# Nepal Safer Motherhood Project
## a part of HMGN Safe Motherhood Programme

## NSMP's Monitoring Systems

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# ABBREVIATIONS

| | |
|---|---|
| BEmOC | Basic Essential Obstetric Care |
| CEmOC | Comprehensive Essential Obstetric Care |
| CS | Caesarean Section |
| EOC | Essential Obstetric Care |
| DFID | Department for International Development |
| FCHV | Female Community Health Volunteer |
| FHD | Family Health Division |
| HMGN | His Majesty's Government of Nepal |
| HMIS | Health Information Management System |
| HRDOs | Human Resource Development Officers |
| IEC | Information Education and Communication |
| JHPIEGO | Johns Hopkins University International Education & Training in Reproductive Health |
| MOV | Means of Verification |
| NSMP | Nepal Safer Motherhood Project |
| OPR | Output to Purpose Review |
| OVI | Objectively Verifiable Indicator |
| PAC | Post Abortion Care |
| PRA | Participatory Rapid Appraisal |
| PPR | Project Progress Report |
| SEADD | South East Asia Development Division |
| QoC | Quality of Care |
| UNICEF | United Nations Children Fund |
| WHO | World Health Organization |

# 1. INTRODUCTION

## 1.1 Background

This report describes the Nepal Safer Motherhood Project's (NSMP) monitoring system. NSMP uses a system of LogFrames, comprising a head LogFrame and three nested LogFrames. The three nested LogFrames cover the two project components; service provision and increasing access.

This report focuses on the head LogFrame since this is the one used to monitor progress towards attaining the project purpose. The three nested LogFrames are used for operational purposes.

In effect NSMP has three monitoring systems in place; one for purpose-level monitoring, one for the service provision component (Outputs 2 and 3), and one for the increasing access component (Output 4).

Output 1 refers to project partnerships and management systems and are thus internal management issues and are not discussed in this report.

## 1.2 Purpose of Report

This report describes the processes used in the monitoring systems. Progress against each head LogFrame OVI is provided in the *Output to Purpose (OPR) report* submitted to the Department for International Development (DFID). This will be presented during the OPR.

## 1.3 Principles Guiding the Project Monitoring Process

Systems put in place by NSMP to monitor project progress are designed with the following in mind:

- Monitoring systems should be participatory in nature;
- Monitoring systems should be used for the management of change and not only for the sake of monitoring;
- Where HMGN systems exist, they should be used and strengthened rather than duplicated;
- NSMP should learn from and feed into international knowledge with regard to monitoring the provision of essential obstetric care (EOC).

# 2. PURPOSE LEVEL MONITORING PROCESS

## 2.1 Introduction

NSMP's purpose is "Increased utilisation of and access to quality emergency obstetric life saving care."

The first four indicators monitor process in increasing utilisation and the fifth indicator measures progress against increased access.

## 2.2 Monitoring Increased Utilisation at Purpose Level

Progress is measured against OVI's 1.1 to 1.4 which are:

1.1. % increase of expected births occurring in project supported facilities;
1.2 % increase in expected obstetric complications managed in project-supported facilities;
1.3 % increase of caesarean sections as a % of all births in the district;
1.4 % increase of caesarean sections as a % of all hospital births.

These process indicators are very similar in nature to those promoted by UNICEF/WHO/UNFPA (1997).[1] Appendix 1[2] presents the indicators in more detail and the baseline data. In addition Appendix 2[3] describes the factors involved in choosing these purpose level indicators.

The OPR report presents progress against each of the indicators and this will be discussed further in the OPR. This report details the process involved in developing and managing the system used.

### 2.2.1 Project Year

All hospital data is kept in Nepali calendar months. Therefore, for data collection the project year will be from *Magh* to *Poush* inclusive.[4]

| | Begins | Ends |
|---|---|---|
| Baseline Data | Magh 2053 (Nepali calendar) | Poush 2054 (Nepali calendar) |
| 1st Year implementation | Magh 2054 | Poush 2055 |
| 2nd Year implementation | Magh 2055 | Poush 2056 |
| 3rd Year implementation | Magh 2056 | Poush 2057 |

At the time of this report writing (May), the project is in Year 3 month 3 (*Baishak*).

### 2.2.2 Tools

Two tools are used. The primary one is the "tally sheet". This was developed originally for the HMGN Maternal Mortality Study (1998) to record obstetric morbidity and obstetric procedures in hospitals and as such is not a project-specific format. An additional form, which *is* project specific was designed to gather information about the

[1] UNICEF/UNFPA/WHO, 1998, Guidelines for Monitoring the Availability and Use of Obstetric Services.
[2] Taken from Appendix 2 of the Project Progress Report (PPR) June 1998.
[3] Taken from Appendix 9 of the Inception Phase Report January 1998.
[4] This corresponds roughly with January through December of the western calendar.

reasons for caesarean sections (CS). The tally sheet and appended CS forms are completed monthly for each facility.

### 2.2.3 Method of Data Collection

Data are collected from the delivery and operating theatre registers in the project supported hospitals. These registers form part of HMGN's management information system. NSMP has contributed to their revival, but, again, they were not produced especially for project purposes.

NSMP's Human Resource Development Officers (HRDOs) are responsible for ensuring that this data is collected on a monthly basis. Collecting and analysing the data is a collaborative effort, involving nurses from each of the maternity departments, statistical officers and the HRDOs.

The tally sheets are then copied; one copy is kept in each hospital and the second is faxed or brought to NSMP's office in Kathmandu.

### 2.2.4 Data Management

Experience of the 1998 Nepal Maternal Mortality study suggests that even with significant support there are staff who find accurate collection of data difficult. This is partially due to the poor legibility of registers, and partly due to human error. A checklist is kept by the HRD Manager (based in NSMP's office in Kathmandu) to check the quality of the data.

### 2.2.5 Data Cleaning

The tally sheets are kept in the project office - filed by year and facility. Each six months one tally sheet is randomly checked. If the data quality is poor all sheets for that half-year are checked.

### 2.2.6 Data Entry

NSMP has developed Excel spreadsheets to enter numbers of deliveries, direct obstetric complications (abortions, ectopic pregnancies, pre-eclampsia and eclampsia, antepartum and postpartum haemorrhage, obstructed labour and ruptured uterus, postpartum and post-abortion sepsis). Retained placenta and anaemia have been added since, while they are not classified as direct obstetric emergencies, they are likely to lead to them if not treated. These spreadsheets provide the information required for the indicators. Progress against these is documented in some Project Progress Reports (for example the July to December 1999 PPR).

### 2.2.7 Lesson Learnt

Process indicators are proving meaningful in measuring progress in the provision of services to manage obstetric complications (and are thus a proxy for reducing mortality and morbidity). They are also proving to be manageable at local level. Staff's motivation in maintaining data is greatly enhanced when that information is seen to be used.

That said, collecting data is still not an easy task and needs constant inputs by the HRDOs. At present the HRDOs are primarily responsible for this task, although they are working to transfer responsibility to senior nurses and feel reasonably confident that this task can be managed by hospital staff. Nevertheless, ensuring feedback to hospital staff will be a key requirement to sustain enthusiasm and motivation.

NSMP's use of process indicators is currently being shared with UNICEF who are about to start using process indicators in four districts in Nepal. In addition NSMP's use of process indicators has challenged HMGN's Health Management Information System (HMIS) and has usefully facilitated central level debate. NSMP noted that

HMGN's tally sheet is not easy to use.[5] It is neither comprehensive nor effectively utilised by the mainstream HMIS. NSMP has initiated a review of the tally sheet to enhance its utility. This review has been conducted in collaboration with FHD, WHO and UNICEF and is a useful example of how experience in monitoring is valued and influential at a national level.

## 2.3 Monitoring Increased Access at Purpose Level

### 2.3.1 The OVI

At the purpose level there is one OVI to reflect access in the purpose-level statement *"Increase in community capacity to access B/CEmOC".*

### 2.3.2 Lessons Learnt

The MOV for this OVI was the community monitoring system (qualitative and quantitative data). As such it uses the same data collection process as Output 4 OVIs (see Section 4.2 for information on the constraints).

NSMP has reviewed this arrangement and believes it is not appropriate to use the same data and process for purpose level monitoring and output level monitoring. An alternative MOV system to provide data for this OVI would necessitate a degree of sophistication that is not deemed appropriate or replicable by any project partners and would be almost exclusively for the project's needs.

A more strategic issue is the debate over inclusion of access in the purpose level statement - this issue was raised in the last PPR (July to December 1999 and again in the latest PPR). NSMP wishes to suggest that access is intrinsic to utilisation and as such is an output rather than a purpose level OVI.

[5] To utilise the tally sheet requires systematic use of operating theatre, delivery ward and emergency ward registers which are often poorly maintained.

# 3. SERVICE PROVISION COMPONENT MONITORING SYSTEMS

## 3.1 Introduction

The service provision component covers two of the project's four outputs (i.e. Outputs 2 and 3). These OVIs are:

3.1 Quality B/CEmOC services (as defined by the National Maternity Guidelines) and quality indicators as defined by WHO Elements of the Quality of Maternal Health care in place by end of Phase 1.
3.2 Three supported hospitals have functional systems (e.g. B/CEmOC, drugs, waste disposal, stores, equipment, and maintenance) at the end of Phase 1.
3.3 Nepal Red Cross Blood transfusion service has quality control standards maintained in all three supported districts by the end of phase 1.

## 3.2 Background

A comprehensive needs assessment was conducted in each of the three supported facilities in August 1997. This covered: client-provider relationships, provision of BEmOC and CEmOC, technical competency, human resource management, physical facility standards and appropriate equipment needs.

The needs assessments were comprehensive and participatory, and from these plans, project inputs were developed necessitating some changes to inputs. Means to monitor progress were developed as a result of the needs assessment work.

## 3.3 Monitoring Measures

### 3.3.1 Monitoring Quality of Service Using a Quality of Care Approach (meeting OVI 2.1)

NSMP decided to monitor progress in attaining, maintaining and improving upon minimal standards of quality. A Quality of Care (QoC) approach was adopted. The QoC approach is presented and analysed in the report *Quality of Care – Results and Lessons Learnt.* The approach aims to be an agent of change in working practises as well as being a means to monitor change. This report deals with the monitoring side of the QoC approach and how it is used to meet OVI 2.1.

NSMP has adopted (with minor alterations such as the inclusion of blood transfusion services) WHO's elements of quality of care.[6] Each hospital's maternity team and infection prevention committee meets monthly to review progress against the WHO elements. Problems related to each element are identified and local solutions and responsibilities found. From this exercise the HRDO and facility staff develop a local plan which the project then supports as required. This process is documented monthly onto the (confusingly named) Quarterly Report document.
Every quarter an assessment of progress is undertaken. The teams reflect on progress of their actions plans and how far they are improving on standards set. A quarterly report form, containing the monthly action plans, is used for this purpose. This report is divided into two parts. The first details a series of questions under each element, which staff have to answer (most often in the form of choosing among "Always, Sometimes, Rarely and Never"). The second part of the report is used to document the problem solving exercise (again for each element) undertaken monthly.

[6] These elements are accessibility and availability of services, availability of essential supplies and equipment, promotion of health, acceptability of services, technical competence of service providers, client-provider interaction, comprehensiveness of services, continuity of care and follow up, and support to health workers (WHO, 1996, Mother Baby Package: Implementing Safe Motherhood in Countries).

The form is completed by the HRDO who ensures that the exercise is completed with all the nursing staff. This system has been in operation since January 1998. The project is currently about to review the format in order to better consolidate the information and enable easier monitoring of changes.

The national Reproductive Health Guidelines which detail standards of clinical care for all cadres of staff are used on an ongoing basis to monitor service providers' practice.

To date monitoring quality from the client's perspective has been limited though this is a key area that is now receiving more attention.

### 3.3.2 Monitoring Services Through The Self-Assessment Process (meeting OVI 2.1)

This is a much younger process, first introduced in September 1999. It is also detailed in *Quality of Care – Results and Lessons Learnt.* The purpose of the self-assessment exercise is to provide a structure for all hospital staff to reflect on their work to date, assess progress, and plan for the future. Unlike the QoC approach it is not confined to safer motherhood but rather has a broader remit.

NSMP was instrumental in introducing the process and supporting it. An external consultant facilitated the first exercise. In future NSMP's HRDOs will be skilled in facilitating the process.

As a monitoring tool it is too early to assess its usefulness. However given NSMP's experience to date with the QoC approach showing that a participatory all-team approach stimulates change and motivates staff to improve their services, it is likely that this process too will be valuable.

### 3.3.3 Monitoring Via Consultancy Inputs (meeting OVI 3.1)

NSMP often requires that consultants revisit earlier work. For example, in November/December 1999 a consultant reviewed progress with project inputs in procurement, facility improvement, maintenance and stores management. These visits are valuable in monitoring on-going progress and extrapolating lessons learnt.

### 3.3.4 Monitoring of Training Inputs (for OVI 3.1 and 3.2)

Follow-up evaluations of all training courses are conducted routinely and findings disseminated.

### 3.3.5 Monitoring of Other Safe Motherhood Services (i.e. not reflected in the OVIs)

The three NSMP supported districts are amongst the first districts in Nepal to provide post abortion care (PAC). The quality and quantity of PAC services are monitored through monthly reports developed by the FHD and JHPIEGO. NSMP receives copies of these reports. NSMP periodically reviews the utilisation and quality of the service using these reports. Currently NSMP is undertaking an evaluation of PAC services in the two hospitals where services have been on offer for a year.

NSMP also support the utilisation of HMGN's maternal death audit format. Few districts or organisations use the form.

### 3.3.6 Monitoring the Quality of Blood Transfusion Services (OVI 3.2)

Monitoring the quality of blood transfusion services is far from easy. The HRDOs document the quality of the service in the Quarterly Report Form discussed above.

At the national level the Red Cross undertakes some form of monitoring, though this is inadequate. At district level there is effectively no monitoring undertaken by the Red Cross team. NSMP will soon commence management training inputs to the district level Red Cross branches which aim, amongst other objectives, to standardise the quality of services.

## 3.4 Lessons Learnt

Introducing and sustaining a QoC approach is challenging in the prevailing working culture as the report *Quality of Care – Results and Lessons Learnt* demonstrates. However, it does seem possible to engender team working, local ownership and introduce incremental changes with appropriate local standards.

Monitoring quality locally is possible and does create a sense of pride. However, it requires great facilitation as many processes involved are new to staff. The approach still presents a challenge for programme managers who need to quantify changes in quality when managing on a large scale.

NSMP's experience in using the maternal death audit is valued at national policy level. The format is noted to be too complex to be effectively used. NSMP initiated a review of the format with FHD, WHO, and UNICEF.

# 4. INCREASING ACCESS COMPONENT MONITORING SYSTEMS

## 4.1 Introduction

At output level three OVIs are used:

4.1 Communities in NSMP-supported VDCs perceive that barriers to access of B/CEmOC have decreased (barriers defined by communities as awareness, shyness, financial, transport, physical access, care availability, quality and acceptability and language) by the end of Phase 1.
4.2 Local emergency transport schemes are functioning and utilised to access EOC by the end of Phase 1.
4.3 The Emergency Funding Scheme is functioning and is utilised to access EOC by end of Phase 1.

## 4.2 Background and Evolution of the Monitoring System

The initial baseline was provided by the needs assessment video (accepted by DFID SEADD). The participatory needs assessment video was produced by NSMP's increasing access component during the project's inception phase (March-December 1997). In co-ordination with the service provision component, the video was undertaken in each of the three phase 1 districts in mid-1997. The needs assessment was facilitated by NSMP staff members. It focused on identifying barriers to access to emergency obstetric care and involved filming the community, service provider interviews, and focus group discussions. The resultant video was widely viewed as an innovative means of undertaking a needs assessment.

As part of a process of localised project planning, ownership development and advocacy, NSMP then sought to undertake additional needs assessments in each ward in which they would work. The idea was to create a baseline against which ward members could monitor their own progress, and also provide a locally specific baseline against which the project could monitor change. The baseline was to be both qualitative and quantitative and be collected by FCHVs or other female community representatives, using adapted PRA tools[7]. The tools designed were as follows:

1. 'Health Care Resource Map' to show available health resources;
2. 'Body Map' to show numbers of complications in the community;
3. 'Frequency Chart' to show the care seeking behaviour for each complication;
4. 'Physical Access Map' to show physical barriers to accessing hospital care;
5. 'Group Money Map' to show available financial resources.

These tools were to be used with project communities within the first six months of project implementation. Based on the information they would generate, and any issues raised during the process of their implementation, other tools would then be designed. It was anticipated that these new tools would look at issues such as decision-making, control of money, level and type of income in each of the village clusters and male perceptions of pregnancy and childbirth. Together these two sets of tools created a comprehensive baseline and, repeated yearly, this would allow NSMP to monitor change and assist in annual planning.

Difficulties arose in implementing this process when, in late 1998, the project altered its strategy to work with government rather than non-government community groups. In addition to more than doubling the number of groups to over 200, a substantial input was required to strengthen or re-establish these groups and hence led to an increased workload and less intense preparation of the FCHVs who were to facilitate the process. At the same time the staggered timing of the baseline collection[9] meant that some groups were being asked to use the tools when they were already alert to the issues and felt able to identify the problems and potential solutions without

[7] Detailed descriptions of the tools and the proposed process for their use can be found in June 1998 PPR. Details of how the tools would be used for project monitoring can be found in Options, 1998, 'Review and Documentation of NSMP's Increasing Access Component' written by Kirstan Hawkins.

[9] Some groups were being asked to collect the baseline more than a year after the initial design.

use of the tools. Compounding this resistance to the use of tools was a community discomfort with drawing as a medium of expression.

These constraints resulted in an incomplete project baseline. Attempts to quantify the results were complicated by variation in implementation of the tools between groups and the incomplete data set. Inadequate notes on group composition and the process of discussion made the qualitative information difficult to interpret. For example, information in the obstetric complication map could have been provided by only one member of the group, or even a trained TBA, and thus cannot be used to indicate community knowledge.

The information gathered from the PRA baseline process was reviewed by NSMP's increasing access team, led by the project's Social Development Adviser, between July and October 1999. Based on the concerns highlighted above it was recognised that additional information would be required to design the IEC implementation strategy and to monitor change.

In December 1999 and January 2000 project field staff collected information on the perceptions of the members of the Mothers' Groups and men in the community regarding the extent of danger of obstetric complications. This was collected from individuals using a very basic ranking procedure in which participants were asked, as a group, to come up with a list of the problems of pregnancy and then individually to indicate, using grain, those problems that they felt were 'life-threatening'. Although essentially qualitative, this process allows for basic quantification of some information and was chosen as it can be used as an IEC activity as well as a data collection exercise. Whilst by no means providing a baseline, the information gathered does reflect the communities' awareness and perceptions of danger signs prior to intensive implementation of the IEC strategy.

### 4.3 Current and Future Monitoring Mechanisms

In line with the LogFrame changes detailed in the December 1999 PPR a follow-up of the original filmed baseline is currently being undertaken with the same communities in each of the three project districts. This is a qualitative input undertaken by an external team to explore the communities' perspectives on the appropriateness and effectiveness of project interventions and the extent to which they feel access has improved or should improve. It uses both the PRA maps and information gained from the film baseline as triggers to focus discussion on change and is encouraging the community to re-analyse their strategies for increasing access. In Baglung District[10] the data collection process has been filmed and the resultant footage will be combined with the original Baglung community video to document the community's perception of change.

In addition to general perceptions of access and access barriers, the external team has gathered more in-depth information on emergency fund and transport scheme use and coverage. This will be combined with quantitative data gathered by project staff from the Mothers' Groups' logbooks and informally gathered data to develop a clearer picture of fund development, fund and scheme utilisation, and progress towards increasing access for marginalized groups.

Project records are being used to show VDC fund usage and involvement in Safe Motherhood activities and physical access improvements.

Field staff's reports are being used to monitor IEC activities, and informal observations and discussion used to collect information on attitudinal and behaviour change in the event of an obstetric complication. The IEC ranking exercise will be repeated after a year as an interim evaluation of the IEC strategy, searching for changes in perceptions of danger signs. Discussion during this exercise will be documented and analysed for signs of attitudinal change, perceptions of cause and care-seeking behaviour[11].

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[10] Due to political unrest the process cannot be undertaken in the other two 'needs assessment' VDCs.

[11] The project recognises the need for interactive and localised IEC work, challenging the attitudinal barriers and recognising local perceptions of cause and appropriate treatment. Challenges arise in a structured monitoring and evaluation of these inputs and their impact - as measuring shyness and other attitudinal barriers - is complex and intrusive, and impact can only be measured through action in the event of an obstetric emergency.

Case studies and quotations are also being gathered on successful instances of access, and general community feedback on project activities and their impact.

## 4.4 Lessons Learnt

Although PRA methodologies are designed to be simple and accessible to the participants and facilitator, analysis and interpretation of results can be complex and require substantial understanding of the process being undertaken and the reasons for its use. A limited understanding of the task being undertaken can lead to mechanistic implementation and resultant loss of value as a planning process and lack of interest by the respondent group.

Adding a monitoring role to PRA further increases the complexity of its implementation and analysis. This is particularly true when the objective of the exercise is to monitor changes in awareness or understanding. The skills required to recognise and interpret change through this method necessitate additional training and understanding.

Qualitative and quantitative methodologies are very different in their analysis and therefore obtaining quantitative information from qualitative data is a complex and skilled process, requiring a thorough understanding of both analytical processes and their benefits.

# 5. NSMP'S EVALUATION OF PHASE 1

In addition to the monitoring system, NSMP evaluated the outputs near the end of Phase 1.

The service provision component was evaluated in two ways:

(i) Output 3 was evaluated by hospital providers using the Self-Assessment exercise mentioned in Section 3.3.2. This exercise is described and results provided in *Quality of Care – Results and Lessons Learnt.*
(ii) Output 2 was comprehensively evaluated by a consultant (see "Review of NSMP's Procurement, Facility Improvements, Maintenance and Stores Management Inputs" (December 1999).

The increasing access component was comprehensively evaluated by the team with direct primary stakeholder inputs. Findings are presented in *Increasing Access: A Review of Phase 1.*

As mentioned in the introduction to the report, progress against each output is detailed in the OPR report.

# 6. DISCUSSION OF MONITORING SYSTEMS

NSMP is pleased with the practical application of indicators and the monitoring systems used for service provision at both purpose and output level. They are proving effective by demonstrating change as shown in the PPRs to date (in particular PPR July to December 1999) and the OPR report.

The right balance has been found between a system needed to demonstrate progress of a project and a system that is useful, feasible and adopted by service providers themselves. On site monitoring of the processes by the HRDOs remains a challenge, but the "prognosis" is good.

NSMP has found monitoring increasing access to services challenging, as described in Section 4.

Difficulties arise in monitoring process projects. For example, truly participatory monitoring is time-consuming both for the community and the project whilst traditional monitoring systems can be inflexible, intrusive and limited in terms of an accurate reflection of the situation.

As a process project NSMP chose to pilot both interventions and monitoring systems - which both carry risks. In these situations the risk should be explicitly documented and measured to mitigate against their failing. For example, DFID may feel the need to supplement the piloted system with an alternative more traditional monitoring system.

# APPENDIX 1: DESCRIPTION OF THE INDICATORS AND BASELINE DATA (FOR THE YEAR PRIOR TO PROJECT IMPLEMENTATION)

*% increase in births occurring in project supported facilities*

| | District | Kailali | Surkhet | Baglung |
|---|---|---|---|---|
| 1 | Expected births/annum | 19 876 | 10 237 | 9988 |
| 2 | Number of births at facility | 976 (5%) | 402 (4%) | 280 (3%) |

The first row indicates the total number of births expected in each of the project supported district during the year (1996/7). The second row shows the actual number of births which took place in project-supported hospitals during the same 12-month period. The figure in brackets is the proportion of expected births which took place in the supported facility.

This is an indicator of overall use but does not inform us whether the women most in need are using the service. Therefore an increase in the proportion of women giving birth in the supported facility does not indicate a successful outcome. This must be analysed in combination with the other indicators.

*% increase in expected obstetric complication treated in project supported facilities*

| | District | Kailali | Surkhet | Baglung |
|---|---|---|---|---|
| 1 | Expected pregnancies/annum | 22 085 | 11 374 | 11 098 |
| 2 | 15% direct obstetric complications expected per annum* | 3313 | 1706 | 1665 |
| 3 | Number of direct obstetric complications treated at facility (Met need)* | 185 (6%) | 105 (6%) | 47(3%) |
| 4 | Unmet Need for admission for complication | 94% | 94% | 97% |

The first row in this table indicates the number of pregnancies (higher than the number of births to take account of early pregnancy loss) per annum in each district. The next row (2) shows how many of these pregnant woman will suffer from a direct obstetric complication which requires emergency obstetric care. Direct obstetric complication includes haemorrhage, pre/eclampsia, obstructed labour, complications of abortion and sepsis following delivery. Worldwide 15% of all pregnant women suffer from these life-threatening complications and all of these women require interventions to avoid death or severe morbidity.

The third row shows the actual number of women who were treated for a direct obstetric complication during the same time period (12 months). The percentage point in brackets shows the proportion of women whom needed EOC care who received it - MET NEED. The last row shows the proportion of women whose need for EOC was UNMET. The project will be successful if UNMET for EOC is reduced.

*% increase in the % of expected caesarean section performed*

| | District | Kailali | Surkhet | Baglung |
|---|---|---|---|---|
| 1 | Expected CS per annum (5% of births) | 994 | 512 | 499 |
| 2 | Number of CS performed (met need) | 38 (4%) | 18 (4%) | 0 |
| 3 | Unmet need for CS | 96% | 96% | 100% |

Globally it is known that a minimum of 5% of all pregnant women will require a caesarean section to avoid death or serious morbidity of the mother. The first row in this table indicates the minimum number of caesarean sections which would need to be performed in each of the project supported districts per annum.

The next row shows the actual number of caesarean sections that was performed over the same 12 month period. The MET need for this intervention is shown in brackets. In Surkhet and Kailali this may be an overestimate as some of the caesarean sections performed were done for non-emergency reasons. The UNMET need for this intervention is shown in the final row. The project will have had an impact if there is a reduction in

this UNMET need. It is suggested that unmet need of 85 - 90% by the OPR in February 2000 would be evident of impact.

*% increase in caesarean section as a proportion of all hospitals births*

| | Kailali | Surkhet | Baglung |
|---|---|---|---|
| Total number of hospital births | 976 | 402 | 280 |
| Total number of caesarean section | 38 | 18 | 0 |
| Caesarean sections as a total of hospital births | 3.4% | 4.4% | 0 |

Overall it is expected that the % of hospital births which are caesarean section should not exceed 10%. A very high rise in this % would indicate a need to audit the reasons for caesarean sections to ensure there was good medical reason for the intervention. Note that in Baglung no caesarean sections were performed in the year prior to project intervention.

# APPENDIX 2: FACTORS AFFECTING CHOICE OF INDICATORS

## 1. Introduction

Key issues considered in the choice of indicators for NSMP include:

- The difficulty of measuring maternal mortality and morbidity as health outcome indicators.
- Difficulties collecting data to establish a baseline (lack of routine data).
- The logistics and project time which can be given to ongoing data collection (there is a paucity of HMIS data in this area).
- Indicators currently used by HMGN.

## 2. Maternal Mortality and Morbidity as Health Outcome Indicators

Showing a decline in the maternal mortality ratio in project areas would be desirable. However, the MMR is an insensitive measure, and although useful for determining the size of the problem, it is not useful for determining programme progress or impact. The sisterhood method of estimating MMR, which has been used in Nepal, gives a retrospective estimate and has wide confidence intervals. In addition, this is national and not district specific data. It is plausible that there are large differences in ratios in geographically variable parts of the country.

Maternal morbidity is more common than mortality and is therefore a possible alternative measure of project impact. However, the project is aiming not at preventing the occurrence of a complication, but at preventing it from becoming severe and specifically from leading to death. It is possible that the incidence of morbidity could increase as more women with sequale of complications survive.

There are also problems in measuring morbidity. As yet surveys to estimate population prevalence of obstetric morbidity have not yielded reliable results. Therefore, neither of these measures are considered to be useful for measuring project impact. At the Goal level on the NSMP head LogFrame the OVI 'reduction in maternal mortality ratio' cannot give any indication of NSMP impact. However, if purpose level objectives are achieved we can be confident that the project will contribute to the goal.

## 3. Availability of Data to Establish a Baseline

There are major constraints on the level and quality of data available at district level to construct baseline figures. Data in relation to EOC is not as yet part of the HMIS. However, the SMP districts have been part of a study on maternal mortality conducted by FHD (supported by UNFPA) over the last nine months. This data has been validated by NSMP team members and is being used as a baseline for utilisation rates, % of complicated cases, and numbers of obstetric procedures undertaken in each of the three first phase hospitals. Other data being used for a baseline is taken from studies conducted by the project. However, the following constraints remain:

- Utilisation rates are currently so low that no baseline case fatality rate can be constructed (in addition this indicator is prone to other problems of interpretation). As a result case fatality has been removed as an indicator.

- Vital data such as address (and even name and age) are not recorded accurately, and it is therefore very difficult to desegregate which areas women are coming to the hospital from. In addition, all baseline denominator data (such as expected number of births per annum) are assumed to relate to the district in which the hospital is located, despite the fact that some women may have attended from other districts.

- Individual case records are very poor. There is therefore no way of establishing whether women who are registered as having had a complication presented with this complication or if the complication developed as a result of poor management following admission.

## 4. Practically of Future Data Collection

Efforts will be made to encourage and support hospital staff to improve the quality of data currently collected. However, a reasonable balance needs to be achieved between time taken to improve data collection and time taken to improve the quality of the service provided. Efforts will be made to ensure that data can be desegregated to give information on whether women arrive with or develop a complication as a result of poor management. Current information about condition on arrival is so poor that this may be very difficult to achieve sufficient improvement to ascertain the ratio of complications caused in the hospital as a total of all complications.

## 5. Indicators Currently Used by HMGN

HMGN are currently using the caesarean section rate as a proportion of all births in the population and hospital. It is considered practical to continue to use this indicator despite specific difficulties in interpretation. It has therefore been combined with a selection of other indicators so that it can be interpreted in context.

## 6. Purpose Level Indicators

The purpose level indicators which measure unmet need for obstetric intervention require more explanation. Firstly, an assumption has been made that the standard 'guesstimate' of 15% of all deliveries being complicated is reasonable for Nepal. The first two indicators will examine utilisation of obstetric services by women – overall as a proportion of those births that are expected in the geographical catchment area and utilisation by women experiencing a complication. The former is a crude indicator of utilisation, but does not inform if the women most in need of care are accessing it. The latter is an attempt to measure this. However, this indicator does not inform about the quality of care or technical competence of providers. The project will institute sentinel surveillance to attempt to measure these (output level indicators).

Caesarean section as a proportion of all births is already being used by HMGN. The use of this indicator has been controversial since it is sometimes an overused intervention. This is not the case in rural Nepal. The project will look for a steady increase in the proportion of births by caesarean section given the currently very low rate. However, minimum levels of 5% and a maximum of 15% are set as deemed acceptable by WHO. Finally, a new indicator proposed by Vincent De Brouwere and colleagues is used since although no extra data collection is involved in the calculation of this, it will help to establish a picture of service use and met need for obstetric intervention.

A number of different indicators to measure unmet need have been proposed. It is considered that these are required in combination in order to build a convincing case that change is occurring. Data will be collected using the hospital registers and monthly tally sheets of numbers of obstetric complications presenting and procedures performed. Base population data (for reproductive age women) has been calculated for each district using HMGN data from the last census and projecting population sizes for 1997 using national population growth rates for rural areas.

## 7. Goal Level Indicators

No appropriate goal level indicators to measure the impact of EOC provision and demand creation activities has been developed. Despite the limitations of the current OVI (see above) no alternative can be suggested at this point. However, it needs to be acknowledged that it will be difficult to distinguish the impact of the NSMP from other factors contributing to fulfilment of the goal.