. The team comprised of a mix of state and district program managers, and UNICEF and PHFI team members.

A scoring mechanism was devised to grade the performance with regard to each of the aspects. ***Web Table* 1** gives the scoring method used. Accordingly, NBCCs were graded into good, average and poor/bad performing.

Statistical analysis software SPSS version 12 was used to analyze the date. Collective indicators were developed based out of the individual parameters that contributed to various aspects of quality assessment. The districts were graded into good, average and poor for each domain.

In addition, root cause analysis was done to examine the reasons behind the gaps highlighted in the assessments. The main purpose was to highlight the factors which might not be the direct causes apparently but have significant contribution for the occurrence of the situation.

RESULTS

The model was rolled out in two districts initially but then scaled up across all the institutions over a period of six months. The first quarter data (from 37 districts and 420 NBCCs) was collected in the month of January 2012 and the second set (38 districts, 463 NBCCs) in April 2012. The data collection process continued for one month. The findings bring out that majority of the units fared average or poorly in specific domains.

For infrastructure, majority (63%) of the districts were in the average category. Nearly 25% (94) had their NBCCs outside the labor rooms that defeated the purpose of having one. Display of protocols, clear admission and referral guidelines were absent. Non-availability of vehicles, refusal by the families to take their babies to higher level facilities and absence of financial support were the additional root causes behind lack of implementation of a proper referral policy.

The QA score for equipment and maintenance were categorized as good or bad. In this case, absence of a local engineer, and non-availability of all the 5 essential equipment in a functional state labelled almost 68% (269) of districts as bad. Respondents opined lack of required knowledge, frequent voltage fluctuation, absence of backup support and irregular maintenance as the root causes.

The stock supply was good in most units (64%, 292). Very few units (1%, 5 out of 463) had an erratic stock supply. The deficit in the supply of color coded bins, needle cutters, soaps and towels were the causes behind poor performance of 35% (159) of the units.

QA for aseptic measure was a composite measure that had hand hygiene practices, housekeeping and cleanliness and biomedical waste management as its components. Majority (84%) fared average or badly. Inappropriate handwashing practices and biomedical waste management largely led to poor performance. Absence of uniform supply of materials and ignorance about the use of color coded bins were also some of the reasons. Negligence, reluctance among sweepers, heavy workload of ANMs led to poor housekeeping practices. Critical gaps identified were poor biomedical waste management practices, lack of trained staff for equipment audit/handling and absence of referral guidelines.

The proportion of missing data reduced, and quality of data collection improved between the two surveys.

DISCUSSION

The analysis of QA for NBCCs indicates that most of the units performed poorly on infrastructure and policy issues, equipment maintenance and asepsis. The root cause analysis highlights health system issues as the underlying factors behind poor performance.

External monitoring along with supportive supervision has been a common strategy adopted in majority of quality assurance models. Involvement of the government and teaming with the local NGO partners has proved to be a successful approach in meeting the objectives.

The Equadorial health system experienced that political support is required to inculcate continuous quality improvement process in the system. Involvement of the Ministry and the care providers, the nurses, the midwives had a proven outcome. The success in terms of sustainability as well as integration with other health programmes could happen with political support. The frequency of monitoring; however, varies according to study settings and purpose. In the proposed QA model for Bihar, quarterly monitoring has been chosen so as to enable the care providers to gradually imbibe the quality processes and other related activities leading to an improvement. The approach has a resemblance with one of the quality assurance mechanisms adopted in Gujarat for reproductive health [3]. Yet, in another study, monthly monitoring mechanism has been followed [4].

Involvement of the front level workers, particularly from state and district levels has been a common feature of all the models. For our model, commendable support was extended by the state government and UNICEF that percolated to the local administrative level. Involvement of government health officials for quarterly monitoring remained very significant.

Internal monitoring formed another component in the proposed model that aimed at self-monitoring and introspection among the care providers. This component did not yield a positive outcome since there was lack of self-motivation in filling up the forms. Also, people complained about a lot of paper work and they found it difficult to budget time out of their regular work schedule. There was also a problem observed in handing over the filled in questionnaires, even though a channel was designated. Documents suggest, that in most of the models, the service providers have been involved that motivated staff to express themselves and search for a local solution as per their need [3,4].

Several QA models have been tried out across the globe. Few of them are COPE (client oriented, provider efficient services), FFSDP (Fully functional service delivery point), Improvement Collaborative, Improvement Newborn Health, PDQ (partnership defined quality) and

Quality Process Improvement [3-6]. Most of these models have taken into consideration the community perspective and as well as facility perspective at the designing stage itself. However, in the proposed model we have considered facility level quality improvement side only. It was holistic in nature. Periodic assessment and supportive supervision was one of the key strengths of the suggested model.

Rolling out a model entails short improvement reflections and then upscaling. This helps to take up the improvement process in a phased manner and overcome shortcomings gradually.

All the models use service delivery standards as a basis for improving quality; however, standards vary. Three models started with a self-assessment tool that relies on and addresses approved standards: COPE, Standards based management and recognition (SBM-R), and the PSP-One QI Package [3-5]. In our model, internal and external quality checks formed the two components, though internal quality check did not prove to be a favored process during the first year of its roll out.

To conclude, the QA model in Bihar was an attempt towards improving and maintaining the standards of the health facilities in providing neonatal care. Sustainability of the model can be commented after a series of data are obtained for at least 5-6 quarters. Involvement of government in monitoring and feedback mechanism, establishing a system of data collection at the grass root level and analysis at the state level were the positive outcomes. Besides, intervention by proactive stakeholders will go a long way in improving neonatal health in the state.

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