

MASTER OF PUBLIC HEALTH

Johns Hopkins Bloomberg School of Public Health & IIHMR University

PRACTICUM REPORT

By

Dr. Ahmed Shammam Yoosuf

Cohort-6

2018 - 2020

Under the supervision of

Dr. Rupak Mukhopadhyay

Senior Program Officer

INCLEN Trust International

Practicum advisor

Dr. Anoop Khanna

Professor

IIHMR University

Faculty advisor

TO WHOMSOEVER MAY CONCERN

This is to certify that ***Dr. Ahmed Shammam Yoosuf***, student of Master of Public Health Program offered by IIHMR University, Jaipur in cooperation with Johns Hopkins Bloomberg School of Public Health, Baltimore has undergone Practicum Training at **INCLEN Trust International under the supervision of Dr. Rupak Mukhopadhyay** from ***2nd January 2019*** to ***20th March 2019***.

The Candidate has successfully carried out the study designated to her/his during practicum training and her approach to the study has been sincere, scientific and analytical.

The Practicum Training is in fulfillment of the course requirements.

I wish her/him success in all his future endeavors.

Sd-

Dr. Anoop Khanna

Practicum Advisor

CERTIFICATE BY SCHOLAR

This is to certify that the Practicum Project titled submitted by me, **Dr. Ahmed Shammam Yoosuf** with Enrollment No. IIMR-U/07/2018-20/0034 under the supervision of **Dr. Rupak Mukhopadhyay** for award of **Master of Public Health** carried out during the period **2nd January 2020 to 20th March 2020** embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

Dr. Ahmed Shammam Yoosuf

MPH Cohort 2018-20

Certificate from the organization



Ref: INCLEN-IEO Delhi/Corres2020/HR-Misc.-60

23rd April, 2020

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Dr. Ahmed Shammam Yoosuf**, pursuing Master's degree in "Public Health program" a student of **IIHMR University, Jaipur** (2018-2020) in cooperation with **the Johns Hopkins Bloomberg School of Public Health USA**, has undergone practicum training (internship) under the supervision of **Dr. Rupak Mukhopadhyay** in the project "**Quality of intrapartum and immediate postpartum care of mothers and newborns: an implementation research to catalyze performance of LaQshya program in six districts of India**". The practicum training (internship) was carried out from **2nd January 2020 to 20th March 2020** for approximately **419 hours**.

Dr. Shammam has successfully carried out the development of the draft instruments designated to him during the practicum training (internship) by systematically understanding the steps of instrument development and by conducting literature review, identification of domains for the tools. He has actively participated in peer discussions regarding the project and observed conference calls regarding the project. Additionally, he has attended workshops on research ethics by **Dr. Abha Saxena**, ex coordinator of Global Health Ethics team (2013-2018) at **The INCLEN Trust International** Delhi office.

We wish **Dr. Shammam** a prosperous academic and professional journey.



For The INCLEN Trust International
Brig. V. K. Panday (Retd.)
Chief Operations Officer
The INCLEN Trust International



Dr. Rupak Mukhopadhyay
Senior Program Officer
The INCLEN Trust International
Practicum advisor

Acknowledgements

The Master of Public Health (MPH) program of Johns Hopkins Bloomberg School of Public Health (JHSPH) in collaboration with Indian Institute of Health Management Research (IIHMR) University Jaipur has been one of the most rigorous academic endeavors I have accomplished. However, this achievement would not have been possible without the guidance and help I received from the many teachers, mentors, seniors and colleagues.

Firstly, I would like to thank INCLEN Trust International for providing me with the opportunity to complete my practicum requirement. I have learned valuable lessons from the organization which I will remember throughout my career and life.

I would like to express my gratitude to my mentor at the organization Dr. Rupak Mukhopadhyay for his guidance and advice throughout the practicum period. His unique thinking and reflective thoughts were the key for me to push my thoughts further to complete the work I have done.

I would also like to thank my Faculty advisor Dr. Anoop Khanna who has guided me throughout my MPH program.

Finally, I would like to thank my family and friends who have supported me throughout my academic journey without whom this achievement would only have remained a dream.

Table of contents

Acknowledgements	5
List of figures.....	9
List of Annexures	10
List of Abbreviations	11
List of Definitions.....	12
Section 1 : Introduction	13
1.1 Prelude	13
1.2 About the organization	13
1.3 Work plan	14
1.3.1 Job Duties	14
1.3.2 Technical and other job skills to be developed during the internship.....	14
Section 2 : Background.....	15
2.1 Maternal and newborn mortality in India.....	15
2.2 Government Initiatives	15
2.2.1 Dakshata (11).....	15
2.2.2 LaQshya program (12)	16
2.3 Rationale and justification for the study.....	18
Section 3 : Study objectives	19
Section 4 : Methodology	19
4.1 Research design.....	19
4.2 Study site and participants.....	20
4.3 Development of data collection instruments.....	20
4.3.1 Patient Satisfaction Assessment instrument for recently delivered women	21
4.3.2 Patient Satisfaction Assessment instrument for recently discharged young infant from SNCU/NICU	22
4.3.3 Patient Flow Analysis (PFA) instrument	22
Section 5 : Findings/ Results	23

5.1 Patient Satisfaction Assessment instrument for recently delivered women	23
5.1.1 Literature review.....	23
5.1.2 Identification of domains.....	45
5.1.3 Content validity	45
5.1.4 Scaling responses.....	45
5.1.5 Item selection	46
5.1.6 Draft instrument	46
5.2 Patient Satisfaction Assessment instrument for recently discharged young infant from SNCU/NICU	47
5.2.1 Literature review.....	47
5.2.2 Identification of domains.....	56
5.2.3 Content validity	56
5.2.4 Scaling responses.....	56
5.2.5 Item selection	56
5.2.6 Draft instrument	57
5.3 Patient Flow Analysis instrument.....	57
5.3.1 Literature review.....	57
5.3.2 Identification of domains.....	60
5.3.3 Draft instrument	62
Section 6 : Way forward.....	62
6.1 Translation of the instruments.....	63
6.2 Pretesting of instrument	63
6.3 Item reduction	64
6.4 Reliability testing (46).....	64
6.5 Validity testing (46).....	65
Section 7 : Limitations and Recommendations	66
Section 8 : Conclusion.....	66
Section 9 : Practicum experience.....	67
References.....	68
Annexures	72

Annexure 1 – Draft instrument for Patient Satisfaction Assessment instrument for recently delivered women.....	72
Annexure 2 – Draft instrument for Patient Satisfaction Assessment instrument for recently discharged young infant from SNCU/NICU.....	76
Annexure 3 – Draft instrument for patient flow analysis.....	80

List of figures

Figure 1: Summary of development of instruments.

Figure 2: Patient flow within maternity wing, from the Maternal and Newborn Health Toolkit.

Figure 3: Flow of patient after triage, from Guidelines for Obstetric HDU and ICU.

Figure 4: Flow of patient, from the Guidelines for Standardization of Labor rooms at delivery points.

Figure 5: Summary of steps way forward for the development of the instruments

List of Annexures

Annexure 1 – Draft instrument for Patient Satisfaction Assessment instrument for recently delivered women

Annexure 2 – Draft instrument for Patient Satisfaction Assessment instrument for recently discharged young infant from SNCU/NICU

Annexure 3 – Draft instrument for patient flow analysis

List of Abbreviations

MPH – Master of Public Health

JHSPH – Johns Hopkins Bloomberg School of Public Health

IIHMR – IIHMR

MOHFW – Ministry of Health and Family Welfare

SDG – Sustainable Development Goal

GOI – Government of India

ANM – Auxiliary Nurse Midwife

RMC – Respectful Maternity Care

OT – Operation Theatre

APH – Antepartum Hemorrhage

PPH – Postpartum Hemorrhage

HDU – High Dependency Unit

QM – Quality Management

NICU – Neonatal Intensive Care Unit

ICU – Intensive Care Unit

D&A – Disrespect and Abuse

PFA – Patient Flow Analysis

CFA – Client Flow Analysis

AMTSL – Active Management of Third Stage of Labor

ICC – Intraclass Correlation Coefficient

List of Definitions

Intrapartum – “The time period spanning childbirth, from the onset of labor through delivery of the placenta. Intrapartum can refer to both the woman and the fetus”.(1)

Postpartum - The period just after delivery “often considered the six to eight weeks after delivery because the effects of pregnancy on many systems have largely returned to the pre-pregnancy state”.(2)

Implementation Research – “Implementation research is typically a multi-method inquiry that uses both quantitative and qualitative data to assess the programs and policies that are the subject of an evaluation. It is the work of implementation research to investigate *how* the program produces those impacts by understanding the services that are delivered to enrollees and the factors that influence their implementation”.(3)

Maternal Mortality Ratio – “Number of maternal deaths per 100 000 live births”.(4)

Neonatal Mortality Rate – “Number of neonatal deaths per 1000 live births”. (5)

Respectful Maternity Care – It “refers to care organized for and provided to all women in a manner that maintains their dignity, privacy and confidentiality, ensures freedom from harm and mistreatment, and enables informed choice and continuous support during labor and childbirth”.(6)

Patient Flow Analysis – “Patient Flow Analysis (PFA) is a quality improvement tool which can be used to help identify patient flow inefficiencies at any type of health care facility and inform areas for intervention to help improve care delivery processes”.(7)

Section 1 : Introduction

1.1 Prelude

This is a report based on my practicum experience in INCLEN Trust International for the fulfillment of MPH program of JHSPH in collaboration with IIHMR university, Jaipur. I worked as an intern in the organization under the mentorship of Dr. Rupak Mukhopadhyay who is the co-principle investigator and study coordinator for the research study conducted on LaQshya program. The internship was carried out under implementation research study “Quality of intrapartum and immediate postpartum care of mothers and newborns: an implementation research to catalyze performance of LaQshya program in six districts of India”. Within my internship, I assisted in development of instruments for the formative research and baseline assessment of the study.

1.2 About the organization

The INCLEN Trust International(8) is a research organization working non-profit basis and conducts collaborative, multi-disciplinary studies on high priority global health issues. INCLEN is a network of 256 institutions (including medical colleges =169, ICMR institutes =15, Public health research institutes =38 and Research NGOs =12) in India. They have been maintaining a strong and strategic relationship with various departments of the central and state governments such as the Ministry of Health and Family Welfare (MOHFW) and Indian Council of Medical Research (ICMR) e.t.c.

1.3 Work plan

1.3.1 Job Duties

1. Literature review and desk research
2. Identification of domains for tools
3. Development of tool
 - a. Facility Assessment tool
 - b. Skill Assessment tool
 - c. Knowledge Assessment tool
 - d. Patient Satisfaction Assessment tools
 - e. Patient flow Analysis tool
4. Translation of tools
5. Pilot testing of tools

1.3.2 Technical and other job skills to be developed during the internship

1. Literature review
2. Research Ethics
3. Peer discussion
4. Tool development
5. Pilot testing of Tools
6. Conceptual framework of implementation Research
7. Quality assessment and improvement in health facility with special reference to intrapartum and immediate postpartum care.

Section 2 : Background

2.1 Maternal and newborn mortality in India

Over the last two decades, India has been able to significantly reduce the maternal mortality ratio (77% decrease, from 556 per 100000 live births in 1990 to 130 per 100000 live births in 2016 (9)) and newborn mortality rate (from 52 per 1000 live births in 1990 to 28 per 1000 live births in 2013 (10)) in the country. However, efforts are required to further improve these indicators and increase the number of institutional deliveries. It has been recognized that there is a need for transformational quality change in the processes related to intrapartum and postpartum care to further improve these indicators and achieve the targets 3.1 and 3.2 of Sustainable Development Goal (SDG) number 3. The government of India (GOI) launched initiatives such as Dakshata (2015), Pradhan Mantri Surakshit Matritva Abhiyan (2016) and LaQshya Program (2017) as part of the efforts to improve these indicators and improve the quality of maternal health care provided in the public health facilities.

2.2 Government Initiatives

2.2.1 Dakshata (11)

This program was launched by MOHFW, GOI in 2015 as a strategic initiative in order to strengthen quality of both intra- and immediate postpartum care. It aims to improve the quality of care at the delivery points of the country through a focused program. The goal of this initiative is “to improve the quality of maternal and newborn care during the intra- and immediate postpartum period, through providers who are competent and confident”.

The major objectives of the initiative are:

Objective 1: “To strengthen the competency of providers of the labour room, including medical officers, staff nurses, and auxiliary nurse midwives (ANM) to perform evidence-based practices as per the established labour room protocols and standards”.

Objective 2: “To implement enabling strategies to ensure transfer of learning towards improved adherence to evidence based clinical practices”.

Objective 3: “To improve the availability of essential supplies and commodities in the labour room and the postpartum wards”.

Objective 4: “To improve accountability of service providers through improved recording, reporting and utilization of data”.

Objective 5: “(intermediate term objective): Implementation of the Maternal and Newborn Health Toolkit at the delivery points, in a phased manner”.

2.2.2 LaQshya program (12)

The LaQshya program launched by the National Health Mission and Ministry of health and family welfare (MOHFW) of government of India in 2017, is a labor room quality improvement initiative, intended to improve the quality of care in labor rooms and maternity operation theatres in government medical college hospitals, district hospitals, sub-district hospitals and other high case-load health facilities. This program has been designed based on available scientific evidence with an importance towards ensuring ‘Respectful Maternity Care’(RMC) to pregnant woman. Under this initiative, a multi-pronged strategy has been adopted to identify the gaps with regards to maternal care during intrapartum and immediate postpartum period and strengthen the key

processes related to them based on verifiable targets in order to improve the quality of care and simultaneously enhance the efforts of other programs without replacing them.

- Goal of the initiative

“Reduce preventable maternal and newborn mortality, morbidity and stillbirths associated with the care around delivery in Labor rooms and Maternity OT and ensure respectful maternity care”.

- Objectives

- “To reduce maternal and newborn mortality and morbidity due to APH, PPH, retained placenta, preterm, preeclampsia and eclampsia, obstructed labor, puerperal sepsis, newborn asphyxia, and sepsis, etc”.
- “To improve Quality of care during the delivery and immediate post-partum care, stabilization of complications and ensure timely referrals and enable an effective two-way follow-up system”.
- “To enhance satisfaction of beneficiaries visiting the health facilities and provide Respectful Maternity Care to all pregnant women attending the public health facility”.

- Strategies

- “Reorganizing/aligning Labor room and Maternity Operation Theatre layout and workflow as per ‘Labour Room Standardization Guidelines’ and ‘Maternal and Newborn Health Toolkit’ issued by the Ministry of Health and Family Welfare, Government of India”.

- “Ensuring that at least all government medical college hospitals and high case-load district hospitals have dedicated obstetric HDU’s as per GOI MOFHW Guidelines, for managing complicated pregnancies that require life-saving critical care”.
- “Ensuring strict adherence to clinical protocols for management and stabilization of the complications before referral to higher centers”.

2.3 Rationale and justification for the study

The LaQshya program(12) has been progressing slow ever since it has been launched, and there has been limited success in achieving the target number of LaQshya certified facilities which demonstrates that the implementation of the initiative demands identification of existing bottlenecks for achieving a well-orchestrated coordination between national, state and district management teams. LaQshya incorporates all the elements of other initiatives such as Dakshata and addresses the quality of care during intrapartum and immediate post-partum period. The standards under LaQshya guidelines are evidence-based which have been proven to improve the quality of birthing process and the period around birth. Recent studies suggest that improvement of quality of care could have the greatest impact by reducing the maternal and neonatal mortality, reduce the number of stillbirths, and also prevent millions of babies from suffering disabilities related to birth injuries. Implementation research will pave to identify how improvement of processes and structural improvement strategies can be contextualized to augment and attain the targets of LaQshya program.

Section 3 : Study objectives

The following is a brief summary of the objectives of the study. The actual objectives of the study cannot be shared due to confidentiality issues.

The implementation research carried out by the INCLEN Trust International on Laqshya program on the quality of intrapartum and immediate postpartum care of mothers and newborns comprises of identifying the gaps in the program and the challenges faced for effective implementation of the program in public health facilities. It also includes assistance to the district health teams during implementation phase of LaQshya, which is of 12 months duration and includes Rapid Improvement Cycles. These Rapid Improvement Cycles will be carried out using the quality improvement methodology (Plan-Do-Check-Act) cycle, which will further aid in determining the improvement in quality of care during intrapartum and postpartum period. All the findings with regards to the implementation process including the gaps, possible solutions, and improvements on the processes involved in intrapartum and postpartum care will be further used to aid in scale up of the program. The total duration of the study is 2 years.

Section 4 : Methodology

4.1 Research design

The implementation research design will adopt a pre-post, quasi-experimental study design. Multiple observations and mixed research methods will be adopted to identify the gaps in the current LaQshya program implementation and the effect of Rapid Improvement Cycles. The steps of the study is similar to that of the LaQshya program and includes the baseline assessment,

evaluation and the monitoring framework as mentioned under the guidelines. As per the guidelines, implementation of LaQshya program will be carried out by the district health system.

4.2 Study site and participants

The study is conducted in collaboration with the Maternal and Reproductive Health division of the MOHFW, GOI. Facilities from six different states and districts will be shortlisted for the study based on type of facility and number of deliveries conducted annually in the facility. Participants of the study will include all service providers related to providing the services as per LaQshya guidelines, the administrative and program staff at the district level, service utilizers and their families, and the quality management teams at facility and district level.

4.3 Development of data collection instruments

Development of the data collection instruments was a structured process which was unique for each individual instrument based on the available literature and the methods of assessment. The process of development of the patient satisfaction assessment instruments for postpartum women and parents of sick newborn child was similar while the patient flow analysis tool was a bit different.

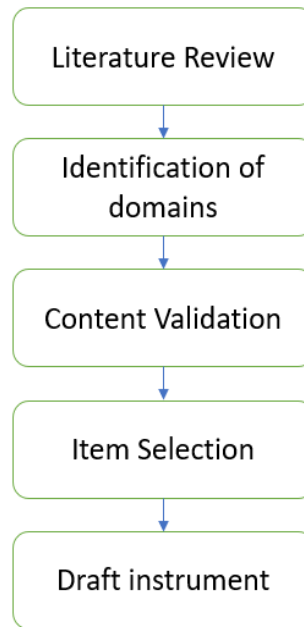


Figure 1: Summary of development of instruments.

4.3.1 Patient Satisfaction Assessment instrument for recently delivered women

The process of development of instrument started with rigorous literature review which included previous studies on patient satisfaction and RMC globally and in Indian context, studies which included pretested and piloted instruments, and research papers on methodologies of development of instruments specifically for postpartum mothers. The literature review was conducted on PubMed, SCOPUS and Google scholar using keywords disrespect and abuse, mistreatment, facility childbirth, research methods, patient perception, quality of care, service quality, respectful maternal care, instrument development. Cross references were utilized to further expand the review.

Upon completion of the literature review, item selection was carried out with reference to the standards described in the LaQshya guidelines. Items selected for the instrument were further

discussed among peers for item reduction by eliminating redundant items with similar meaning and issues irrelevant to the context and merging items from similar context.

4.3.2 Patient Satisfaction Assessment instrument for recently discharged young infant from SNCU/NICU

A literature review was conducted on PubMed, SCOPUS and Google scholar using keywords parent satisfaction, NICU, satisfaction with care, instrument development, neonatal follow-up, quality of care, reliability, validity. Similar to the previous instrument, items were selected after the literature review, based on the standards mentioned in the LaQshya guideline. Furthermore, cross references were searched for an in-depth review. After thorough peer discussion, items were either eliminated or merged based on redundancy and relevance to the context.

4.3.3 Patient Flow Analysis (PFA) instrument

The initial literature review conducted for the Patient Flow Analysis instrument was conducted on PubMed, SCOPUS and Google scholar using the keywords patient flow analysis, client flow analysis, waiting times, maternal health service delivery, quality improvement, quality of care. The patient flow diagram flow diagrams from Maternal and Newborn health toolkit, Guidelines for Obstetric HDU and ICU and Guidelines for standardization of labor rooms at delivery points were considered for the development of this instrument. Additionally, peer discussion is carried out to ensure that the instrument completely measures and assesses the patient flow within a health facility.

Section 5 : Findings/ Results

5.1 Patient Satisfaction Assessment instrument for recently delivered women

5.1.1 Literature review

The literature review for the development of Patient Satisfaction Assessment instrument for postpartum women in government health facilities yielded studies which utilized either a questionnaire developed by the author(s) or one that has been previously utilized in a previous study. The literature on client feedback mostly addressed outcomes such as perceived quality of care(13–15), proportion of women who experienced disrespect and abusive treatment during facility deliveries and client satisfaction(16–18). Most of the studies reflected upon frameworks such Donabedian quality assessment framework(19–21). and the seven categories of disrespect and abuse by Bowser and Hill(22).

Research articles were identified based on studies which had been pretested and piloted. Most of the studies highlighted limitations such as gratitude bias which may be common in postpartum women already admitted in the facility due to fear of consequential mistreatment from the healthcare providers. In such cases, a systematic review conducted by Sando et al reported that a neutral setting where women can self-report any D&A may be more accurate and can be further reinforced by having independent observers for a more unbiased and accurate result(23). Additionally, qualitative methods have been recommended to further explore the domains of disrespect and abuse which may not be possible with a Likert scale as given in most of the studies(23). Annexures 1-3 contains tables of the literature review conducted for the development of the instrument

5.1.1.1 Literature review for Patient Satisfaction Assessment instrument for recently delivered women (pretesting not conducted)

N	Title	Instrument description	Author	Year	Context	Type	Framework/ Model	Methodology	Validity and /or reliability	Discussion	Outcome	Conclusion
1	How do Malawian women rate the quality of maternal and newborn care? Experiences and perceptions of women in the central and southern regions	structured questionnaire developed with only close ended questions: composite perception scale of 27 items clustered around three dimensions; rated using a visual scale of 1 to 10. References 1) De Schutte (2000)	Kambala et al	2015	Malawi	Cross-sectional; facility based	Wilde, Starrin, Larsson and Larssons theoretical model: client perception. References 1) Wilde et al (1993)	Exit interviews were conducted with 821 women convenience sampled at antenatal, delivery, and postnatal clinics using structured questionnaires. For each dimension, an aggregate score was calculated using the un-weighted item means, representing three outcome variables. Descriptive statistics were used to display distribution of explanatory variables and one-way analysis of variance was used to analyse bivariate associations between the explanatory and the outcome variables.	Cronbachs alpha coefficient to assess reliability (ranged from 0.72 to 0.87). Confirmatory factor analysis: structure of the psychometric scale (statistically significant chi-square result at the $P < 0.001$). Root Mean Square Error of Approximation (RMSEA) of < 0.05 as well as Comparative Fit Index (CFI) and coefficients of determination (CD) of 0.80 and 0.98 respectively.	1) Quality of interpersonal relations, room conditions, and general nursing care of all three services (ANC, delivery and PNC) were perceived to be good by the participants. 2) Study provides information for a better understanding of the factors that may be associated with perceived quality of maternal health care services. 3) Those who were literate tended to rate the ANC service more highly than the illiterate. 4) Mode of transportation: women that had used motorized transportation were more likely to rate the service highly than those who had walked. 5) ANC and PNC care rated highly if the health worker introduced before attending to patients. 6) Being offered to have a guardian by one's side during delivery increases the rating of quality of care.	Perceived quality of care	The study highlights some of the multiple factors associated with perceived quality of care. We conclude that proper interventions or practices and policies should consider these factors when making quality improvements.

2	Client perceived quality of the postnatal care provided by public sector specialized care institutions following a normal vaginal delivery in Sri Lanka: a cross sectional study	The Client Perceived Quality of Institutional Postnatal Care (CPQIPNC) questionnaire- was developed by the Principal Investigator (PI) : 23 items under three domains: technical and information domain, interpersonal care domain and ward facilities and cleanliness domain. 5-point Likert scale used for rating.	Wickramasinghe et al	2019	Sri Lanka	Cross-sectional; facility based	NA	A cross sectional survey was conducted in specialized institutions of Colombo district, Sri Lanka, to assess the maternal perceptions of the quality of regular postnatal care and its correlations, using an interviewer administered questionnaire. Descriptive statistics were used to assess the perceptions and multivariate analysis was conducted to assess the significant correlates of positive perceptions.	Validated using Exploratory and Confirmatory Factor Analysis (EFA & CFA), internal consistency and test retest reliability of 0.94. 2% of questionnaires completed by data collectors readministered by the PI for reliability, Inter-rater reliability assessed by computing Intraclass correlation coefficient (ICC = 0.96 - 0.99)	1) The ward facilities and environment domain has obtained lower ratings compared to technical and interpersonal care domains. 2) Several services were significantly associated with favorable perceptions. 3) This assessment should be carried out regularly to obtain more current data. Limitations: 1) It assessed the perceptions of the mothers who attend specialized institutions only. The perceptions of the mothers who attend non-specialized institutions may be quite different to these findings. 2) The effect of courtesy bias that is introduced when information is collected through exit interviews may have led to an over estimation of the results. However, use of interviewers who were not involved in patient care and ensuring privacy during the interviews were aimed to overcome this issue.	Perceived quality of care	Majority of mothers had favorable perceptions of the quality of care received by them. Authorities should consider these findings when attempting to improve care quality.
---	--	--	----------------------	------	-----------	---------------------------------	----	--	--	---	---------------------------	--

3	Patient-experience during delivery in public health facilities in Uttar Pradesh, India	Instrument developed based on Person Centered Maternity Care scale with additional questions on the process of seeking and receiving care which reflects aspects of clinical management. (Rating scale not mentioned) References 1) Afulani et al (2018)	Montagu et al	2019	India	Cross-sectional; facility based	Based on Afulani et al (2018)	Patients from facilities at all four levels of the UP system, validated PCMC survey administered 50 patients per study site.	Not mentioned	The limited capacity to manage complications in lower-level PHCs and CHCs is intentional—these facilities not required to provide emergency obstetric services (EmOC) - (National Health Systems Resource Center, 2017). Referral systems should transport those who need emergency care. In multiple models, it was found that clinical experiences—attention, care and counselling—were strongly and positively correlated with higher levels of patient-centered care, regardless of facility type. Limitations 1) Cross-sectional data: lacks causality 2) Recall bias; closer time of delivery may lead to a positive bias due to success of delivery. 3) Interviews conducted at the facilities are also open to bias as women may be unwilling to be critical of the providers who are nearby, or the facility in which they still reside.	Quality of care	Person-centred care is a key component of overall maternal health quality. The experiences of women during labour and delivery influence their adherence to medical advice and care. Good clinical services must be paired with good person-centred care, and balancing the attention to each aspect of care will be important for future quality improvement efforts in India.
---	--	--	---------------	------	-------	---------------------------------	-------------------------------	--	---------------	---	-----------------	---

4	Exploring the Prevalence of Disrespect and Abuse during Childbirth in Kenya	Exit survey developed and used for baseline data collection (rating scale and other details not available). References 1) Bowser et al (2010)	Abuya et al	2015	Kenya	Cross-sectional; facility based	Based on Bowser and Hill (2010)	Before-and-after study designed to measure the effect of a package of interventions to reduce the prevalence of D&A experienced by women during labor and delivery in thirteen Kenyan health facilities. Data were collected through an exit survey of 641 women discharged from postnatal wards. The tool was tested in local context and then retested (details not given).	validated through qualitative interviews with clients to identify potential gaps in the Construct Map. Exit tool developed and validated through exit survey, reliability checked through follow up narratives after two weeks.	There are no statistical associations between different categories of reported D&A with client age, education, and socio-economic status. Lack of associations: under reporting. Clients with higher parities were more likely to be detained; this was also the case women who were bribed for services. This observation is likely linked to better planning among primigravidae than women who have already had children. Women with higher parity more likely to experience non-consensual care compared to those without prior children, which may be due to provider perception that multi-parous women already have previous birth experience. Limitations 1) Underreporting: interviews were held within the facility ground or due to the fact that women have "normalized" some of the behaviors. 2) Framework of Bowser and Hill (2010) not yet tested or validated.	Proportion of women who experienced any form of D&A. Proportion of women who experienced particular category of D&A.	One out of five women experienced feeling humiliated during labor and delivery. Understanding the prevalence of D&A is critical in developing interventions at national, health facility and community levels to address the factors and drivers that influence D&A in facilities and to encourage clients' future facility utilization.
---	---	---	-------------	------	-------	---------------------------------	---------------------------------	---	---	--	---	--

5	Disrespectful and abusive treatment during facility delivery in Tanzania: a facility and community survey	Ext and follow-up questionnaires were developed. Exit interviews at the facility and follow-up surveys were community based. Structured questionnaires used. 5-point Likert scale was used for rating. References 1) Bowser et al (2010)	Kruk et al	2018	Tanzania	Cross-sectional; facility based and community based	Questions based Bowser and Hill (2010)	frequency of reported abusive experiences during facility childbirth in eight health facilities in Tanzania and examined associated factors. The study was conducted in rural northeastern Tanzania	Both questionnaires developed in English, translated to local language and retranslated	The reported frequency of disrespect and abuse varied by time (time from delivery) of the interview. This may be due to courtesy bias—reluctance to disappoint researchers by giving negative ratings. Three items in particular were reported much more frequently in the community follow-up than on exit: being ignored, threatening or negative comments and slapping or pinching. Limitations: 1) Assessment relied on self-report 2) Choice of 'any disrespect and abuse' to measure frequency limits our ability to compare severity of the abuse among women. 3) budget constraints prevented us from having a larger community sample, which would have provided greater precision of estimates and more power to discern associations.	Proportion of women who experienced disrespectful and abusive treatment during facility delivery in Tanzania.	This is a health system crisis that requires urgent solutions both to ensure women's right to dignity in health care and to improve effective utilization of facilities for childbirth in order to reduce maternal mortality.
---	---	--	------------	------	----------	---	--	---	---	--	---	---

6	Disrespect and abuse during facility-based childbirth in a low-income country	Questionnaire developed with demographic characteristics and seven categories of disrespect and abuse. Individual events were considered with calculation of frequency of events in whole sample. References 1) Bowser et al (2010)	Okafor et al	2014	Nigeria	cross-sectional; facility based	Questions based Bowser and Hill (2010)	A questionnaire-based, cross-sectional study was undertaken at Enugu State University Teaching Hospital between May 1 and August 31, 2012. Women accessing immunization services for their newborns were eligible when they had delivered in the previous 6 weeks and had received prenatal care and delivery services at the hospital. Pretested (details not mentioned, supplementary given)	Not mentioned	1) provision of non-consented care services was the most common form 2) Women are often denied the right to make informed decisions about the care they are given. 3) Providing counseling and obtaining informed consent are one of the best ways of avoiding litigation in medical practice. 4) Women received various forms of non-dignified care during childbirth, ranging from receiving slanderous remarks to being threatened with a cesarean delivery. Limitations 1) Recall bias 2) Presence of medical intern during interviews may have influenced responses. 3) Opinions of health workers not sought 4) Hospital based study – restricts generalizability.	The proportion of women who had experienced disrespectful and abusive care during their last childbirth.	Disrespect and abuse during childbirth are highly prevalent in Enugu. The findings indicate the size of the issue of disrespectful and abusive care during childbirth in low-income countries.
---	---	---	--------------	------	---------	---------------------------------	--	--	---------------	--	--	--

7	A facility-based study of women's satisfaction and perceived quality of reproductive and maternal health services in the Kenya output-based approach voucher program	An instrument was developed to conduct exit interviews. It was grouped in to 23 items with rating using five point likert scale	Oyugi et al	2018	Kenya	cross-sectional: facility based	based on literature review and Donabedian theory References 1) Donabedian et al (1980, 1988, 1990)	An exit interview was conducted on 254 clients in public health facilities, non-governmental organizations, faith-based facilities in Kitui, Kilifi, Kiambu, and Kisumu counties as well as in the Korogochi and Viwandani slums in Nairobi, Kenya. Semi structured interview guide administered through face-to-face in-depth exit interviews using questionnaire created after in depth literature review suited for health care setting.	Principal component analysis with orthogonal varimax rotation was conducted. Kaiser-Meyer-Olkin measure (0.893) for Exploratory factor analysis done, Bartlett's test of sphericity ($X^2 (276) = 2866.439, P < 0.001$), Cronbach's alpha coefficient (ranged from 0.525 to 0.904) was used for reliability testing	Components of staff conduct and practice provided a significant influence on the perceived quality of reproductive health services. User satisfaction with vouchers was highly correlated to satisfaction with clinic reception and clarity of doctor's explanations. Respondents were happy with the competence of staff in the facilities. Women perceived that clean drinking water, availability of bathing facilities especially after delivery, and privacy when being examined, were essential components. Women are content with majority of quality aspects. Limitations 1) Studies involving perception: there is a propensity to provide favorable answers to the questions. 2) In some remotely located facilities, designated number of women not found because of difficulty in accessing the facilities. 3) Women interviewed within vicinity: courtesy bias.	Womens perception of quality of services score	Majority of the women perceived the quality of OBA services to be high and were happy with the way healthcare providers were handling birth related complications. Findings can be used by health care managers as a guide to evaluate different areas of healthcare delivery and to improve resources and physical facilities that are crucial in elevating clients' level of satisfaction.
---	--	---	-------------	------	-------	---------------------------------	---	--	--	---	--	---

8	Assessment of client satisfaction in labor and delivery services at a maternity referral hospital in Ethiopia	Questionnaire developed with two parts: socio-demographic section and 20 satisfaction related variables rated using a 5-point Likert scale.	Melese et al	2014	Ethiopia	cross-sectional; facility based	NA	This is an institution based cross sectional descriptive study. A total of 423 postpartum women were interviewed. Data was analyzed using SPSS version 20 statistical package.	High internal consistency (Cronbach's alpha = 0.82)	Consultation time, medical care by the attending doctor and nursing care are rated to have higher rate of overall satisfaction. The clients seem to have higher satisfaction with regards to the doctor and the nurse communication. Attitude of the health workers was found to have a relatively higher satisfaction score. Environmental factor was found to be one of the major factors affecting client satisfaction outcomes. Clients whose educational level is secondary school were more likely to be satisfied with attitude of the provider and providers communication. Clients who stayed longer in the hospital tended to have higher satisfaction with the health care.	Client satisfaction	Pain management, client privacy and client provider communication need to be addressed to ensure the satisfaction of maternity clients. The clients need to be involved in the management of their own health problems.
---	---	---	--------------	------	----------	---------------------------------	----	--	---	--	---------------------	---

5.1.1.2 Literature review for Patient Satisfaction Assessment instrument for recently delivered women (pretesting/pilot conducted)

S. No.	Title	Instrument description	Author	Year	Context	Type	Framework	Methodology	Validity and/or reliability	Recommendations/ Strengths & weaknesses	Conclusion
1	A questionnaire to measure women's experiences with pregnancy, birth and postnatal care: instrument development and assessment following a national survey in Norway	Questionnaire development : PreMaPEQ: Most questions answered using 5-point likert scale.	Sjetne et al	2015	Norway	Nation-wide Cross-sectional survey	NA	Literature review, reference group activities, user interviews, cognitive interview and pilot test. Participants identified from hospital records. Completed questionnaires were assessed using descriptive statistics, explorative factor analyses, psychometric measures and confirmatory factor analysis (CFA). Conducted in a university hospital in women over 16 years of age over a 2-month period. (Sample size not mentioned)	Scales internal consistency done using Cronbachs alpha coefficient which for all scales was >0.7. All but three scales had an intraclass correlation coefficient for test retest stability of >0.700.	1) The instrument development procedure was designed to ensure good content validity, and the assessment indicated that the questionnaire has good reliability. 2) The PreMaPEQ can be used either as a whole or in parts that are adapted to the service in question. 3) The low percentage of omitted answers suggests good acceptability, and the lack of increase in omitted answers indicates that the length of the questionnaire does not tire the respondents. 4) The use of a centralized national survey that is uniform across the different phases of care and geographical regions is more likely to yield data that are comparable.	The PreMaPEQ appears to be an acceptable, valid and reliable tool for collecting women's experiences of the whole course of maternity care in health systems that have features in common with the Norwegian health system.
2	Mothers' satisfaction with referral hospital delivery service in Amhara Region, Ethiopia	An instrument was developed for exit interviews adopted from the framework with a 5-point likert scale.	Taye et al	2011	Ethiopia	facility based Cross-sectional	Donabedian quality assessment framework. References 1) Donabedian et al (2002)	Survey that involved an exit interview was conducted from September to November 2009 in three referral hospitals in Ethiopia. A total of 417 delivering mothers were enrolled in the study. We collect data systematically from every other postnatal woman who delivered in the referral hospitals. The questionnaire was pre tested on 40 postnatal mothers at the University of Gondar Teaching and Referral Hospital one month prior to the actual data collection	Not mentioned	Limitations: First, data are restricted to delivery experience to referral hospital thereby limiting generalization to the overall health facility experience of childbirth by women. Second, potential response biases often present in patient satisfaction studies related to social desirability. We tried to minimize this bias by interviewing mothers in a separate room by trained nurses who are not affiliated with the facilities studied.	The overall satisfaction of hospital delivery services in this study is found to be suboptimal. The study strongly suggests that more could be done to assure that services provided are more patient centered.

3	Maternity-care: measuring women's perceptions	A questionnaire was developed on the basis of previous research and informed by a framework of standard service quality categories covering the spectrum of typical consumer concerns. A five-point Likert scale was used.	Clark et al	2016	Australia	facility based Cross-sectional	Standard service quality category framework: SERVQUAL References 1) Parasuraman et al (1988)	Study is a pilot for the developed instrument with a sample of 195 women who had recent experience of birth was undertaken to establish valid and reliable scales pertaining to different stages of maternity care.	Exploratory Factor Analysis used for scale identification. Scale reliability statistics using Cronbach's alpha for each dimension (ranged from 0.75 - 0.91). Those items with coefficient value <0.70 were removed.	1) Administering the questionnaire in the postnatal period: women's overall maternity care evaluations often become clearly formed at around three to six months after the birth, particularly for first-time mothers. 2) The study identified theoretically informed, reliable and valid stand-alone scales that measure women's public maternity care expectancies, developed primarily to identify potential quality improvement areas. 3) Scales' appropriateness for culturally and linguistically diverse (CALD) groups remains to be established. 4) Core aspects seem consistent across groups defined by parity and by birth experience, which supports a standard instrument for use in assessing women's views.	The nine brief scales focusing on distinct care elements identified via prior qualitative research suggest that the scales were psychometrically sound. At a practical level, the scales are brief and easy to complete, providing public maternity-care providers with a tool to improve service quality from the clients' perspective.
4	Women's perception of quality maternity services: a longitudinal survey in Nepal	20-item scale adapted from a previous study, three subscales: health facility, health care delivery, and interpersonal aspects. Four point likert scale used for assessing perceived quality of maternity services. References 1) Duong et al (2004)	Karkee et al	2014	Nepal	community-based prospective cohort study	Instrument developed for assessing quality of maternity services in Vietnam was adapted. References 1) Duong et al (2004)	A cohort of 701 pregnant women of 5 months or more gestational age were recruited and interviewed, followed by another interview within 45 days of delivery. Developed instrument was tested on 25 postpartum women (not included in study). Perceived quality scores were analysed by ANOVA with post-hoc comparisons and multiple linear regression.	Cronbach's alpha confirmed internal consistency (0.85 for the whole scale). Concurrent validity was evident with correlation of 0.78 between the total perceived quality score and overall patient satisfaction score	1) Birth centres should be supplied with competent midwives and more equipment. They should be linked with the hospital by reliable transportation in case of an emergency. 2) There is also an urgent need to improve essential facilities such as water supply, toilet and waiting room at the public hospital, as long as the provision of maternity services remains the responsibility of the government. 3) Courtesy bias could not be ruled out; however, usage of a self-completed questionnaire might incur less courtesy bias. 4) Inclusion of women who delivered at home could have provided important clues on their non-utilization of delivery services. 5) Quantitative nature of the survey methodology	Overall, perception of quality differed significantly by types of health facility used for delivery. They rated lowest the supplies and equipment in birth centres and the amenities and interpersonal aspects in the public hospital. Accordingly, attention to these aspects is needed to improve the quality.

5	Satisfaction with emergency obstetric and new born care services among clients using public health facilities in Jimma Zone, Oromia Regional State, Ethiopia; a cross sectional study	A structured interview administered questionnaire was developed: two parts (i) sociodemographic variables (ii) 19 satisfaction related variables; Five point likert scale used in the questionnaire.	Kumsa et al	2016	Ethiopia	facility based Cross-sectional	NA	Study was conducted in Jimma Zone from April 01–30, 2014. The data were collected by interviewing 403 clients, who gave birth in the past 12 months prior to data collection in 34 randomly selected public health facilities. The instrument was validated by conducting pre-test in health facilities near Jimma zone (sample size not mentioned).	high internal consistency of the variables (Cronbach's alpha coefficient = 0.756)	The level of clients' satisfaction with Emergency Obstetric and Newborn Care services was low in the study area. Factors such as availability of essential equipment and drugs, health workers' communication, health care provided, and attitude of health workers had positive association with client satisfaction with Emergency Obstetric and Newborn Care services. This in turn could affect utilization of Emergency Obstetric and Newborn Care services and play a role in contribution to maternal and new born mortality. Limitation: Potential recall bias due to long time lapse after childbirth couldn't be ruled out.	The efforts of health facilities leaders and health care providers towards improvement of quality of care could contribute more for better maternal satisfaction.
6	Client perspective assessment of women's satisfaction towards labour and delivery care service in public health facilities at Arba Minch town and the surrounding district, Gamo Gofa zone, south Ethiopia	Structured questionnaire developed with 5-point likert scale; Questions adopted from different literature (references not given)	Dewana et al	2016	Ethiopia	facility based Cross-sectional	NA	A total 256 women who gave birth during the study period were included in the study. Pre-testing done for 5% of sample size in adjacent district.	Questionnaire prepared in english, translated to local language, then translated back to english to check for consistency. Reliability checked using Cronbach's Alpha coefficient (0.87).	Intensifying intervention programmer and stakeholders working on labour and delivery care practice should focus on these determinants (educational status of women, women attending ANC clinic, payment status, waiting time) to reduce maternal mortality and morbidity and realize millennium development goals.	Although majority of women were satisfied with the labour and delivery service they got, their level of satisfaction was influenced by educational status, number of ANC visits, waiting time, and payment for drug and supplies. Thus, public health intervention working on improving delivery care should consider these factors.

7	Maternal satisfaction with organized perinatal care in Serbian public hospitals	The study instrument was self-administered with a 5-point Likert scale. Outcome variables: satisfaction with technical and professional aspects of care; communication and interpersonal aspects of care; and environmental factors.	Matejić et al	2014	Serbia	facility based Cross-sectional	NA	Our survey was conducted from January 2009 to January 2010. The sample consisted of 50% of women who expected childbirths during the study period from all 76 public institutions with obstetric departments in Serbia. The first version of the questionnaire was piloted on separate 10 women who recently gave birth.	Internal consistency and reliability assessed using Cronbach's alpha coefficient (0.787). Face and content validity tested on separate 10 women.	Limitations 1) Patient satisfaction scores usually present a limited and optimistic picture. Recommendations Importance of measuring patient experiences of care, rather than exclusively satisfaction with care. Detailed assessment about specific aspects of patients' experiences are likely to be more useful for monitoring the performance of various hospital departments and wards and could point to ways in which delivery of health care could be improved.	Our study illuminated the importance of interpersonal aspects of care and education for maternal satisfaction. Improvement of the environmental conditions in hospitals, the WHO program, Baby-friendly Hospital, and above all providing all pregnant women with antenatal education, are recommendations which would more strongly affect the perceptions of quality and satisfaction with perinatal care in Serbian public hospitals by women.
8	Measuring client experiences in Maternity care under change: development of a questionnaire based on the WHO responsiveness Model	Development of ReproQ, a self-report instrument, included two questionnaires: one for antepartum experiences, one for peripartum and postpartum experiences. The final version 2, consists of 33 items with a 4 point likert scale and an overall rating using 10-point visual analogue scale.	Scheerhagen et al	2015	Netherlands	facility based Cross-sectional	8-domain WHO responsiveness model. References 1) Valentine et al (2003) 2) Valentine et al (2007)	A dual study design was used for development and validation. Structured interviews established the domain relevance to the women; all items were separately commented on. Respondents were approached by maternity care organizations with different levels of integration of services of midwives and obstetricians. We sent questionnaires to 605 third trimester pregnant women, and 810 women 6 weeks after delivery. Content validity of pilot version carried out with a small sample (N=40)	Content validity determined through structured interviews, construct validity based on response patterns, Exploratory Factor Analysis, Reliability assessed using Cronbach's alpha coefficient ranged from 0.68 to 0.89.	Strengths 1) The ReproQ focuses on the actual experiences of women with maternity care. 2) The ReproQ is unique in the coverage of the eight responsiveness domains. 3) To prevent cross-over effects from labour and birth to the antenatal experiences, we created two separate questionnaires to measure the experiences during pregnancy and the experiences during delivery and postpartum care. Limitations 1) fewer clients participated in the group interviews than anticipated 2) There is no reference standard available to measure performance from the perspective of clients. 3) Women with a low educational level were underrepresented in our studies. 4) A minority of the non-western women participated.	The ReproQ appears suitable for assessing quality of maternity care from the clients' perspective. Recruitment of disadvantaged groups requires additional non-digital approaches.

9	Development of an In-patient satisfaction questionnaire for the Chinese population	Instrument was developed; Final version of instrument consisted of 28 items questionnaire, independently filled by all patients. Rating done using a five-point Likert scale.	Wei et al	2015	China	facility based Cross-sectional	NA	In order to generate the questionnaire, we reviewed previous studies, interviewed related people, held discussions, refined questionnaire items after the pilot study, and finally conducted a large cross-sectional survey to test the questionnaire. Pilot study carried out with 695 patients using a 41 item questionnaire with a 5 point likert scale.	Exploratory factor analysis conducted. Cronbachs alpha and inter-subscale correlations used for reliability testing was above 0.8 for all items. Feasibility and acceptability of tool examined by percentage of missing item responses.	Limitations 1) Test-retest reliability of the tool not evaluated. 2) Data of 1822 patients missing because they were pediatric patients (satisfaction filled by parents) Recommendations 1) Further research should focus on test-retest reliability of the instrument using acceptable techniques.	The in-patient satisfaction questionnaire was proved to have optimal internal consistency, reliability, and validity.
10	Client satisfaction with existing labor and delivery care and associated factors among mothers who gave birth in university of Gondar teaching hospital: Northwest Ethiopia: Institution based cross-sectional study	Standardized questionnaire designed with 36 items to obtain information; demographic characteristics, reproductive history, satisfaction, and factors affecting satisfaction of service users. The rating was given as a percentage.	Gashaye et al	2019	Ethiopia	facility based Cross-sectional	NA	Study was conducted at the University of Gondar Referral Hospital. 593 mothers who gave birth between July and September 2016 were enrolled. Study participants were selected by systematic random sampling. The dependent variable was maternal satisfaction and independent variables were patient related factors, health professional related factors and health facility related factors. The instrument was pretested using a small sample not included in the final analysis (sample size not mentioned).	Internal consistency/reliability checked using cronbachs alpha (value not mentioned)	Institutional delivery is one of the best strategies to decrease the very high maternal mortality rates in developing countries. To achieve it, promoting quality maternal health services with a better client satisfaction is vital. Respectful, compassionate and caring behaviors are expected from providers for increasing maternal health service satisfaction. Limitations 1) Involvement of only one health facility may not represent the satisfaction level of laboring mothers in the area. 2) Mothers' expectation of services provided by big hospitals like the University of Gondar hospital might potentially affect their satisfaction. 3) Other studies utilizing observation and qualitative techniques are recommended.	The level of satisfaction of laboring mothers with the labor and delivery care services was poor. Rural residency and chronic medical co-morbidity were negatively associated with level of satisfaction while travel time, mode of delivery, and payment free delivery service had a statistically significant positive influence on satisfaction.

11	Maternal Satisfaction on Delivery Service among Postnatal Mothers in a Government Hospital, Mid-western nepal	Semi structured interview based questionnaire was developed with three parts, 1. sociodemographic characteristics, 2. obstetric characteristics, 3. five point likert scale to assess maternal satisfaction on delivery.	Panth et al	2018	Nepal	facility based Cross-sectional	Conceptual framework developed and modified from Donabedian model. References 1) Donabedian (1988)	A descriptive, cross-sectional study was conducted in maternity ward of Bheri Zonal Hospital, Nepal. A total of 178 (Sample size calculated using Cochran's formula) purposively selected postnatal mothers were interviewed face-to-face using semistructured interview schedules. Pretesting done in 10% of mothers admitted in the maternity unit (excluded from the study).	Content validity by extensive literature review, consultation with stakeholders, translation and retranslation done from english to nepali to retain the meaning of questions, Cronbach's alpha used for reliability testing (overall 0.825).	1) Further studies can take into consideration the findings and limitations of this study for better results. 2) The study could be done in community setting where postnatal mothers could freely express their satisfaction levels. 3) Care givers need to fully understand the expectations that the mothers have for their care and provide care that is consistent with those expectations. 4) The health system should be devised to increase maternal satisfaction in the health institution and provide maternal-friendly service.	Majority of mothers were satisfied by the delivery service. Care givers need to fully understand the expectations the mothers have and provide care that is consistent with those expectations. The health system should be devised to increase maternal satisfaction in the health institution and provide maternal-friendly service.
12	Status of respectful and non-abusive care during facility-based childbirth in a hospital and health centers in Addis Ababa, Ethiopia	An instrument as developed using total of 23 verification criteria. Verification of birth companion criteria removed as it is not a standard procedure in Ethiopia. A Yes/No scale was used. References 1)USAID (2011) 2)Bowser et al (2010)	Asefa et al	2015	Ethiopia	facility based Cross-sectional	Bowser and hill (2010): seven categories of disrespect and abuse, Criteria developed by the Maternal and Child Health Integrated Program as part of respectful maternity care tool kit. References 1)USAID (2011) 2)Bowser et al (2010)	Study was undertaken in four health facilities in Addis Ababa, Ethiopia, to quantitatively determine the level and types of disrespect and abuse faced by women during facility-based childbirth, along with their subjective experiences of disrespect and abuse. A questionnaire was administered to 173 mothers immediately prior to discharge from their respective health facility. Pre-testing conducted with 3% of sample size.	Translation into local language to ensure clarity of messages and consistency between data collectors. Validity and reliability testing not assessed for the instrument.	Limitations 1) Use of quantitative methods may limit in providing details. 2) Gathering information immediately following delivery reduces the potential for recall bias but does not allow for an understanding of how time and situational circumstances may affect women's perceptions of disrespect and abuse. Recommendations 1) Performance indicators used in this study should be communicated to health care workers and clients to promote respectfulness of care 2) Mixed method approach to deliver more complete information. 3) Health administrators and service providers should promote and institutionalize locally contextualized respectful maternity care standards.	This quantitative study reveals a high level of disrespect and abuse during childbirth that was not perceived as such by the majority of respondents. It is every woman's right to give birth in woman-centered environment free from disrespect and abuse. Understanding how women define abuse is crucial if Ethiopia is to succeed in increasing the uptake of facility-based births.

13	Factors that influence patients' satisfaction with peri-partum care in Germiston hospital maternity unit.	Structured questionnaire developed based on previous surveys; 5-point likert scale. Factors studied: pain relief, cleanliness, privacy, health education, and information and participation in decision making about their care. References 1) Matzirofa et al (2006) 2) Duff et al (2001) 3) Janssen et al (2006)	Khumalo	2013	South Africa	facility based Cross-sectional	NA	This cross-sectional descriptive study was done among 260 women aged 18 years and above during the first three days of the postpartum period. The questionnaire was pre-tested on ten women in the antenatal clinic and it was found to be well understood and no changes were made to the questionnaire. The ten questionnaires were included in the analysis.	Not assessed	Limitations 1) Non-probability convenience sampling was used for the study. This method provides opportunity for sampling bias. 2) Women may be reluctant to criticize their care due to gratitude bias. 3) Study was done very soon after delivery which predisposes to information bias. 4) A qualitative study design might have given richer information. Recommendations 1) Provisions to assist health workers to improve their communication skills. 2) Patients should be encouraged to take an active role during consultation with health care providers. 3) The matrons and clinical managers should ensure that women are given pain relief during labor. 4) Randomised control studies to remove selection bias. 5) Qualitative research to explore patient satisfaction	There were varying levels of satisfaction with services during labour. Cleanliness, privacy and information sharing by nurses were viewed by women as adequate. In contrast pain relief, time spent explaining procedures and information sharing by doctors was rated as unsatisfactory. These three factors should be taken into account when designing quality improvement programmes in the maternity department.
----	---	---	---------	------	--------------	--------------------------------	----	--	--------------	---	--

14	Mothers' satisfaction with care during facility-based childbirth: a cross-sectional survey in southern mozambique	Instrument developed based on published sequences previously used to measure satisfaction. A five point likert scale used in the questionnaire, programmed to be used on a tablet using ODK Collect version 1.4.5. References 1) WHO (2001) 2) Colbourn (2013)	Mocumbi et al	2019	Mozambique	Population-based Cross-sectional	Based on WHO's quality of care framework, Srivastava's conceptual framework of maternal satisfaction, Donabedian model of quality of care. References 1) Tuncalp et al (2015) 2) Donabedian (1988) 3) Srivastava et al (2015)	A population-based cross-sectional study, using structured interviews with published sequences of questions assessing satisfaction, including 4358 mothers who gave birth during the 12 months before June 2016 to estimate satisfaction with childbirth care. Regression analysis was used to determine the predictors of client satisfaction. The questionnaire was pretested and piloted with a group of mothers who were not members of the identified study population (sample size not mentioned).	Confirmatory factor analysis done (0.98) and Root Mean Squared Error of Approximation was 0.08, indicating an acceptable fit to the data.	It is crucial to ensure that every woman delivers in a safe environment and that primary level facilities are enabled to provide evidence-based routine childbirth care and basic emergency obstetric care, as well as, referral capability for complicated cases. Strength of the study is the population-based design, which minimizes ascertainment bias and is likely to have minimized the risk of social desirability bias. Limitations 1) Use of a cross-sectional study: does not allow us to draw a conclusion about causality. 2) Recall bias: interviews conducted up to 1 year after birth 3) The instrument despite being pretested and piloted, the risk of measurement bias cannot be excluded.	Childbirth at the primary level facilities contributes to the level of satisfaction. The provision of childbirth care should consider women's preferences and needs, including having a companion of choice. We highlight the challenge in balancing safety of care versus satisfaction with care and in developing policies on the optimum configuration of childbirth care. Interventions to improve the interaction with providers and the provision of respectful care are recommended.
15	Development and Assessment of Respectful Maternity Care Questionnaire in Iran	Quality of Respectful Maternity Care Questionnaire developed with 59 items for evaluating respectful maternity care in Iran, with a 5 point likert scale.	Taavoni et al	2018	Iran	facility based Cross-sectional	NA	This is a study with mixed sequential exploratory design. Questionnaire design is a part of descriptive survey study and consists of five phases implemented in one year. The phases include item or questions generation, face validation, content validity assessment, confirmatory factor analysis and reliability assurance of the questionnaire. The participants were selected from the mothers referring to health care centers affiliated to Iran University of Medical Sciences in five cities. Pilot tested with 30 women.	Content validity by experts, Confirmatory factor analysis: Kaiser-Meyer-Olkin index (0.871), internal consistency and reliability by calculating Cronbach's alpha coefficient (questions in labor (0.86), in delivery (0.85), and in postpartum care (0.78)).	It would be useful to develop another questionnaire with specific categorized items in seven sections of disrespect and abuse published by WHO and White Ribbon Alliance in maternity care for the future studies on RMC in Iran. The current questionnaire should be developed while considering different factors, sub-scales and items classifications such as dignity and respect, communication and autonomy, and supportive care with items evaluating the effect of governmental or private centers' attitude toward RMC.	We have developed a new instrument as the 59-item QRMCI for evaluating respectful maternity care in Iran through a rigorous process of item generation and validity-reliability assessment besides confirmatory factor analysis that were in an acceptable range and can be used as a reliable instrument for RMC in Iran.

16	The prevalence of disrespect and abuse during facility-based childbirth in urban Tanzania	All study tools adapted from similar project conducted by the Population Council in Kenya., study not designed to detect D&A incidences during surgical procedures. References 1) Warren et al (2013)	Sando et al	2016	Tanzania	facility based and community based Cross-sectional	Based on Bowser and Hill (2010)	Assessment of the prevalence of disrespectful and abusive behaviors during facility-based childbirth in one large referral hospital in Tanzania. Data obtained through postpartum exit interviews with 1914 systematically sampled women and from community follow-up interviews with 64 women four to six weeks post-delivery. Additionally, 197 direct observations of the labor, delivery, and postpartum period were conducted to document specific incidences of disrespect and abuse during labor and delivery. One day pilot after three day training of data collectors.	Validity increases by triangulation of data sources on the observed incidence of disrespectful and abusive behaviors during client provider interactions during childbirth and the incidence reported by women in the immediate and the late postpartum periods. Analyses of validity and reliability not available.	Additional research and programming is needed to strengthen health systems to provide acceptable quality care—with the principles of respectful and dignified maternity care at the core of service delivery—in order to realize every woman's right to respectful care and to improve maternal health outcomes. Limitations 1) The study tools not validated in Tanzania. 2) The checklist employed for direct observations of client-provider interactions during labor and delivery was not originally developed for measurement of disrespect and abuse. 3) Budget and time constraints prevented investigators from obtaining a statistically significant sample of community follow-up interviews.	When matters of quality and acceptability are not addressed in the settings of high patient flow, significant resource and staff shortages, situations arise in which health care providers work in demoralizing and stressful conditions and a significant proportion of women are unsatisfied with their care and suffer a violation of their basic human rights. In summary, disrespect and abuse is an indicator of a health system in crisis.
----	---	---	-------------	------	----------	--	---------------------------------	--	--	--	--

17	Measuring client-perceived quality of maternity services in rural Vietnam	Instrument adapted from 20-item scale of Haddad et al (1998) with a total score ranging from -20 to +20. Domains include: health care delivery, health facility, interpersonal aspects of care and access to services.	Duong et al	2004	Vietnam	Community based Cross-sectional	Based on 20-item scale of Haddad et al (1998)	Initially a qualitative study with in-depth interviews and focus groups discussions were conducted to assess the 20-item scale. A survey of 200 women who gave birth in July–August 2000 and 196 pregnant women in 34 communes in Quang Xuong District, Thanh Hoa Province, Vietnam. Instrument was pretested on a separate group of 16 women.	Factor analysis based on principal component extraction followed by oblique rotation. Internal consistency checked through Cronbach's alpha coefficient (dimensions 'health care delivery', 'health facility', 'interpersonal aspects of care' and 'access to services' were 0.72, 0.64, 0.72 and 0.33, respectively) Inter-rater reliability assessed by kappa statistic	Although clients may not be able to evaluate whether a specific technical procedure is appropriate, they can, however, assess quality according to the availability of medical equipment and the behavior of health staff dealing with it. Limitations 1) Firstly, the observed scores could be confounded by maternity status, parity and delivery location of the subjects. 2) The study sample was selected from a list compiled from the official reporting system. Although the routine reports of the National Expanded Program of Immunization and antenatal care programs were generally considered complete, selection bias could not be completely ruled out because there might be some women who delivered at home but were not captured in our list. 3) The variable 'health care setting' was not included in the data analysis as the number of respondents in each institution was small.	The feasibility, reliability and validity of the instrument were established in the context of rural Vietnam. Its application in evaluating other health care programs should be an important follow-up action for the Vietnamese government.
----	---	--	-------------	------	---------	---------------------------------	---	--	---	---	---

18	Measuring lay people's perceptions of the quality of primary health care services in developing countries. Validation of a 20-item scale	An exit interview questionnaire developed: 20-item scale with a 4-point likert scale, The scale includes three subscales related to health care delivery, personnel and facilities.	Haddad et al	1998	New Guinea	facility based and community based Cross-sectional	NA	There were 241 people in one city and two villages in Upper Guinea who responded to the questionnaire. Data collection using exit interviews at facilities, sampling technique used for home interviews. Scales and subscales constructed for the items, analyses of reliability and validity scores carried out. Pretested on 12 people to allow adjustment of wording.	Reliability checked by analyses of internal consistency and Cronbach's alpha coefficient (ranged from 0.71 to 0.84, total score of 0.88), Inter-factor correlations vary in absolute values from 0.26 to 0.34. Principal component analyses and oblique rotation carried out for factorial validity. Convergent validity and discriminant validity estimated by Eta coefficient.	Formalization of scales for measuring the quality of health care services in developing countries should be pursued in order to impose greater precision in evaluations of health services. If the users' perspective is taken into account, the development of these services should move in a direction that corresponds more fully to their expectations, which is now one of the major challenges to be met.	Results confirm the value of the use of the scale developed and highlight the need to take into account the diversity of how quality is perceived by lay people in developing countries.
----	--	---	--------------	------	------------	--	----	--	--	--	--

19	Clients' satisfaction with quality of childbirth services: A comparative study between public and private facilities in Limuru Sub-County, Kiambu, Kenya	Structured questionnaire adapted from previous questionnaires, used to measure clients level of satisfaction. Exit interviews using mixed methods, responses in form of 5-point likert scale. References 1) Melese et al (2014) 2) Karkee et al (2014) 3) Khumalo (2014) 4) Nyongesa (2014)	Okumu et al	2018	Kenya	facility based Cross-sectional	Based on Donabedian theory for examining health services and evaluating quality of care References 1) Donabedian (1990)	comparative research design with mixed methods; quantitative methods using a structured questionnaire, qualitative methods using focus group discussion. Pilot study to pretest the data collection carried out on 10% of proposed research study population (not included in the study).	Not mentioned	1) Interviews in an area near the postnatal room or within the health facility might have influenced some women to give accounts more positive 2) Study excluded women who had undergone Caesarian Section and women with severe delivery and post-delivery complications. 3) Future research: reasons behind long waiting times in public facilities. 4) Future research could link the time taken with the period upon which the client came in and show whether emergencies may have warranted quicker attention. 5) Future research: stage of labour and the type of facility played a role in the differences in time taken. 6) The study only depended on patients experience to gauge their level of satisfaction but never used observation (qualitative phenomenological study) as means of verification. Future research should use observation and client interview should be conducted at the household level within 48 to 72 hours after delivery to ensure comfortability.	majority of clients from both public and private facilities expressed satisfaction with quality of services from admission till discharge in both public and private facilities and were willing to recommend other to come and deliver in the respective facilities.
----	--	--	-------------	------	-------	--------------------------------	---	---	---------------	---	---

5.1.1.3 Literature review for Patient Satisfaction Assessment instrument for recently delivered women (methodological studies)

S. N o.	Title	Author	Year	Type	Methodology	Findings	Recommendations
1	Methods used in prevalence studies of disrespect and abuse during facility based childbirth: lessons learned	Sando et al	2017	Systematic Review	systematic review of the literature in accordance with PRISMA (Preferred Reporting Items for Systematic Review and Meta-Analysis) guidelines. Five papers met criteria and were included for analysis.	1) Lack of randomization in the selection of study sites and participants jeopardizes the application of the findings to facilities and women outside these settings. 2) Lack of standard inclusion criteria for study participants in prevalence studies affects the comparability of resulting prevalence estimates. 3) Lack of standardization to ensure measurement of the same categories of D&A using the same operational definitions means that the measures of D&A are not comparable. 4) Interviewing women inside or in close proximity to the health facility where they may have experienced D&A introduces a significant risk of courtesy bias. 5) In the specific context of childbirth, recall may be poorer immediately following delivery when women are physically exhausted and have not had time to mentally process the events that occurred during labor and birth.	1) site and participant selection in future studies should be based on methods designed to ensure no systematic differences in the study sample compared to the target population. 2) To estimate the population rate of D&A, all women at risk (i.e., all women receiving maternity care in the study facility) should ideally be included regardless of pregnancy outcomes. Stratified analysis could allow comparison of rates of prevalence for women with specific characteristics that may place them at differential risk for D&A. Multivariable logistic regression can be used to assess the impact of multiple covariates including parity, length of stay, etc. on the risk of D&A. 3) Reliability and external validity are important concerns for researchers attempting to understand the phenomenon of D&A in general and to compare across settings. Standardization of measurement would ensure comparability of reported estimates. However, ensuring valid localized measures that capture the constructs of D&A as perceived and experienced within a specific context is also key to accurate measurement. It is therefore important to acknowledge the tension between standardization and localization in developing instruments to measure the prevalence of D&A. Use of standard categories is important for comparability, while some leeway may be needed for context-specific operationalization of those categories. The primary aims of the research may help to guide these decisions. 4) conducting interviews to capture women's self-reported experiences of D&A in another safe, neutral setting is recommended. 5) women's self-reports of D&A may be more accurate when solicited after they have had some time to process their experiences, and in a setting that is removed from the facility where they received maternity care. Future research is needed to explore this question. 6) Observation by independent observers likely provides a more unbiased and accurate result. However, when the outcome of interest is women's experiences of care— ideally using patient-developed or patient-validated measures and participatory research techniques – are the better approach to data collection. Capturing estimates of prevalence using both approaches, with careful attention to ensure comparable instruments, offers the possibility of understanding the gap between objective and subjective constructs of D&A.

5.1.2 Identification of domains

Identification of domains for this instrument was a tedious task as it required both assessment of patient satisfaction with the service delivery in terms of processes, as well as the assessment for any D&A during the intrapartum and peripartum period which may not be captured properly by a patient satisfaction survey. Therefore, based on previous questionnaires found from the literature review, 9 domains were identified for the instrument. These included demographic characteristics of the interviewed woman, client details on obstetric history and transportation and stay at the facility, admission process, care during labor, care after delivery, physical environment, out of pocket expenditure, discharge process, and overall satisfaction.

5.1.3 Content validity

Content validity of the instrument was ensured by multiple peer discussions based on the literature reviews conducted individually. To ensure its validity and appropriateness, the standards mentioned in the LaQshya guidelines were used as core areas which is required to assess the patient satisfaction levels among the postpartum women in health facility.

5.1.4 Scaling responses

During the development process of the instrument, initially a nominal scale for most of the domains apart from the overall satisfaction of the patient. However, before the process of item selection, all the questions and domains were discussed among peers and the scales were modified according to the nature and context of the question to have multiple responses. A 5-point Likert scale were used for the overall satisfaction domain to categorize the patients into those who are completely

satisfied, somewhat satisfied, neither satisfied nor dissatisfied, somewhat dissatisfied, completely dissatisfied.

5.1.5 Item selection

After initial literature review and content validity 92-items were included in the preliminary stages of instrument development. However, after thorough discussions among peers, some of the items which were similar in nature was merged while those which were repetitive or irrelevant were removed. Additional items were further added after scrutiny of the standards and means of verifications mentioned in the LaQshya guideline.

5.1.6 Draft instrument

The initial draft instrument developed after literature review, content validity and item selection included 104 items. Annexure 4 contains the domains and the items that was included in the draft instrument.

5.2 Patient Satisfaction Assessment instrument for recently discharged young infant from SNCU/NICU

5.2.1 Literature review

Similar to the development process of the previous instrument, the literature review conducted showed studies which employed either a questionnaire developed by the author(s) or one that has been previously utilized in a previous study. Parent satisfaction within NICU was the most common outcome among the studies found in the literature review(24–27). Few studies were found on parental perception of stressors arising from and psychosocial environment of the NICU(28,29). The frameworks utilized for the development of instruments used in these studies were based on Donabedian quality assessment framework.

Articles found during literature review were grouped based on studies that conducted pretesting and pilot studies(29–36) and those that did not conduct any pretesting or pilot studies(24–28). Limitations with the studies mostly included lack of validity of the instrument created and lack of standardization of the instrument. Annexures 5 & 6 contain the tables about the research articles found in the literature review.

5.2.1.1 Literature review for Patient Satisfaction Assessment instrument for recently discharged young infant from SNCU/NICU (pretesting not conducted)

S. N o.	Title	Instrument description	Author	Year	Context	Type	Framework / Model	Methodology	Validity and/or reliability	Discussion	Outcome	Conclusion
1	Survey of parents Satisfaction of infants admitted in the NICU	Questionnaire created with a 6-point Likert scale, that included three domains of welfare, medical and nursing services	Salehi et al	2015	Iran	facility based cross-sectional study	NA	In this cross-sectional study, parents of 300 infants admitted to the neonatal intensive care unit participated with cluster sampling of twelve elected government hospital in Tehran in 2012. Demographic data and data on parental satisfaction collected using valid and reliable researcher made questionnaire. Data using descriptive statistics (mean, standard deviation) and inferential statistics (Pearson chi-square) were analyzed in SPSS19 software.	exploratory factor analysis used, cronbachs alpha coefficient for reliability testing by using instrument completed by 15 mothers (0.96)	1) Study showed relatively high mean satisfaction the parent of three areas welfare service, medical and nursing care 2) The highest rates the parent satisfaction was related to education and discharge instructions lowest percentage of the parent satisfaction with medical care related to the lack of timely notification of change status of infants to parent. 3) In the area of nursing care 38.8 percent of parent were satisfied with relatively or complete. Highest percentage satisfactory was from education correct breastfeeding method. The lowest percentage of parental satisfaction was weak coordination among staffs in the take care from infants. 4) In the area of welfare 37.3 percent of parents were relatively or completely satisfied.	Parent satisfaction within NICU	The relatively high level of parental satisfaction with the three domains of welfare, medical and nursing care services, can be a desirable indicator of the quality of services provided, and the it is necessary for more parental satisfy , the medical team has more cooperation and assistance together.
2	Parents' satisfaction with care in the neonatal intensive care unit: the role of sociocultural factors	Two questionnaires according to 16 items: 4 point likert scale, 2nd questionnaire contained parallel items reworded for measuring expectations. References 1) Baider et al (1995)	Austlander et al	2003	Israel	facility based cross-sectional study	Adaptations of 16-item scale by Baider et al (1995).	Study population composed of parents of VLBW infants hospitalized, nonprobability sample of 83 infants selected, parents expectations and assessments of care measured	internal consistency and reliability checked using alpha coefficient (0.6 for expectations and 0.7 for actual performance). Original hebrew questionnaire translated to arabic and back translated to hebrew for consistency of meaning.	1) Make an effort at clarification early in the treatment period. This could include written materials explaining the NICU rules and the rationale behind them, as well as group information sessions where further discussion and explanations would be encouraged. 2) Individual meetings with parents are also critical. Staff should not assume that, because parents belong to a certain group, they share that group's expectations and norms. 3) It is important to target both mothers and fathers. 4) Parents report that receiving emotional support as well as information are of major importance, and that staff's failure to provide those supports is harmful to them.	Parent satisfaction within NICU	Mothers' expectations were higher than their assessments of actual care. They were also higher than fathers' expectations in both Jewish groups, but not for Moslem parents. Differences among groups were observed for expectations regarding communication and emotional support from the staff. Differences were also observed regarding parents' assessments of physician, nurse, and social worker behaviors.

3	Development and validation of a neonatal intensive care parent satisfaction instrument	EMPATHIC-N questionnaire: 7 point likert scale for 67 care items. 4 control questions for overall satisfaction, 2 questions had a 7 point likert scale while other 2 had a 10-point rating scale. References 1) Conner et al (1999) 2) Latour et al (2005) 3) Latour et al (2010)	Latour et al	2012	Netherlands	facility based psychometric study	Based on previous literature. References 1) Conner et al (1999) 2) Latour et al (2005) 3) Latour et al (2010)	Data collection assembled from two cohort periods. Tool creation, validation and reliability testing. The instrument was a mailed self administered questionnaire.	Confirmatory factor analysis done including standardized factor loadings, Cronbachs alpha coefficient (0.7 to 1.0), congruent validity (spearman's rank correlation) and nondifferential validity testing (cohen's d) carried out. Comparative fit index, Tucker Lewis Index, Root mean square of approximation were used to test the model fit. For two cohorts, levene's test for equality of variances and t test for equality of means.	1) This study presents a profound identification of NICU care aspects that are translated in a validated parent satisfaction instrument. 2) The five domains provide a conceptualization of parent satisfaction within the NICU from a family-centered care perspective. 3) Statements about medication administration, pain management, and safety; parents have scored these issues as important. 4) The reliabilities measures on the domain level were above the recommended standard. The validity, including the performance of the questionnaire over time, was satisfactory. 5) Two limitations; test- retest reliability among the same group of parents at two different time moments was not performed and predicting how well the questionnaire correlates to another validated instrument was not performed. 6) Outcomes might contribute to identify interventions to improve the quality of care including clinical practice.	Parent satisfaction within NICU of family-centered care	The EMPATHIC-N questionnaire is a valid quality performance indicator to measure the delivered care as perceived by parents.
---	--	---	--------------	------	-------------	-----------------------------------	---	--	--	---	---	--

4	Parental satisfaction with neonatal intensive care units: a quantitative cross-sectional study	NSS-8 - 51 item questionnaire to assess satisfaction using a 5-point likert scale. It also two overall satisfaction questions developed from literature reviews, focus group interviews with health personnel and parents of children in a neonatal unit. References 1) Hagen et al (2018)	Hagen et al	2019	Norway	facility based cross-sectional study	NSS-8 used to collect data. References 1) Hagen et al (2018)	A total of 568 parents from six different NICUs geographically dispersed in Norway completed the (NSS-8). All responses were rated and analysed using nonparametric analyses and logistic regression	Cronbach's alpha for the eight factors in NSS-8 was the same as in our previous article as follows: factor 1; care and treatment 0.94, factor 2; doctors 0.91, factor 3; visits 0.91, factor 4; information 0.81, factor 5; facility 0.72, factor 6; parental anxiety 0.74, factor 7; discharge 0.70, and factor 8; siblings 0.72. The item total correlation was 0.95.	1) Most parents reported moderate to high levels of satisfaction with NICUs (76%). 2) In this study, infants' gestation age was significantly and positively related to five of the eight NSS-8 factors, indicating that the closer to term the baby is born, the more satisfied parents. 3) Parents' age was not significant for any of the eight factors in our correlation matrix. 4) In this study, education level emerged as negatively and significantly related to satisfaction with one of the NSS-8 factors, namely doctors. The regression analysis also revealed a negative and significant relation to the total score of satisfaction, indicating that those with lower education were more satisfied with the NICU. 5) No significant relationship between perceived stress and satisfaction. 6) The relationship between health personnel and parents is an important area for parental satisfaction with NICU. 7) Approximately one-fourth of parents in our study showed moderate to low satisfaction.	Parent satisfaction within NICU	To increase and sustain parents' satisfaction with NICU care considerations should be given to separate elements of the total provision made for affected families. This study suggests that health personnel could address the needs of all family members as these evolve through phases of their stays in hospitals; be more attentive to parents with very preterm infants and parents with long NICU admissions; provide support to siblings; and give more attention to parents' needs for continuity of care, follow-up, and information.
---	--	--	-------------	------	--------	--------------------------------------	--	--	---	--	---------------------------------	--

5	Parent Stressor Scale: Neonatal Intensive Care Unit	PSS: NICU, altered and adapted from PSS:PICU to reflect stressors. 46-item scale, patients were asked whether they experienced it or not, and then assessed with a 5 point likert scale. 2 metrics were used, Stress occurrence level as metric 1, and Overall stress level as metric 2. References 1) Miles et al (1982, 1989)	Miles et al	1993	US	Tool testing	Based on stress theory by Magnussen (1982)	PSS:NICU originally adapted from the Parental Stressor Scale: Pediatric ICU by Miles et al (1982,1989) to measure parental perception of stressors arising from the physical and psychosocial environment of the PICU.	Internal consistency checked by Cronbach's alpha (metric 1= 0.94, metric 2=0.89) for each of the conceptualized dimensions. Interscale correlations assessed using pearson correlations, moderately correlated between scales (12% to 40% variance in common) and strongly correlated with the total score on the instrument (49% to 82% of their variance)	This article summarizes the steps used to develop and evaluate the Parental Stressor Scale: Neonatal Intensive Care Unit designed to assess the impact of selected environmental stressors in the NICU on parents. The steps carried out : Literature reviews, consultation with professionals experienced in the field, and interviews with parents whose infants were or had been in an NICU used in the development of the tool help support the content validity of the instrument and reliability. The high alpha coefficient demonstrates internal consistency. Reports from interviewers who used the instrument suggest that it is comprehensible and easy to use, providing further support for its potential usefulness for research purposes. In addition, the PSS:NICU can serve as a clinical assessment tool to evaluate the stressors experienced by parents in a particular NICU. These data could be used to provide guidelines for improving nursing practice and the development and testing of intervention protocols.	Parental perception of stressors arising from the physical and psychosocial environment of the neonatal intensive care unit.	The PSS:NICU can serve as a research or clinical measure to evaluate stressors experienced by parents with infants in a NICU.
---	---	---	-------------	------	----	--------------	--	--	---	--	--	---

5.2.1.2 literature review Patient Satisfaction Assessment instrument for recently discharged young infant from SNCU/NICU (pretesting/pilot conducted)

S. No.	Title	Instrument description	Author	Year	Context	Setting	Framework	Methodology	Validity and/or reliability	Recommendations/ Strengths & weaknesses	Conclusion
1	Neonatal intensive care unit to home: the transition from parent and pediatrician perspectives, a prospective cohort study	33 item and 22 item surveys developed for discharge and follow up respectively, with a 4-point likert scale. Pediatrician survey of 54-item tool with a 4 point likert scale	Enlow et al	2014	US	facility based Prospective cohort study	NA	prospective study of a convenience sample, bilingual staff members to communicate with families in preferred language. Both English and spanish speaking participants in the study. piloted with bilingual parents (N=4)	Both english and spanish versions were piloted for validity of content and readability. Reliability analyses not mentioned	1) Further studies using mixed methods would be useful in clarifying discrepancy due to communication barriers due to difference in language. 2) Further studies that include larger sample sizes may be able to assess how previous experience with the NICU or care of a child or a family member with a chronic illness affects perceived barriers. 3) It is crucial that standardized tools and techniques are designed and developed to obtain parent input that can be translated into interventions to reduce disparities and improve outcomes for NICU graduates.	Communication difficulties were the most commonly reported barriers during the NICU stay and physicians overestimated the frequency that families experienced challenges after discharge. Parent input is important to create effective interventions aimed at improving care and limiting disparities.
2	A new measure of parent satisfaction with medical care provided in the neonatal intensive care unit	Neonatal Index of Parent Satisfaction instrument developed: 27 items with a seven-point likert scale	Mitchell-DiCenso et al	1996	Canada	facility based cross-sectional study	NA	Item-reduction questionnaire administered which was used for a briefer instrument Neonatal Index of Parent Satisfaction. 10 parents interviewed in pretesting.	Reliability testing: 47 parents interviewed twice 1 week apart, intraclass correlation coefficient (0.71) between the two administrations assessed. Validity testing: 832 parents interviewed, seven-point global rating by each parent for satisfaction, seven point global rating by medical caregiver for fathers and mothers satisfaction, Pearson correlation coefficient calculated, t test calculated to compare mean scores, Multiple regression analysis.	1) Explore further validation of NIPS	The NIPS is likely to be a useful measure for discriminating between parents who differ in terms of their satisfaction with the medical care of their infant in the NICU.

3	Development and Evaluation of an Instrument to Measure Parental Satisfaction With Quality of Care in Neonatal Follow-Up	16 item instrument developed with a 7-point likert scale, composed of 2 subscales, process and outcomes. References 1) Donabedian (1998) 2) Ware et al (1978)	Butt et al	2009	Canada	facility based cross-sectional study	Conceptual model of parental satisfaction with quality of care in neonatal follow-up based on Donabedian theory. References 1) Donabedian (1998) 2) Ware et al (1978)	2 phases to the study, convenience sample of 24 healthcare professionals who work in NFU, consecutive sample of 281 parents who used services from 2 NFU programs. Pretesting carried out with N=8 parents.	Content validation by 8 NFU experts using a 4 point likert scale, test-retest reliability assessed based on intraclass correlation coefficient (0.72), internal consistency reliability determined by conducting statistical analysis, coefficient alpha (0.77 and 0.90 for domains 1 and 2 respectively, 0.90 overall alpha). Construct validity by correlation of score (Pearson $r = .78, p < .001$) of new instrument with Client Satisfaction Questionnaire, Confirmatory factor analysis assessed ($\chi^2 = 205.73, df=103, p < .001$)	Additional hypotheses about the expected behavior of the instrument need to be formulated and tested.	This new instrument provides clinicians and policy-makers with a tool to assess parental satisfaction with the quality of care in NFU, so areas of dissatisfaction can be identified and changes implemented to optimize service provision.
4	Development and validation of Neonatal Satisfaction Survey - NSS - 13	NSS 13 developed, 69 items, (rating scale not mentioned)	Hagen et al	2014	Norway	facility based cross-sectional study	NA	literature review, focus group interview, pilot study and then content validity and statistical considerations. Pilot study of 100 parents or continue till six months, whichever occurred first.	common factor analyses conducted and reliability testing using Cronbach's alpha (varied from 0.60 to 0.89).	1) Validation of the NSS done with the same population with which further studies are intended	The Neonatal Satisfaction Survey seems suitable to measure parents' satisfaction with neonatal units and can be used in full, but it can also measure subcategories. Parents' satisfaction with neonatal units can be used to improve the quality in such wards. We consider this study as the first in a series to validate the NSS-13. The full survey with subcategories is presented.

5	Parent's perception of nursing support in the Neonatal Intensive Care Unit (NICU)	self-report questionnaire consisting of a sub-scale of the Parental Stressor Scale Neonatal Intensive Care Unit (PSS: NICU), a subscale of nursing staff behaviour and communication, and the Nurse Parent Support Tool (NPST); each consisted of a five point likert scale. References 1) Miles et al (1983) 2) Miles et al (1984) 3) Miles et al (1989) 4) Miles et al (1993)	Lam et al	2007	Australia	facility based cross-sectional study	Parent stressor scale developed by Miles and Carter, and Nurse parent support tool modified by House's conceptualizations. References 1) Miles et al (1983) 2) Miles et al (1984) 3) Miles et al (1989) 4) Miles et al (1993)	A prospective, pilot study was undertaken in a NICU in a children's hospital. Pilot study described in the paper (chinese version tested with chinese families (number not mentioned), Arabic version tested with two arabic speaking parents.	Construct and content validities and reliability based on previous study of Miles and her colleagues (values not mentioned), the instruments were translated and back translated. References 1. Miles et al 1993 2. Miles et al 1999	1) Information on some of the tests and procedures routinely used could be incorporated into an information brochure for parents written in a language that would enable staff to be consistent with how they give the information to parents. 2) This study is consistent with earlier research indicating that clear and updated information remains an important area for nurses to enable good communication with parents and avoid the creation of barriers due to miscommunication. 3) Comforting strategies such as positioning the infant following surgery or providing support during painful procedures enable the parents to see themselves as true partners in care. If nurses are to provide this level of support, they need to be comfortable in teaching families and showing them methods on how to comfort and care for their sick infant.	This study revealed a low level of perceived stress and a high level of support in the surgical NICU. It raises awareness about the importance of establishing rapport with parents to alleviate their stress, and highlights the critical role played by nurses in supporting parents in a NICU. The study has also shown areas where nurse support can be improved.
6	Validation of the Neonatal Satisfaction Survey (NSS-8) in six Norwegian neonatal intensive care units: a quantitative cross-sectional study	Instrument developed based on Garrat et al, 69 items derived from 13 categories or themes relevant to parents' satisfaction with care provided in NICUs. (rating scale not mentioned). References 1)Garrat et al (2007)	Hagen et al	2018	Norway	facility based cross-sectional study	Based on Garrat et al's informal survey. References 1) Garrat et al (2007)	validation of the Neonatal Satisfaction Survey (NSS-8) in six Norwegian NICUs. Content validity was tested on a small sample of 105 respondents by using the NSS-13 (pilot study).	Data quality and psychometric properties were systematically assessed using exploratory factor analysis, tests of internal consistency and reliability assessed by Cronbach's alpha coefficient (above 0.7 for all items), construct, convergent and discriminant validity. correlations between questions were acceptable (KMO = 0.938, and the Bartlett's test of Sphericity gave $\chi^2 = 4813.142$. With df = 1275, the significant level of the null hypothesis was far below 0.05 (P < 0.0001))	1. It is suggested to define dimensions of perinatal care, such as staff attitudes and behavior, information, and environment and make sure that satisfaction can be measured for each individual dimension. This may help refine satisfaction assessment and more accurately delineate aspects of care. 2. Nurses are probably the most important care providers in hospitals, there should be emphasis on nursing service quality as one of the determining factors of parents' satisfaction. 3. The different NICUs should compare their structure in order to see if the NSS-8 is suitable in their units. Due to the similarities of NICUs in Scandinavia the generalizability is probable.	The NSS-8 is a parent-completed survey questionnaire which explores several key aspects of their experiences with NICU. The final 51 questions give good evidence for face and content validity and include important aspects of care in NICU. The NSS-8 questionnaire is a valid and reliable scale for measuring parent satisfaction with developmental care in NICU. The parent-satisfaction outcomes might contribute to identify interventions to improve the quality of care in NICU and can be used fully or only through a few of the factors.

7	The Nurse Parent Support Tool	21-item rated developed with a 5-point Likert scale assesses four dimensions of support (1) supportive communication and provision of information related to the child's illness, treatments, care, and related issues; (2) parental esteem support focused on respecting, enhancing, and supporting the parental role; (3) emotional support to help the parents cope with their own emotional responses and needs related to the child's illness; and (4) caregiving support involving the quality of care provided to the child.	Miles et al	1999	US	facility based cross-sectional study	NA	use of a conceptual framework, generating items from the literature, using data from interviews with parents of hospitalized children, and pilot testing with parents and experts. Pilot using 27-item questionnaire conducted with 115 parents.	Factor analyses, Cronbach's alpha coefficient (0.94 for mothers, 0.96 for fathers) assessed.	1) Further research warranted for evaluation of the psychometric properties of the instrument 2) Further research is needed to examine how the instrument relates to other tools measuring similar constructs.	The NPST holds promise for use in nursing research and quality improvement programs in pediatric and neonatal inpatient settings. The NPST can be used as an instrument in correlational, descriptive, and experimental research studies. It also can be used as a clinical evaluation instrument by incorporating it into ongoing nursing care evaluation studies.
8	Parental experiences of paediatric care (PEPC) questionnaire: reliability and validity following a national survey: reliability and validity following a national survey	Parent Experiences of Paediatric Care (PEPC) Questionnaire was developed : 25 item questionnaire, a scale of 0-100	Garratt et al	2007	Norway	Population-based cross-sectional study	NA	Literature review, parent interviews, pre-testing and a national survey of 6144 parents of children who were inpatients at one of the 20 paediatric departments within Norway in 2005. Tested by means of self-administered postal questionnaire within a sample of 592 parents.	Factor analysis produced five factors accounting for 60.9% of the total variation. Factor loadings were acceptable with 21 of the 28 items having loadings above 0.5, the remainder being above 0.3. Cronbach's alpha coefficient meets the criterion of 0.7.	1) There is a need for future research to assess the nonresponse bias and different approaches to surveying parents including methods for enhancing response rates. 2) The PEPC is recommended for future applications designed to assess parent experiences of pediatric inpatient care.	PEPC includes important aspects of hospital care experiences that are based on the views of parents. The questionnaire has good evidence for data quality, internal and test-retest reliability and validity. The questionnaire is being used in national surveys of parent experiences of care provided by hospitals in Norway

5.2.2 Identification of domains

During the preliminary steps of the instrument development a total of 10 domains were identified for the instrument developed. They included parent characteristics, infant characteristics, experience at admission, information, care and treatment, Parental participation, environment and facilities, professional attitude, discharge from facility and overall satisfaction of the parent.

5.2.3 Content validity

Multiple peer discussions were carried out based on individual literature reviews and the standards mentioned in LaQshya guidelines to ensure content validity of the instrument.

5.2.4 Scaling responses

A 4-point scale with responses “yes”, “Sometimes”, “No” and “Don’t know” were used for the domains regarding information, care and treatment, parental participation, organization and professional attitude. A 5-point Likert scale was used in the overall satisfaction domain to categorize the parents into those who are “completely satisfied”, “somewhat satisfied”, “neither satisfied nor dissatisfied”, “somewhat dissatisfied”, “completely dissatisfied”.

5.2.5 Item selection

97-items were included in the preliminary stages of instrument development. Subsequently, after peer discussion and further reflection on the standards mentioned in the LaQshya guidelines, the items were sorted, merged based on the similarity and removed on the basis of relevance to the context.

5.2.6 Draft instrument

The initial draft instrument developed after literature review, content validity and item selection included 96 items. Annexure 7 contains the domains and its items included in the draft instrument.

5.3 Patient Flow Analysis instrument

5.3.1 Literature review

The literature review conducted for development of Patient flow analysis showed that the terms “Patient Flow Analysis (PFA)” and “Client Flow Analysis (CFA)” can be used interchangeably. The outcome of most studies was waiting time which has been taken as a variable for improvement of quality of services(7,37,38). However, some of the PFA were used to the relation between patient characteristics and length of time spent during facility visits, and the proportion of visits which included a particular service (39,40) . Only one study was found which conducted a pilot test of data collection using the instrument developed(7). Annexure 8 contains the table from literature review.

5.3.1.1 Literature review for Patient Flow Analysis instrument

S. No.	Title	Author	Year	Context	Methodology	Output/outcome	Conclusion
1	Integration of HIV and reproductive health services in public sector facilities: analysis of client flow data over time in Kenya	Birdthistle et al	2018	Kenya	CFA- one data component of the Integra evaluation	1. Receipt of integrated HIV-RH services, defined as the proportion of all visits in which a client receives any HIV or STI service, specifically, HIV testing, counselling or treatment; or STI counselling or testing and any of the following RH services: FP counselling or provision; PNC for mother or baby; cervical cancer screening; gynaecology; or ANC. 2. Receipt of HIV counselling, measured by the proportion of all visits in which a client receives HIV counselling. HIV counselling was selected because it is expected to be conducted regardless of women's need for HIV testing or treatment which are not constant.	Study provided detailed client-level time-series data on clients' receipt of integrated service provision as well as the magnitude of the task that remains to sustain integrated service delivery in public sector facilities
2	Postpartum family planning integration with maternal, newborn and child health services: a cross-sectional analysis of client flow patterns in India and Kenya	Mackenzie et al	2018	India and Kenya	Cross-sectional client flow assessment based on forms filled by providers carried by the clients, semi structured interviews with providers and key informants	Proportion of visits where clients received integrated MNCH-FP services, client characteristics as predictors of MNCH-FP integration and MNCH-FP integration as predictor of length of time spent at facility.	Compared with other measures of service delivery like quality of care/observation surveys and readiness assessments, this approach reflects a simpler, less labour-intensive way to document individuals' receipt of integrated care. While client exit surveys could provide similar information, having the provider fill out the checklist may provide more accurate data by avoiding client recall or social acceptability bias. This study offers further support for the use of a client flow tool to assess whether integrated services are being accessed as intended in service delivery settings. The client flow tool may hold promise as a component of baseline and endline assessments, studies for integration-focused programmes or as another tool for health facility assessments to examine consistency of service integration and characteristics of clients receiving integrated services.
3	Use of patient flow analysis to improve patient visit efficiency by decreasing wait time in a primary care-based disease management programs for anticoagulation and chronic pain: a quality improvement study	Potisek et al	2007	US	PFA conducted in two programs using simple written survey, surveys divided patient visit into several phases: desk staff, nurses, care assistant, clinical pharmacist practitioners	At baseline, the mean visit time for 93 anticoagulation clinic patient visits was 84 minutes (+/- 50 minutes) and the mean visit time for 25 chronic pain clinic patient visits was 65 minutes (+/- 21 minutes). Based on these data, we identified specific areas of inefficiency and developed interventions to decrease the mean time of the patient visit. After interventions, follow-up data found the mean visit time was reduced to 59 minutes (+/-25 minutes) for the anticoagulation clinic, a time decrease of 25 minutes (t-test 39%; p < 0.001). Mean visit time for the chronic pain clinic was reduced to 43 minutes (+/- 14 minutes) a time decrease of 22 minutes (t-test 34 %; p < 0.001).	Patient Flow Analysis is an effective technique to identify inefficiencies in the patient visit and efficiently collect patient flow data. Once inefficiencies are identified they can be improved through brief interventions

4	Use of patient flow analysis to improve patient access and clinical efficiency by decreasing patient wait time in a tertiary community hospital OB/GYN ambulatory women's clinic: a quality improvement (QI) project	Rezai et al	2015	US	Daily Management System for patient flow and Visual Management Board for visual communication of data or goals to the staff	Using VMB, the staff was able to identify inefficiencies in the patient visits, suggest areas in need of improvement, institute changes and test the effectiveness of clinic interventions. Mean wait time in the obstetrical clinic was decreased from 34 minutes to 33 minutes and in the gynecological clinic wait time decreased from 49 minutes to 28 minutes. At baseline, the mean visit time for OB clinic patient visits was 169 minutes and the mean visit time for gynecological clinic patient visits was 169 minutes. After interventions, follow-up data found the mean visit time for the obstetrical clinic was reduced by 1 minute to 168 minutes, and the mean visit time for the gynecological clinic was reduced by 21 minutes to 148 minutes. The delay time before new obstetrical visits could be scheduled decreased from 11 to 7 days after changes were implemented. The time the patient spent in the clinic only decreased from 2 hours 49 minutes to 2 hours 48 minutes.	Patient flow analysis (PFA) via VMB is a simple, cost-effective method that assesses function of ambulatory health care sites to measure patient flow, identify any inefficiency in the administrative and clinical processes and efficiently collect patient and provider flow data. After identification of inefficiencies, we were able to implement targeted interventions that were associated with improved patient satisfaction.
5	Patient Flow Analysis in Resource-limited settings: A practical tutorial and case study	Dixon et al	2015	Ghana	suggested steps, which were termed the 3Ps—preparation, piloting, and performing—can be used as a flexible guide of items to consider when performing a PFA	The mean number of patients arriving to the hospital per hour during the study was 10.5 (standard deviation [SD]=7.1). Peak arrival occurred during the morning hours—between 7 am and 9 am (Table 1). The large majority (96%) of patients were discharged home after completion of their hospital visit; 4% were admitted. The overall total median visit time from arrival to disposition was 5.2 hours (interquartile range [IQR]=4.1–6.2 hours; mean=5.1 hours, SD=1.6). This duration did not differ significantly between admitted and discharged patients ($P=.11$). Additionally, median time between arrival and first-provider contact was 4.6 hr (IQR=3.4–5.6 hours; mean=4.4 hours, SD=1.6). Longest wait times were between arrival and registration (median=2.3 hours, IQR=1.4–3.2 hours; mean=2.2 hours, SD=1.3) and between history taking and first-provider contact (median=1.4 hours, IQR=0.7–2.1; mean=1.5 hours, SD=1.1). Increasing the study duration helps account for variation and potential lost patients. Having a more systematic observational assessment of hospital staffing and infrastructure can improve the strength of resource allocation recommendations. Implementing changes based on recommendations with a follow-up PFA is critical to determining improvement. A 1 day pilot test of data collection was carried out.	PFA is a simple, low-resource tool useful in evaluating health delivery processes and identifying areas for intervention. When ideally used within a larger health care improvement initiative, in combination with intervention implementation and follow-up evaluation, PFA can improve quality of care in resource-limited settings
6	Improving patient flow in an obstetric unit	Griffin et al	2011	US	Patient flow patterns and patient classification utilized for the PFA model	Increase in patient volume leads to a proportional increase in bed utilization across all units. At the peak, the average number waiting to enter MB increases 7-fold with an 18% increase in patient volume. The increase in the average number of patients waiting and the percentage of time a unit is full is more drastic in MB than AP as patient volume increases.	This simulation model can provide obstetric facilities with the ability to measure and predict current and future system performance under different patient volume and mix scenarios. The model provides the opportunity to explore alternative policy options regarding patient arrival, departure and service conditions without detrimental effects on system performance.

5.3.2 Identification of domains

The patient flow charts from Maternal and Newborn Health Toolkit, Guidelines for Obstetric HDU and ICU, and the Guidelines for Standardization of Labor rooms at delivery points were used to create the different domains of the Patient Flow Analysis instrument. It was identified that the flow of patients may not be conventional as given in the flow charts, therefore peer discussions were carried out to identify other possible flow patterns and include in them in the item “Place of transfer”.

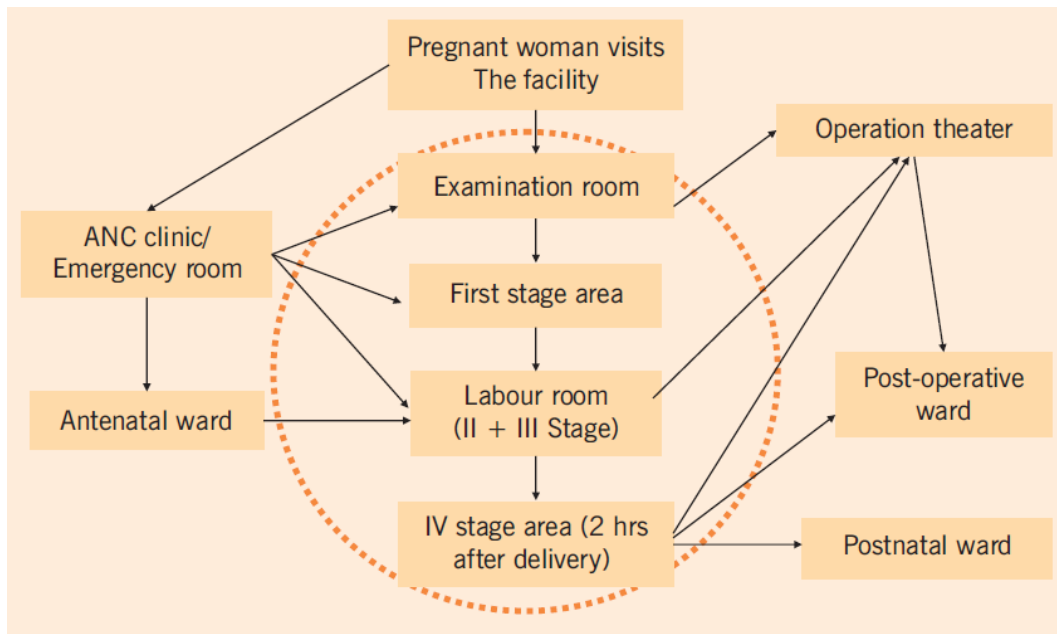


Figure 2: Patient flow within maternity wing, from the Maternal and Newborn Health Toolkit(41).

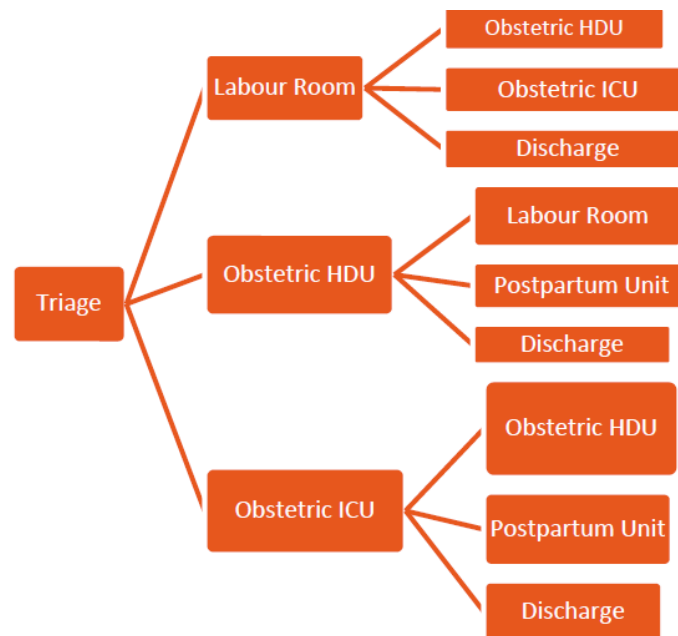


Figure 3: Flow of patient after triage, from Guidelines for Obstetric HDU and ICU(42).

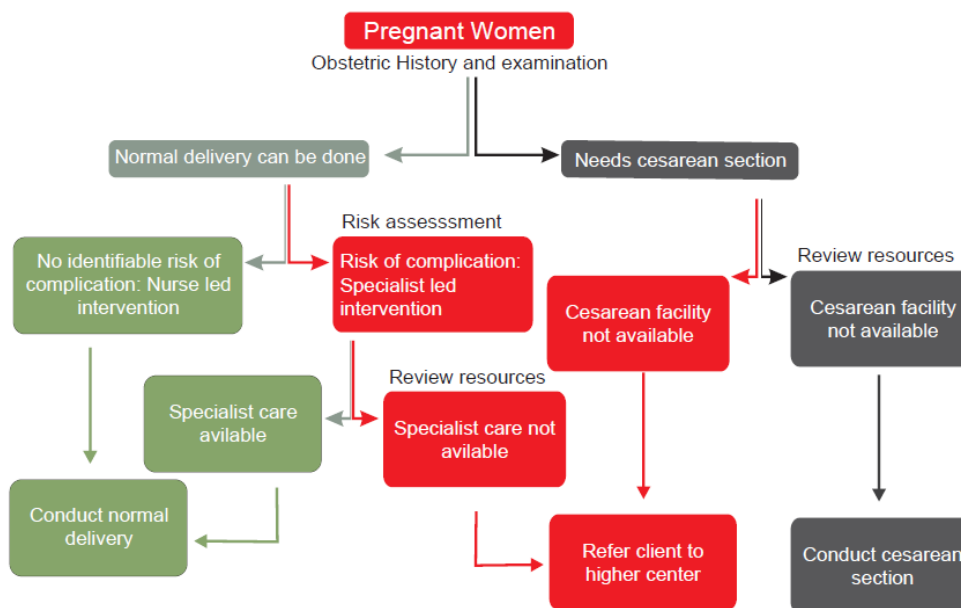


Figure 4: Flow of patient, from the Guidelines for Standardization of Labor rooms at delivery points(43).

5.3.3 Draft instrument

The draft instrument comprises of 14 domains which would collect information on time of arrival, time of contact with provider, duration on contact with provider, details of transfer and/or discharge. Specific processes such as time of services, time of initiation of partograph, time of augmentation of labor, time of decision for operative method, time of cord clamping, start and end time of Active Management of Third Stage of Labor (AMTSL), recovery time, and time of initiation of breast feeding were included to identify the relation between patient flow and the processes that ensue after a patient reaches the facility. Annexure 9 contains the draft instrument.

Section 6 : Way forward

Due to time constraints, the development of instruments for the study has only been completed up to the draft stage. Going forward, the following steps will be completed for the instruments that have been developed for the research. Patient Satisfaction Instruments will continue with the stages 6.1 to 6.4 while the Patient Flow Analysis instrument will only continue with the stages 6.1 and 6.2.

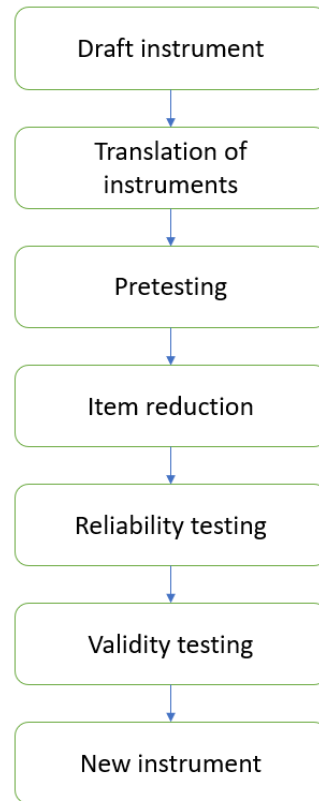


Figure 5: Summary of steps way forward for the development of the instruments

6.1 Translation of the instruments

The translation of the instruments will be carried out into the local languages of the districts. Once the translation is completed the instruments will be re-translated back to English to ensure that the meaning and interpretation of the items remain the same.

6.2 Pretesting of instrument

Once the translation of the instruments is complete, the draft instruments for Patient Satisfaction assessment will be pretested with a small sample group which would not be included in the study. Literature review has shown some studies have pretested using 10% of the sample size of the actual

study(44,45). Pretesting the instrument will ensure whether the content that has been deemed valid are written clear and that the interpretation of the items are correct. The feedback from pretesting will specifically identify any items they feel are confusing and bound to be misinterpreted by the study population.

6.3 Item reduction

After the completion of translation and pretesting, items that emerged from the Patient Satisfaction assessment tools will be tested on separate group representative of the target population. The main objective of this is to further reduce the number of items based on redundancy and congruency with overall construct of the instrument. Items of the instrument with endorsement frequencies that are greater than 0.8 will be eliminated(32). In this process, all the items with ≤ 0.30 corrected item-total correlation will be removed(32).

6.4 Reliability testing (46)

Reliability of an instrument can be defined as the reproducibility of results that a study yield. It can be assessed by test-retest, internal consistency and inter-rater reliability. Test-retest reliability considers the degree of consistency of responses by interviewees over time. For test-retest reliability testing, the Patient Satisfaction Assessment instruments will be administered to a small sample group on 2 different occasions. This will be based on the intraclass correlation coefficient (ICC). ICC values which are < 0.5 indicates poor reliability, values between 0.5 - 0.75 indicates moderate reliability, values between 0.75 - 0.9 indicates good reliability, and values > 0.9 are indicative of excellent reliability. Inter-rater reliability which defined as the extent to which the

two or more data collectors agree can also be evaluated by the intraclass correlation coefficient. Internal consistency reliability of the instruments can be evaluated using Cronbach's alpha coefficient. It measures the reliability of the scales and evaluates how well various items measuring the same concept fulfill their purpose in real. The minimal acceptable value of alpha coefficient is > 0.7 .

6.5 Validity testing (46)

Validity is defined as whether the instrument measures what it was intended to measure. It can be either content, criterion or construct validity. Content validity was carried out initially for the Patient Satisfaction instruments during the draft development by peer discussion. However, it can be further assessed by using inputs from the postpartum women during pretesting or by conducting focus group discussions or by taking expert opinions. Construct Validity can be analyzed using a statistical technique called Confirmatory Factor Analysis, which tests hypotheses about the factor structure or multidimensional nature of the construct. This will ensure whether the item reduction results of the Patient Satisfaction Instruments matched the conceptual model or framework that was utilized for the development of the instruments. Absolute fit indices such as chi-squared test for absolute fit, root mean square of approximation, and comparative fit index may be assessed to ensure if it is a good fit of the model. Criterion validity would not be assessed for the instruments as there were no instruments found that were validated in the Indian context.

Section 7 : Limitations and Recommendations

The draft Patient Satisfaction Assessment instruments which have been developed are quantitative in nature which may not be effective in understanding certain patient perspective which may not be related to the items. Additional items which are qualitative in nature for relevant domains would be useful for further in-depth analysis and would remove the gratitude bias which may arise as the study is conducted within the hospital. Several limitations may further arise way forward when the translation, pretesting, reliability and validity testing of the instruments are conducted. Methodological studies which compares different methods on development of these instruments are scarce. Therefore, the limitations with emerged from literature reviews should be avoided by considering the recommendations given in different studies.

Section 8 : Conclusion

The stages of instrument development described in the section 7 needs to be continued to develop reliable and validated instruments that would be helpful to collect uniform data the study and identify the gaps in implementation of LaQshya guidelines in public health facilities.

Section 9 : Practicum experience

Although the implementation research study for LaQshya program is proposed for 2 years, my duration of practicum has been limited to preparatory activities of the formative phase of the study. Apart from this, I was also able to participate in sessions for discussions on research ethics conducted within the organization with speaker Dr. Abha Saxena, ex coordinator of Global Health Ethics team (2013-2018). her sessions were insightful and a great learning experience.

This report majorly covers the instruments that I have actively worked on during my practicum experience. I have participated in discussions and given my suggestions on the other instruments which have been mentioned in my work plan. Due constraints of time, the development of the instruments have not been completed. However, the learning experience from this practicum has further increased my skills in conducting literature reviews and increased my knowledge in maternal and child health, quality improvement in healthcare and health service delivery, and research methodologies. It has also given me insight into how different guidelines and policies on government led programs are translated and implemented in healthcare setting. The role of government as a stakeholder in promotion of health and improvement of quality by creating champions in public health facilities has been one of the key take-away messages from this practicum experience.

References

1. Department of Health and Human Services U. Intrapartum [Internet]. Available from: <https://aidsinfo.nih.gov/understanding-hiv-aids/glossary/393/intrapartum>
2. Grigoriadis S, Erlick Robinson G, Fung K, Ross L, Chee C, Dennis C, et al. Traditional postpartum practices and rituals: a qualitative systematic review. *Can J Psychiatry* [Internet]. 2009;54(12):834–40. Available from: <https://www.ncbi.nlm.nih.gov.proxy1.library.jhu.edu/pubmed/20047722>
3. MDRC. Implementation Research [Internet]. Available from: <https://www.mdrc.org/what-implementation-research>
4. World Health Organization (WHO). Maternal Mortality Ratio [Internet]. Available from: <https://www.who.int/healthinfo/statistics/indmaternalmortality/en/>
5. World Health Organization (WHO). Neonatal Mortality Rate [Internet]. Available from: <https://www.who.int/whosis/whostat2006NeonatalMortalityRate.pdf>
6. World Health Organization (WHO). WHO recommendation on respectful maternity care during labour and childbirth [Internet]. 2018. Available from: <https://extranet.who.int/rhl/topics/preconception-pregnancy-childbirth-and-postpartum-care/care-during-childbirth/who-recommendation-respectful-maternity-care-during-labour-and-childbirth>
7. Dixon CA, Punguyire D, Mahabee-Gittens M, Ho M, Lindsell CJ. Patient flow analysis in resource-limited settings: A practical tutorial and case study. *Glob Heal Sci Pract*. 2015;3(1):126–34.
8. IEO. INCLEN Trust International [Internet]. Available from: <http://inclentrust.org/inclen/introduction/>
9. World Health Organization (WHO). India has achieved groundbreaking success in reducing maternal mortality [Internet]. 2018 [cited 2020 Apr 5]. Available from: <https://www.who.int/southeastasia/news/detail/10-06-2018-india-has-achieved-groundbreaking-success-in-reducing-maternal-mortality>
10. Sankar MJ, Neogi SB, Sharma J, Chauhan M, Srivastava R, Prabhakar PK, et al. State of newborn health in India. *J Perinatol* [Internet]. 2016;36(s3):S3–8. Available from: <http://dx.doi.org/10.1038/jp.2016.183>
11. Division MH, Welfare F. A strategic initiative to strengthen quality of intra-and immediate postpartum care Operational Guidelines DAKSHATA Empowering Providers for Improved MNH Care during Institutional Deliveries. 2015;(April):1–44. Available from: http://nhm.gov.in/images/pdf/programmes/maternal-health/guidelines/Dakshata-Operational_Guidelines.pdf
12. National Health Mission. LaQshya - Labour Room Quality Improvement Initiative. 2017.
13. Kambala C, Lohmann J, Mazalale J, Brenner S, De Allegri M, Muula AS, et al. How do Malawian women rate the quality of maternal and newborn care? Experiences and perceptions of women in the central and southern regions. *BMC Pregnancy Childbirth*. 2015;15(1):1–19.

14. Wickramasinghe SA, Gunathunga MW, Hemachandra DKNN. Client perceived quality of the postnatal care provided by public sector specialized care institutions following a normal vaginal delivery in Sri Lanka: A cross sectional study. *BMC Pregnancy Childbirth*. 2019;19(1):1–10.
15. Montagu D, Landrian A, Kumar V, Phillips BS, Singhal S, Mishra S, et al. Patient-experience during delivery in public health facilities in Uttar Pradesh, India. *Health Policy Plan*. 2019;34(8):574–81.
16. Okafor II, Ugwu EO, Obi SN. Disrespect and abuse during facility-based childbirth in a low-income country. *Int J Gynecol Obstet [Internet]*. 2015;128(2):110–3. Available from: <http://dx.doi.org/10.1016/j.ijgo.2014.08.015>
17. Abuya T, Warren CE, Miller N, Njuki R, Ndwiga C, Maranga A, et al. Exploring the prevalence of disrespect and abuse during childbirth in Kenya. *PLoS One*. 2015;10(4):1–13.
18. Kruk ME, Kujawski S, Mbaruku G, Ramsey K, Moyo W, Freedman LP. Disrespectful and abusive treatment during facility delivery in Tanzania: A facility and community survey. *Health Policy Plan*. 2018;33(1):e26–33.
19. Donabedian A. Explorations in quality assessment and monitoring. 1980;
20. Donabedian A. The quality of care: how can it be assessed. *JAMA*. 1988;260(12):1743–8.
21. Donabedian A. The seven pillars of quality. *Arch Pathol Lab Med*. 1990;114(11):1115–8.
22. Bowser D, Hill K. Exploring evidence for disrespect and abuse in facility-based childbirth: Report of a landscape analysis. 2010.
23. Sando D, Abuya T, Asefa A, Banks KP, Freedman LP, Kujawski S, et al. Methods used in prevalence studies of disrespect and abuse during facility based childbirth: Lessons learned Prof. Suellen Miller. *Reprod Health*. 2017;14(1):1–18.
24. Salehi Z, Nouri JM, Khademolhoseini M, Ebadi A. Survey of parents Satisfaction of infants admitted in the NICU. *Iran J Crit Care Nurs*. 2014;7(4):245–52.
25. Auslander G k, Dvorah N, Arad I. Parents' satisfaction with care in the neonatal intensive care unit: the role of sociocultural factors. *Child Heal Care*. 2003;32(1):17–36.
26. Latour JM, Duivenvoorden HJ, Hazelzet JA, Van Goudoever JB. Development and validation of a neonatal intensive care parent satisfaction instrument. *Pediatr Crit Care Med*. 2012;13(5):554–9.
27. Hagen IH, Iversen VC, Nessel E, Orner R, Svindseth MF. Parental satisfaction with neonatal intensive care units: A quantitative cross-sectional study. *BMC Health Serv Res*. 2019;19(1):1–12.
28. MILES MS, FUNK SG, CARLSON J. Parental Stressor Scale. Vol. 42, *Nursing Research*. 1993. p. 148–152.
29. Miles MS, Carlson J, Brunssen S. The nurse parent support tool. *J Pediatr Nurs*. 1999;14(1):44–50.
30. Enlow E, Herbert SL, Jovel JJ, Lorch SA, Anderson C, Chamberlain LJ. Neonatal intensive care unit to home: The transition from parent and pediatrician perspectives, a prospective cohort study. *J Perinatol*. 2014;34(10):761–6.
31. Mitchell-DiCenso A, Guyatt G, Paes B, Blatz S, Kirpalani H, Fryers M, et al. A new measure of parent satisfaction with medical care provided in the neonatal intensive care unit. *J Clin*

- Epidemiol. 1996;49(3):313–8.
32. Butt ML, Pinelli J, Boyle MH, Thomas H, Hunsberger M, Saigal S, et al. Development and evaluation of an instrument to measure parental satisfaction with quality of care in neonatal follow-up. *J Dev Behav Pediatr*. 2009;30(1):57–65.
 33. Hagen IH, Vadset TB, Barstad J, Svindseth MF. Development and validation of neonatal satisfaction survey - NSS-13. *Scand J Caring Sci*. 2015;29(2):395–406.
 34. Lam J, Spence K, Halliday R. Parents' perception of nursing support in the neonatal intensive care unit (NICU). *Neonatal, Paediatr Child Heal Nurs*. 2007;10(3):19–25.
 35. Hagen IH, Svindseth MF, Nessel E, Orner R, Iversen VC. Validation of the Neonatal Satisfaction Survey (NSS-8) in six Norwegian neonatal intensive care units: A quantitative cross-sectional study. *BMC Health Serv Res*. 2018;18(1).
 36. Garratt AM, Bjertnæs ØA, Barlinn J. Parent experiences of paediatric care (PEPC) questionnaire: Reliability and validity following a national survey. *Acta Paediatr Int J Paediatr*. 2007;96(2):246–52.
 37. Potisek NM, Malone RM, Shilliday BB, Ives TJ, Chelminski PR, DeWalt DA, et al. Use of patient flow analysis to improve patient visit efficiency by decreasing wait time in a primary care-based disease management programs for anticoagulation and chronic pain: A quality improvement study. *BMC Health Serv Res*. 2007;7:1–7.
 38. Rezai S. Use of Patient Flow Analysis to Improve Patient Access and Clinical Efficiency by Decreasing Patient Wait Time in a Tertiary Community Hospital Ob/Gyn Ambulatory Women's Clinic: A Quality Improvement (QI) Project. *Obstet Gynecol Int J*. 2015;3(1).
 39. Birdthistle IJ, Fenty J, Collumbien M, Warren C, Kimani J, Ndwiga C, et al. Integration of HIV and reproductive health services in public sector facilities: analysis of client flow data over time in Kenya. *BMJ Glob Heal*. 2018;3(5):e000867.
 40. Mackenzie D, Pfitzer A, Maly C, Waka C, Singh G, Sanyal A. Postpartum family planning integration with maternal, newborn and child health services: A cross-sectional analysis of client flow patterns in India and Kenya. *BMJ Open*. 2018;8(4).
 41. Maternal Health Division, MOHFW. Maternal & Newborn Health Toolkit. :160.
 42. Maternal Health Division, MOHFW. Guidelines for obstetric HDU and ICU. 2016.
 43. Maternal Health Division, MOHFW. Guidelines for standardization of Labor rooms at delivery points [Internet]. 2016. Available from: https://www.bertelsmann-stiftung.de/fileadmin/files/BSt/Publikationen/GrauePublikationen/MT_Globalization_Report_2018.pdfhttp://eprints.lse.ac.uk/43447/1/India_globalisation%2C_society_and_inequalities%28Isero%29.pdf<https://www.quora.com/What-is-the>
 44. Panth A, Kafle P. Maternal satisfaction on delivery service among postnatal mothers in a government hospital, Mid-Western Nepal. *Obstet Gynecol Int*. 2018;2018.
 45. Oyugi B, Kioko U, Kaboro SM, Okumu C, Ogola-Munene S, Kalsi S, et al. A facility-based study of women' satisfaction and perceived quality of reproductive and maternal health services in the Kenya output-based approach voucher program. *BMC Pregnancy Childbirth*. 2018;18(1):1–10.

46. Aday L. Designing and conducting health surveys. Jossey Bass Publisher. San Francisco; 1989.

Annexures

Annexure 1 – Draft instrument for Patient Satisfaction Assessment instrument for recently delivered women

UNIQUE ID:

Quality of intrapartum and immediate postpartum care of mothers and newborns: an implementation research to improve performance of LaQshya program in six districts of India

CLIENT FEEDBACK QUESTIONNAIRE FOR RECENTLY DELIVERED WOMEN

Mode of assessment: interview

1.	Demographic characteristics	Response
1.1	Age of the mother	years
1.2	Educational status	☐ Illiterate ☐ Primary education ☐ Middle school ☐ High school ☐ Intermediate or post high school diploma ☐ Under graduate ☐ Post graduate ☐ Professional
1.3	Marital status	☐ Single ☐ Married ☐ Separated/divorced ☐ widow
1.4	Occupational status	☐ Housewife ☐ unskilled worker ☐ skilled worker ☐ farmer ☐ shop owner ☐ clerical ☐ professional
1.5	Religion	☐ Hindu ☐ Muslim ☐ Christian ☐ Other
1.6	Caste	☐ General ☐ OBC ☐ ST/SC
1.7	Socio-economic status	☐ Upper ☐ upper middle ☐ lower middle ☐ lower
2.	Client details	Response
2.1	Parity	☐ Primi ☐ multi
2.2	Gestational age at birth	Weeks days

2.3	If multi Para, were your previous child delivered in the same facility?	☐ Yes ☐ No
2.4	Type of case	☐ Booked ☐ Unbooked
2.5	Type of health facility	☐ PHC ☐ CHC ☐ SDH ☐ DH ☐ Medical College Hospital
2.6	How did you come to this facility	☐ Referral ☐ recommended by relatives ☐ personal decision ☐ other
2.7	Length or duration of hospital stay	☐ In days
2.8	How long it took you to reach hospital from home or another facility?	☐ Less than 1 hour ☐ More than 1 hour
2.9	Mode of transportation	☐ Pvt. Vehicle ☐ public ☐ transport ☐ ambulance ☐ other
3.	On admission	Response
3.1	How did you get admitted in this facility?	☐ OPD ☐ Emergency
3.2	Were you treated with respect and dignity during admission process?	☐ Yes ☐ No
3.3	Was the staff at registration/emergency helpful to you?	☐ Yes ☐ No
3.4	Was the wheel chair/stretchers available for you?	☐ Yes ☐ No
3.5	How prompt was the registration process?	☐ Prompt ☐ Average ☐ Delayed
3.6	The duration of your wait-time for a doctor after admission	☐ <30 minutes ☐ >30 minutes
4.	Care during Labour	Response
4.1	Were you admitted to the maternity ward or LDR?	☐ Yes ☐ No
4.2	Did you get a separate labor room or private cubicle for delivery?	☐ Yes ☐ No
4.3	Did you have to share your bed with another patient?	☐ Yes ☐ No
4.4	Were you informed about plan of delivery, upcoming procedures and interventions?	☐ Yes ☐ No
4.5	Did the health providers give you all the information you needed about the care and condition?	☐ Yes ☐ No
4.6	If yes, did the care provider explained to you in a language and at a language level that you can	☐ Always ☐ Sometimes

4.23	If yes, did the health providers help you to try and find a comfortable position for birth?	☐ Yes ☐ No
4.24	Were you left unattended during care in the labour room?	☐ Most of the time ☐ Sometime ☐ Not at all
4.25	Did you feel that the staff dismissed the things you requested from them?	☐ Always ☐ Sometimes ☐ Never
4.26	Did you feel that you were denied care or treatment at any point during labor?	☐ Yes ☐ No
4.27	Were you treated in a way that made you feel humiliated or disrespected?	☐ Always ☐ Sometimes ☐ Never
4.28	Did you feel you were discriminated based on your appearance, caste, religion, age, status of HIV/AIDS, economic status or education?	☐ Yes ☐ No
4.29	Were you subjected to any intentional humiliation, blaming, scolding, shouting during labor?	☐ Yes ☐ No
4.30	Were you threatened with any medical procedure at any point during labor?	☐ Yes ☐ No
4.31	At any point during your delivery, were you subjected to any physical abuse by any health care providers?	☐ Yes ☐ No
4.32	If yes what kind of physical abuse was it?	☐ Pinching ☐ Slapping ☐ Beating ☐ Held down/tied down
4.33	Do you feel that rough behavior from the provider encouraged you to continue after giving up during the process of labor?	☐ Yes ☐ Somewhat ☐ Not at all
4.34	Did the health care provider encouraged and supported you during labour?	☐ Yes ☐ Somewhat ☐ Not at all
4.35	Did you have confidence in the health providers' professional competence?	☐ Yes ☐ No ☐ Don't know
4.36	Were you or your companion asked to clean up blood, urine, feces or amniotic fluid during delivery?	☐ Yes ☐ No
5.	Care after delivery	Response
5.1	Were you immediately informed about the baby's condition and sex after delivery?	☐ Yes ☐ No
5.2	Was the baby placed on your abdomen / chest soon after the delivery of the baby?	☐ Yes ☐ No
5.3	Did the Nurses take care of your pain and comfort after delivery?	☐ Yes, immediately ☐ After sometime ☐ No
5.4	What was the mode of delivery?	☐ Normal ☐ Assisted ☐ C-section
	If C-section skip to Q no. 5.10	

6.5	Did you find the toilet well maintained and clean? What response to include for maintenance	☐ Very clean ☐ Not so clean ☐ Very poor
6.6	Is running water and hand washing facilities available in the toilets?	☐ Yes ☐ No
6.7	Is 24 hours safe drinking water available in the facility?	☐ Yes ☐ No
6.8	Is 24 hours electricity supply available in the facility?	☐ Yes ☐ No
6.9	Was adequate space in a bed available for you and baby?	☐ Yes ☐ No
7.	Out of pocket expenditure	Response
7.1	Did you have to pay for any services sought in the health facility?	☐ Yes ☐ No
7.2	If yes what did you pay for?	☐ Medicines ☐ Diagnostic services ☐ Other fees specify.....
7.3	Were you detained in the facility for not paying any bills or for not returning any medications used during labor?	
8.	During discharge	Response
8.1	Were you advised about postnatal care	☐ Yes ☐ No
8.2	Were you advised about newborn care	☐ Yes ☐ No
8.3	Were you advised about post natal follow-up	☐ Yes ☐ No
8.4	Were you advised about diet and medications	☐ Yes ☐ No
8.5	How would you describe your health at the time of discharge?	☐ Good ☐ Not good ☐ Don't know
9.	Overall satisfaction	Response
9.1	How satisfied are you with the cleanliness of the rooms of the health facility including toilet?	☐ Completely satisfied ☐ Somewhat satisfied ☐ Neither satisfied nor dissatisfied ☐ Somewhat dissatisfied ☐ Completely dissatisfied
9.2	How satisfied are you with the attitude and behavior of the staff?	
9.3	Information about plan of delivery, upcoming procedures and interventions	☐ Completely satisfied ☐ Somewhat satisfied ☐ Neither satisfied nor dissatisfied ☐ Somewhat dissatisfied ☐ Completely dissatisfied
9.4	Your experience of how clearly things were explained to you by health care providers	☐ Completely satisfied ☐ Somewhat satisfied ☐ Neither satisfied nor dissatisfied ☐ Somewhat dissatisfied

Annexure 2 – Draft instrument for Patient Satisfaction Assessment instrument for recently discharged young infant from SNCU/NICU

UNIQUE ID:

Quality of intrapartum and immediate postpartum care of mothers and newborns: an implementation research to improve performance of LaQshya program in six districts of India

CLIENT FEEDBACK QUESTIONNAIRE FOR RECENTLY DISCHARGED YOUNG INFANT FROM SNCU/NICU

Mode of assessment: interview

1.	Parent characteristics	Response
1.1	Who is the Respondent?	☐ Father ☐ Mother
1.2	Age of respondent	years
1.3	Educational status of father	☐ Illiterate ☐ Primary education ☐ Middle school ☐ High school ☐ Intermediate or post high school diploma ☐ Undergraduate ☐ Post graduate ☐ Professional
1.4	Educational status of mother	☐ Illiterate ☐ Primary education ☐ Middle school ☐ High school ☐ Intermediate or post high school diploma ☐ Undergraduate ☐ Post graduate ☐ Professional
1.5	Occupation status of father	☐ Unemployed ☐ Unskilled worker ☐ Skilled worker ☐ Farmer ☐ Shop owner ☐ Clerical ☐ Professional
1.6	Occupation status of mother	☐ Housewife ☐ Unskilled worker ☐ Skilled worker ☐ Farmer ☐ Shop owner ☐ Clerical ☐ Professional
1.7	Religion	☐ Hindu ☐ Muslim ☐ Christian ☐ other

1.8	Caste	☐ General ☐ OBC ☐ SC/ST
1.9	Socioeconomic status	☐ Upper ☐ Upper middle ☐ Lower middle ☐ Lower
1.10	Travel time to hospital	☐ Less than 1 hour ☐ More than 1 hour
2.	Infant characteristics	
2.1	Birth weight	☐ Grams
2.2	Gestational age at birth	☐ Weeks
2.3	Age of the baby on admission	☐ Days
2.4	Sex of the baby	☐ Male ☐ Female
2.5	Was your child born in the same hospital?	☐ Yes ☐ No
2.6	What was the mode of delivery	☐ Normal ☐ Forceps/Vacuum ☐ Caesarean
2.7	Have the child been referred to this facility?	☐ Yes – other facility/ home birth ☐ No
2.8	Did the ANM/ASHA arrange the ambulance/ transport for you?	☐ Yes ☐ we didn't inform them ☐ No
2.9	Date of Admission	Dd/mm/yy
2.10	Length of stay in SNCU/NICU	days
2.11	No. of Ventilation days	Hours/days
3.	Experience at admission	
3.1	Did your child get admitted through OPD?	☐ Yes ☐ No
3.2	If yes, was the person at registration helpful?	☐ Yes- was helpful ☐ was fine- didn't notice ☐ No- not very helpful
3.3	Did your child get admitted through emergency/directly to SNCU/NICU?	☐ Yes ☐ No
3.4	If yes, was the person at emergency helpful to you?	☐ Yes- was helpful ☐ was fine- didn't notice ☐ No- not very helpful
3.5	How prompt was the registration process?	☐ It was quick ☐ Took some time ☐ Took a long time
3.6	Did the ward attendant/support staff assist you for reaching to ward/ SNCU/ NICU	☐ Yes ☐ No
3.7	Were you able to locate the ward/ SNCU/ NICU easily (location and sign boards)?	☐ Yes, we reached without any trouble ☐ Had little difficulty in reaching but it was fine ☐ No
4.	Information	Response
4.1	Did you feel that the healthcare providers gave honest and accurate information?	☐ Yes ☐ Sometimes ☐ No ☐ Don't know
4.2	Were you informed right away when the	☐ Yes

		☐ Don't know
4.16	Were any contradictory information provided by the health providers?	☐ Yes ☐ Sometimes ☐ No ☐ Don't know
4.17	Did the nurse give you guidance on support for child care (Breast feeding, KMC)?	☐ Yes ☐ Sometimes ☐ No ☐ Don't know
5.	Care and treatment	
5.1	Was the doctor's availability during the day time adequate?	☐ Yes, always available ☐ sometimes available ☐ Never
5.2	Was the availability of nurses adequate in the care of your child?	☐ Yes, always available ☐ sometimes available ☐ Never
5.3	How frequently did doctor visit for checkup?	☐ More than 2 times daily ☐ Once daily ☐ Not sure when they visited
5.4	How much time did the doctor spend on your baby?	☐ More than 10 minutes ☐ 5-10 minutes ☐ Less than 5 minutes
5.5	Do you think your baby received satisfactory treatment?	☐ Yes ☐ Sometimes ☐ No ☐ Don't know
5.6	Was immediate action taken by health care providers when the condition of the baby worsened?	☐ Yes ☐ Sometimes ☐ No ☐ Don't know
5.7	Were the healthcare providers professional at the tasks they performed?	☐ Yes ☐ Sometimes ☐ No ☐ Don't know
5.8	Was the child always well taken care of by the nurses while in the incubator/bed?	☐ Yes ☐ Sometimes ☐ No ☐ Don't know
5.9	Do you think that you received adequate assistance with your baby during night?	☐ Yes ☐ Sometimes ☐ No ☐ Don't know
5.10	Were all the medicines prescribed by the health care provider available in the facility?	☐ Yes ☐ Sometimes ☐ No ☐ Don't know
5.11	Did the health providers respond well to your own needs and support you emotionally?	☐ Yes ☐ Sometimes ☐ No ☐ Don't know
6.	Parental participation	
6.1	Were you confident in the team that provided care to your baby?	☐ Yes ☐ Sometimes

9.	Discharge from facility	
9.1	Did you feel that the condition of the baby was good at the time of discharge?	☐ Yes ☐ Don't know but we want to go home ☐ No, still not well
9.2	Did you receive a discharge sheet explaining the events and problem and follow-up?	☐ Yes ☐ Yes, we got something, but nothing is written ☐ Yes we got something but don't understand what is written ☐ No
9.3	Have you been explained about the care at home?	☐ Yes ☐ No
9.4	Do you know about the danger signs of the child?	☐ Yes I know ☐ I know little bit ☐ No, I don't know
9.5	Was the child discharged with medications?	☐ Yes ☐ Yes, But I will buy it from outside ☐ No
9.6	Were you explained by the healthcare providers on where to go for follow-up visit?	☐ Yes ☐ They told us, but I don't remember ☐ No
9.7	Did you have to make any unofficial/ informal payments?	☐ No ☐ They asked but we denied ☐ Yes
9.8	If yes what did you pay for?	☐ Medications ☐ Diagnostic tests ☐ Other fees, specify.....
10.	Overall satisfaction	
10.1	How would you rate how clearly things were explained to you by health care providers?	☐ Completely satisfied ☐ Somewhat satisfied ☐ Neither satisfied nor dissatisfied ☐ Somewhat dissatisfied ☐ Completely dissatisfied
10.2	How would you rate the knowledge and competence of health worker at this facility?	☐ Completely satisfied ☐ Somewhat satisfied ☐ Neither satisfied nor dissatisfied ☐ Somewhat dissatisfied ☐ Completely dissatisfied
10.3	How satisfied are you with the services provided to you?	☐ Completely satisfied ☐ Somewhat satisfied ☐ Neither satisfied nor dissatisfied ☐ Somewhat dissatisfied ☐ Completely dissatisfied
10.4	Would you like to return to this health facility for your subsequent child's health needs?	☐ Yes ☐ Not sure ☐ No
10.5	Based on the quality of care you received here, would you recommend this facility to anyone you know if their baby needs similar kind of care or treatment?	☐ Yes I will ☐ Yes, but only if someone ask for ☐ Not at all

Annexure 3 – Draft instrument for patient flow analysis

UNIQUE ID:

Quality of intrapartum and immediate postpartum care of mothers and newborns: an implementation research to improve performance of LaQshya program in six districts of India

Patient Flow Analysis (Based on Maternal and Newborn Health Tool Kit)

Patient Flow Analysis

Patient Flow Analysis in a hospital setting outlines the process of care, and measures time spent in each phase of the visit, a potentially effective and efficient technique to collect data and evaluate the effect of interventions to improve patient visit efficiency by decreasing waiting time. Once the analysis is performed, potential targets for improvement can be identified to reduce bottleneck effects in the patient visit, and provide objective data to improve utilization of existing resources

Method of assessment

- a. Observation
- b. Patient interview
- c. Staff interview

References

- a. Maternal and Newborn Health Toolkit
- b. Guidelines for Obstetric HDU and ICU
- c. Birdthistle et al (2018)

Facility Information		
S. No.	Question	Response
A	Name	
B	Type	
C	Date of assessment	
D	Time of observation	
E	Name of the observer	

Entrance to facility		
S. No.	Question	Response
1.1	Client Name	
1.2	Age	
1.3	Name of the husband	
1.4	Client arrival date	
1.5	Client arrival time	
1.6	Client type	Booked/ Unbooked/ Referred
1.7	Type of visit	Regular/Emergency

6.10	Provider interaction *Fill the following rows based on the interaction with particular providers listed.			1- Doctor 2- Nurse 3- Supporting staff 4- Others (Mention type of staff)	
	S. No	Service provider	Date	Start time	End time
	1				
	2				
	3				
	4				
	5				
	6				
	7				
	8				
	9				
	10				
	11				
	12				

Labor room					
S. No.	Question			Response	
7.1	Check in date				
7.2	Check in time				
7.3	Time when patient shifted to labor bed				
7.4	Time of first contact with a doctor				
7.5	Time of first contact with a nurse				
7.6	Time at which augmentation of labor was decided				
7.7	Time at which augmentation of labor was done				
7.8	Time at which decision for operative method decided				
7.9	Date and time of Delivery			Date:	Time:
7.10	Time of cord clamping			Time	
7.11	AMTSL			Start:	End:
7.12	Recovery time:			Start:	End:
7.13	Time of initiation of breast feeding				
7.14	Time when patient is transferred				
7.15	Place of Transfer			Operation theater/ Post-delivery observation room/ Postnatal ward/ Obstetric HDU/ Obstetric ICU/ Referred to higher facility/ Referred to other facility	
7.16	Check out date and time			Date:	Time:
7.17	Provider interaction *Fill the following rows based on the interaction with particular providers listed.			1- Doctor 2- Nurse 3- Supporting staff 4- Others (Mention name)	
	S. No	Service provider	Date	Start time	End time

	1				
	2				
	3				
	3				
	4				
	5				
	6				
	7				
	8				
	9				
	10				
	11				
	12				

Operation theater					
S. No.	Question			Response	
8.1	Check in date				
8.2	Check in time				
8.3	Time when patient shifted to OT bed				
8.4	Time of first contact with Surgeon				
8.5	Time of first contact with Anesthetist				
8.6	Time of first contact with a nurse				
8.7	Time when anesthesia was given				
8.8	Date of surgery				
8.9	Time of surgery			Start:	End:
8.10	Time of transfer				
8.11	Place of Transfer			Post-operative ward/ Postnatal ward/ Obstetric HDU/ Obstetric ICU	
8.12	Check out date and time			Date:	Time:
8.13	Provider interaction *Fill the following rows based on the interaction with particular providers listed.			1- Surgeon 2- Anesthetist 3- Nurse 4- Supporting staff 5- Others (Mention name)	
	S. No	Service provider	Date	Start time	End time
	1				
	2				
	3				
	3				
	4				
	5				
	6				
	7				
	8				
	9				
	10				
	11				

	9				
	10				
	11				
	12				

Obstetric HDU					
S. No.	Question			Response	
9.1	Check in date				
9.2	Check in time				
9.3	Time when patient shifted to bed				
9.4	Time of first contact with a doctor				
9.5	Time of first contact with a nurse				
9.6	Time when patient is transferred				
9.7	Place of Transfer			Labor room/ Operation theater/ Postnatal ward/ Obstetric ICU/ Referred to another facility	
9.8	Date and time of discharge			Date:	Time:
9.9	Check out date and time			Date:	Time:
9.10	Provider interaction *Fill the following rows based on the interaction with particular providers listed.			1- Doctor 2- Nurse 3- Supporting staff 4- Others (Mention name)	
	S. No	Service provider	Date	Start time	End time
	1				
	2				
	3				
	3				
	4				
	5				
	6				
	7				
	8				
	9				
	10				
	11				
	12				

Obstetric ICU		
S. No.	Question	Response
9.1	Check in date	
9.2	Check in time	
9.3	Time when patient shifted to bed	
9.4	Time of first contact with a doctor	
9.5	Time of first contact with a nurse	
9.6	Time when patient is transferred	
	Place of Transfer	Postnatal ward/ Obstetric HDU/ Referred