

Quality of maternal and neonatal health care: A cross sectional survey in the for-profit private sector facilities in urban Bangladesh

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Abstract

Background

For-profit private sector is increasingly contributing in maternal and neonatal health (MNH) in many low and middle income countries including Bangladesh. However, they operate beyond any regulatory framework that raises concerns about quality, cost and equity. In view of maximizing the contribution of ever-growing private sector in achieving the national public health goals, this study explores the quality of MNH care in the for-profit private hospitals in urban Bangladesh.

Method

The study was conducted in Sylhet City Corporation area during June to August 2015 where all 34 for-profit private hospitals providing Comprehensive Emergency Obstetric and Neonatal care services were included. A facility survey (N=34) using structured checklist; and a review of inpatient medical records (n=1343) was undertaken to explore the structure, process and outcome dimensions of quality of MNH care. Finally results were presented according to size of the facility.

Results

Out of 34 health facilities, labour room, neonatal care unit and breast feeding corner were absent in 13, 27 and 31 facilities respectively. The median number of full time obstetricians, anesthetists and pediatricians were <1; and unregistered nurses (9) were more than registered nurses (3). Hospital copy for discharge certificates were available in 10 facilities. The recommended waste segregations and disposals using three separate colour coded bins were present in six surveyed facilities for in house but not at all for outhouse waste management. Out of 1343 delivery cases reviewed; 67% were conducted after 2 pm and 81% of all deliveries were conducted by caesarean section. Supporting clinical findings such as partograph use (<1%) and vaginal examination findings (21%) to validate Caesarean indication, were also missing.

Conclusions

Skilled human resource shortage was prominent and reflected as low use of evidence based clinical practices. Tendency of delivery being conducted after office time of public hospital implies dual practice of consultants which can jeopardize quality both in public and private health facilities. Poor record keeping was a medico-legal concern and improper waste management can increase hospital acquired infection rate. The observed poor quality of care under this study need immediate policy attention to safeguard individual health and national health system.

Background:

Globally, maternal health service coverage like facility delivery rate and presence of skill birth attendants during labor have increased significantly over the past two decades^(1, 2). However, increasing coverage

could not translate into expected maternal health outcomes in many low middle income countries (LMICs) ^(3,4). Still many women die within the premises of health facility though having skilled birth attendant during birth⁽¹⁾. Inability to maintain optimum quality to deliver maternal health interventions remain the main cause for not achieving maternal mortality target of millennium development goal (MDG) despite enhanced access to care ^(5,6). Thus in post MDG arena quality has been prioritized equally with the 'access' and 'equity' for achieving maternal health related targets in two recent global action plans; Sustainable Development Goals (SDGs) and Global Strategy for Women's, Children's, and Adolescents' Health (2016–30) ^(7,8).

However, in many LMICs, major investments in Maternal and Neonatal Health (MNH) have been directed towards the public sector service delivery system despite the majority of the MNH services are offered by the for-profit private sector facilities ⁽³⁾. The popularity to the private sector derives from the patient's experiences of inadequate capacity and poor quality of care in government facilities ⁽⁹⁾. While the private health services are perceived as more responsive and accessible in terms of location and service hours ^(10,11). On the contrary, studies from Africa and south Asia has reported catastrophic health expenditure from the for profit private sectors. This in turn discouraged the women to seek services when they were in need⁽¹²⁾. The chance of financial exploitation is documented higher in LMICs due to their nature of health financing⁽¹²⁾. On average, 50% of health care financing in low-income countries and 30% in middle-income countries are coming from out-of-pocket payments⁽¹²⁾.

In Bangladesh, the for-profit private sector's involvement in MNH service delivery is enormous and growing ⁽¹³⁾. Between 2010 and 2016, overall facility delivery rates increased from 23–47%. According to 2014 Bangladesh Demographic and Health Survey, around 60% of the facility births took place in for-profit private sector ⁽¹⁴⁾. Although data is limited, by most accounts the quality of care in private facilities in Bangladesh is no better that what is found in the public sector ⁽¹⁵⁾. There are no effective regulatory framework in place to ensure that cost and quality standards are met ^(13,16). Small-scale private facilities often lack basic equipment and do not practice evidence based techniques for MNH ^(17,18). The caesarean section rate is also reported high in private sectors. According to 2014 Demographic survey, over three quarters of national C- section took place in private health facilities ⁽¹⁹⁾. Another study from urban Bangladesh has reported that majority of the C-section births were done without any valid clinical indications ⁽²⁰⁾. The economic and health cost of un- necessary C-sections are enormous both for individual and country's health system^(21,22).

In view of maximizing the contribution of ever-growing private sector in achieving the national public health goals, there is growing global consensus to bring the private sector in quality improvement framework ⁽²³⁾. Recently, the Ministry of Health and Family Welfare (MOHFW) of Bangladesh has established a 'Quality Improvement Secretariat (QIS)' to improve the quality of care in health facilities in Bangladesh. However, their efforts are targeted mainly towards public sector facilities and till today, there is no clear strategy for private sector in health ⁽¹⁸⁾. Against this backdrop, in collaboration with QIS, we

conducted an implementation research in Sylhet City Corporation area in Bangladesh to test the feasibility, acceptability, and effectiveness of a “participatory stakeholders’ monitoring and feedback tool” to improve the quality of MNH care in for-profit private facilities in an urban area of Bangladesh. As part of this research, we conducted a baseline assessment comprising of a ‘facility survey’ and ‘review of recent inpatient records’ to benchmark the quality of MNH care in for-profit private health facilities for future evaluations through a similar end line study. In this paper we report the findings of this baseline assessment to inform policy about quality of MNH care in for-profit private sector health facilities. To quantify the quality of MNH care, we used the Donabedian recommended quality monitoring framework. The quality indicators were assessed under three dimensions namely Structure, Process and Outcome to evaluate hospital readiness, practice of evidence based care and impact of quality care on health outcomes respectively ⁽²⁴⁾.

Methods

Study Setting And Design

This paper used baseline data from a pre-post controlled design intervention study. The study site was Sylhet, an urban city situated at the North eastern side of Bangladesh. All the for profit private hospitals and clinics having provision of Comprehensive Emergency Obstetric and Neonatal care (CEmONC) in this area were included as study health facilities. A complete list of health facilities of this urban city was available from an earlier study of icddr,b ⁽²⁵⁾, and we included all the for-profit private hospitals (n = 34) from that list. Supplementary Fig. 1 portrays the position of Sylhet within Bangladesh map followed by the distribution of clinic and hospitals within the Sylhet city corporation boundary. The baseline survey duration was from June to August, 2015.

Data Collection

Two data collection tools were used: a ‘facility survey checklist’ and an ‘in-patient medical record review form’. While facility survey explored the structure, process and outcome dimension, the record review were done to assess technical aspects (Process dimension) of quality of care (QoC). Couple of international monitoring checklist were used to adopt the MNH indicators under Donabedian frameworks. The global quality monitoring tools of Averting Maternal Death and Disability (AMDD) ⁽²⁶⁾, JHPIEGO ⁽²⁷⁾, and United Nations Networks ⁽²⁸⁾ were used to adopt the study data collection tools. These tools were contextualized to be used in Bangladesh health system through a series of national stakeholders’ consultation meetings with members from QIS of MOH&FW, the Private Clinic Owners Association, the Obstetric and Gynecological Society of Bangladesh (OGSB), MNH line directorates and the Bangladesh Paediatric Association (BPA). Both the tools were pilot tested in another setting outside the study area before finalization.

An instrument or piece of equipment was recorded as ‘present’ if found in good working condition during the survey; and a clinical procedure or ‘evidence-based technique’ was recorded as ‘performed’, if evidence

of use was present in-service registers or bed-head tickets. Hospital managers and service providers were interviewed to gather additional information such as human resource status, floor-space, legal status, and monthly performance data. Organizational documents and registers were reviewed to validate information provided by the respondents. In addition, Operation Theatre (OT) registers were reviewed to extract indications of caesarean sections that were performed. In total, 1343 maternal and neonatal case-records were reviewed. A trained data collection team comprised of one medical doctor and two research assistants collected all field data under the direct supervision of study investigators.

Sample Size:

Sample size comprised of facility survey (n = 34) and most recent inpatient records available during data collection periods (n = 1343). The sample size for record review were determined to measure the quality improvement during base line and end line. The current prevalence of five important quality parameters; Active management of Third Stage of Labour (AMTSL); partograph use; birth companion present during labour; advice and offer of family planning services and advice on danger signs were used to calculate the minimum sample size with expected 50% quality improvement at the end line with 80% power, at 5% significance level and with 1.5 design effect. The minimum required sample was 910 discharge records. The data collection period was set to three months depending on delivery patient turnover rates in the study hospitals. The total sample was then evenly distributed among the hospitals depending on the hospital inpatient bed capacity. However, a total of 1343 in-patient files were examined during 3 months data collection period comprising of at least 35 cases from each small and medium-sized private hospital, and 70 cases from each medical college hospital.

Data analysis

STATA 14 (Stata Corp LP, College Station, TX, USA) statistical software was used for data analysis and the analysis consisted of frequency distributions displayed in the form of tables and graphs. Three dimensions of quality were examined: 1) The 'Structure' dimension of quality of care which refers to the availability of human and physical resources, such as obstetricians, pediatricians, nurse-midwives and building space, as well as essential equipment and instruments, and drugs; 2) The 'Process' dimension which covers patient-centered care, cleanliness, appropriate hospital waste management, use of standard protocols, proper medical record-keeping and evidence-based practices such as use of partograph, active management of third stage of labour (AMTSL), and caesarean sections for absolute maternal indications, and 3) The 'Outcome' dimension which considered monthly performance data segregated by normal vaginal deliveries and caesarean section deliveries. Finally results are presented according to size of facility: smaller clinics with less than 100 beds and larger hospitals with 100 or more beds

Results

Structure Dimension Of Quality Of Care

All 34 private health facilities were registered with the appropriate government authority, however in six facilities, registration was not up-to-date. In-patient capacity ranged between 10 and 1000 beds, however only 3 facilities had more than 100 beds, all of which were private medical college hospitals. Out of 31 smaller sized hospitals; 18 of them had less than 20 inpatients and 13 had 20 to 100 in-patients bed capacity. Since quality indicators were not much different across small and medium sized hospitals, we present the findings by two categories, clinics (≤ 100 bed) and medical college (> 100 bed) Table 1 shows that the larger medical college hospitals were better-equipped than smaller private hospitals. In general, basic structural elements such as a 24 hour supply of electricity, running water, a separate Operation Theatre (OT), post-operative room, general anesthesia machine, sucker machine, diathermy machine and filled-in oxygen cylinder were present across all facilities. However, essential infrastructural components were absent in following order; labor room (13); neonatal care unit (27) and breast feeding corner in 31 facilities Additionally, recommended two NVD set and three C-section sets were not available during survey i majority of the hospitals

Table 1

Availability of hospital infrastructure and logistic in for profit private clinic and hospitals (N = 34)

Observed area	Major quality indicators	Clinic ≤ 100 bed (n = 31)	Medical college >100 bed (n = 3)	Overall (N = 34)
Available infrastructure	24 hours electricity	31	3	34
	24 hours running water	31	3	34
	Parking area	30	3	33
	Ambulance	30	3	33
	Labour room	18	3	21
	Postnatal ward	1	3	4
	Emergency room	10	3	13
	Operation theatre	31	3	34
	Postoperative room	31	3	34
	Neonatal care unit	4	3	7
	Breast feeding corner	0	3	3
	Laboratory facilities	7	3	10
Essential supply & equipment	General anaesthesia machine	31	3	34
	Filled oxygen cylinder	31	3	34
	Two separate NVD sets	3	2	5
	Three separate C-section sets	23	3	26
	Newborn resuscitation table	17	3	20
	Baby warmer	17	2	19
	Baby weighing scale	29	3	32
	Adult bag & mask	31	3	34
	Newborn bag & mask	28	3	31

Regarding human resource status, scarcity of full time consultants and registered nurse-midwives were noticed particularly in smaller private hospitals. The median number of full time obstetricians,

anesthetists and pediatricians were reported < 1; and the median number of unregistered nurses (9) were more than registered nurses (4). The shortage was critical in small sized hospitals; no full-time consultant for obstetrics, pediatrics and anesthesiology in any of the smaller- sized private hospitals (Fig. 1), and only one part-time consultant on average was present 24 hours prior to the survey. In contrast, nurses working in private sector facilities were mostly full-time, even though the overall number of registered nurses was inadequate in smaller private hospitals. A median of three registered nurses and nine unregistered nurses was recorded in smaller-sized hospitals. None of the private hospitals surveyed had a medicine store, and all prescribed medicines were purchased by patients from the outside market except for emergency drugs such as anesthetic agents, injectable uterotonics, antibiotics, steroids and antihypertensive drugs.

Process Dimension Of QoC In For-profit Health Facilities:

The process dimension of QOC was explored in terms of patient-centered care, cleanliness, patient safety, medical record-keeping and evidence based clinical practices.

Patient centered care

Under patient-centered care, we considered the availability of a full-time receptionist, whether behavior change communication (BCC) materials and service prices were displayed, and if a complaint box was present and visible. A receptionist at the front desk was present in all 34 hospitals, while BCC and service prices were displayed in only one medical college hospital and in four smaller-sized hospitals. A complaint box was present in all three larger medical college hospitals and in only eight small-sized hospitals (Table 2).

Table 2

Status on process dimension of Quality of Care in for profit private clinic and hospitals (N = 34)

Observed area	Major quality indicators	Clinic ≤ 100 bed (n = 31)	Medical college >100 bed (n = 3)	Overall (N = 34)
Patient centered care	Complaint/Comment Box	8	3	11
	BCC materials	4	1	5
	Receptionist available	31	3	34
	Service price displayed	4	1	5
Cleanliness	Reception	28	2	30
	Ward/Cabin	22	2	24
	Toilet	13	2	15
Infection prevention practice	Chlorine solution	6	1	7
	Infection prevention protocol	0	0	0
	Three Color-coded bins	5	1	6
Medical record keeping	Discharge certificate for last 5 patients	7	3	10
	Report sent to district health office	5	2	7
	Separate registration for OPD/IPD/OT	5	3	8
	All required data present in registry	25	2	27

Cleanliness

Cleanliness was determined by the presence or absence of visible litter, stains, dust and availability of running water in the respective areas. Across facilities, overall cleanliness was good. Out of 31 small sized hospitals, the reception and indoor patient cabin were reasonably clean in 28 and 22 hospitals respectively.

Status on patient safety

Two components of patient safety - infection prevention and control (IPC) and medical waste management (MWM) - were explored. As essential components of IPC, a functional autoclave, sterile gloves and sterile gowns were available in all private hospitals irrespective of size. However, no 'infection

prevention protocols' were present in any of the facilities. Chlorine solution in labour room was available only in one larger medical college hospital. The recommended waste segregations and disposals using three separate colour coded bins were existent in six hospitals in total for in house waste management. However, waste segregation by color-coded bins was not maintained when waste left the hospital i.e. even if sharps and infectious wastes were collected separately, they were ultimately dumped together on collection by waste authorities.

Medical record-keeping

In general, record-keeping in private health facilities was poor, however the situation was slightly better in larger medical college hospitals than smaller-sized private facilities. Out of 31 small-sized hospitals, only five hospitals had a separate registration book for the Outpatient Department (OPD), Inpatient Department (IPD) and OT, and the same proportion of smaller hospitals were sending their monthly performance data to the district public health office. The required data like diagnosis on admission, date and time of admission, date and time on discharge and diagnosis on discharge were available without missing in 25 out of 31 small sized hospitals. Though medical college kept copy of patient's discharge certificate, it was available only in seven small sized hospitals (Table 2).

Evidence-based practice

Based on facility survey data and in-patient record review, several indicators of evidence-based techniques in MNH clinical practice were captured (see Fig. 2). Facility survey data covered areas such as the availability of nine Comprehensive Emergency Obstetric and Newborn Care (CEmONC) signal functions the availability of clinical protocols and guidelines, and evidence of counseling on discharge. Of the nine CEmONC signal functions, C-section, parenteral anticonvulsant, parenteral oxytocics, parenteral antibiotics and blood transfusion facilities were available in all 34 private facilities examined, while manual removal of placenta, removal of retained product of conception and assisted vaginal delivery were available in more than three-quarters of these facilities (data not shown). No clinical guidelines for labour management and sick newborn management were present in any of the 31 smaller private hospitals, however guidelines for both Active Management of Third Stage of Labor (AMTSL) and Newborn Care were available in all three medical college hospitals.

Record review data indicated infrequent use of partograph; only 0.6% of case records in small-sized hospitals and none in larger medical college hospitals. Evidence of routine use of oxytocin in the 2nd stage of labor was present in 20% cases in smaller hospitals and 15% cases in larger medical college hospitals; records of vaginal examination were present in 20% of cases in smaller hospitals and 82% of cases larger hospitals; and records of laboratory examination were attached in 46% of the records in small hospitals and two of three medical college hospitals. Of all births conducted in study hospitals, the vast majority was conducted by C-section (81% of total births) : the facility-based C-section rate was 84% in smaller and 63% in medical college hospitals. Indications of C-sections were missing in 2% of the reviewed records, and among those recorded, only 3% could be categorized as Absolute Maternal Indications (AMIs). AMIs include four distinct life-threatening obstetric complications: uncontrolled

bleeding, unstable lie or presentations (transverse lie, face or brow presentation), gross cephalo-pelvic disproportion (CPD) and uterine rupture⁽²⁹⁾. It is interesting to note that the majority of normal and C-section births took place after 2 PM (Fig. 3).

Outcome Dimension Of Quality

MNH service outcome assessed from facility survey data by last one month statistics. Data shows, delivery by C-section were higher than Normal Vaginal Deliveries (NVD) in both large and small sized hospitals. In larger hospitals, the mean number of total delivery during last one month was 165 while mean number of C-section was 98. Similarly in smaller hospitals, the mean number of total delivery during last month was 22 and C-section birth was 18. The mean value of referral out rate was less than one and maternal death was zero during last month of the survey(data not sworn)

Discussion

Overall, this assessment revealed important gaps in the quality of MNH care in for-profit private sector facilities in an urban city of Bangladesh. Of particular concern are weaknesses in both structural and process dimensions of quality of MNH care. With the few exceptions, hospital infrastructure, essential equipment and supplies required to ensure optimum quality of MNH care were available. Separate service location was not maintained for normal delivery and neonatal care. Same Operation Theater had been used for normal delivery and caesarean section that contradict important quality index of being a maternity hospital⁽³⁰⁾

Though we found that the registration for the majority of private hospitals was updated, this was lacking in 6 out of 34 facilities, which is punishable offence. One of the three strategic priorities of Bangladesh's hospital service program under Directorate General Health Services (DGHS) is to ensure that regulatory mechanisms for the private sector hospitals/clinics and pathological labs are in place⁽³¹⁾. As part of the current system, licensing under DGHS is a mandatory step for a private clinic/hospital, with yearly updates so that health facilities continue to meet required DGHS standards

As regards human resources, the 1982 clinical ordinance of Bangladesh dictates that private clinics and hospitals have a minimum of one registered physician, two registered nurses and one sweeper present around-the-clock in facilities with ten beds or more⁽³²⁾. This policy guideline has not been updated since then and there is no clear instruction about the need of full time consultant there. With the exception of the three larger medical college hospitals in this study, full-time obstetricians, anesthesiologists and pediatricians were not available in the studied hospitals. While national data suggest that two third of facility births take place in private sector facilities⁽³³⁾, absence of full time consultant suggest critical quality gap to ensure emergency obstetric services in this sector. Our study also observed the shortage of trained nurse midwives, which are consistent with larger national trends; in 2013 there were 2.1 nurses per 10.000 population compared to 4.1 doctors per 10.000 population⁽³⁴⁾. The implication of this shortage of nurse-midwives is especially serious for MNH care as a low nurse to patient ratio may result in the patient

not receiving the care that they need. The observed shortage of nurse midwives in the private sector may result from the recent policy reforms in the public sector regarding nurse midwives posting. It is now mandatory to keep four midwives posted in the labour room in the peripheral level public hospitals ⁽³⁵⁾, that prompted the private sector to depend on unregistered nurses. These unregistered nurses does not have any graduate degree in nursing rather they only have short term training on nursing.

The record review finding of this study further shows that the majority of deliveries were conducted after 2 pm, when the public hospitals are already closed. The absence of full time consultant in private sector indicates their dependency to public sector's consultant. These arrangements may jeopardize the quality of care in both sectors in circumstances especially when public sector doctors engage in private sector practice during official working hours. Even more concerning were records indicating that over one-fourth of C-sections performed in private healthcare facilities were conducted during public sector office hours from 8 am and 2 pm. This sort of dual practice of consultant during official hour violates existing laws guiding public sector practice ⁽³²⁾. Likewise, most of the C-sections (70%) performed were conducted between 2 pm to 12 am which raises the issue of whether these surgeries are indicated as necessary to save lives of women and their newborns.

Displaying fixed service prices is another prerequisite for registration among for-profit private hospitals ⁽³²⁾. As our study revealed, violations continue to occur because service prices fixed in the 1982 clinical ordinance have not been updated ⁽³²⁾. We found service prices displayed at the front desk in only 15% of the hospitals surveyed.

Healthcare associated infections arising from improper MWM can cause serious illnesses leading to prolonged hospital stay and long-term disability both for patients and attending health care providers ⁽³⁶⁾. Accidental needle prick from a needle used on an infected patient elevates the risks of HBV, HCV and HIV infection by 30%, 1.8%, and 0.3% respectively ⁽³⁷⁾. It is therefore imperative that medical waste be collected and disposed of separately with appropriate precaution ⁽³⁸⁾. Waste segregation should start at the site of generation, commonly in the OT, laboratory or bedside, with proper disposal occurring in labelled and covered containers until the final disposal point. The World Health Organization's (WHO) recommended waste segregation system utilizes a three colour-coded bin system i.e. black for general waste, yellow for infectious waste and red for sharp disposal ⁽³⁹⁾. This system of waste segregation was correctly observed in 18% of the surveyed hospitals for in-house waste, and absent for out-house waste management. Rather, the contents of segregated bins were simply emptied and mixed with the other municipal waste and taken away to landfills. In Bangladesh, MWM is the joint work of two ministries; MOHFW is responsible for in-house MWM and the Ministry of Local Government (MoLG) for out-house MWM. While MWM has been prioritized by the MOHFW in primary, secondary and tertiary level public hospitals, private sector implementation lags behind. A lack of ministerial coordination further impedes reform, as apparent in continued lapses in out-house waste management ⁽⁴⁰⁾.

Sound and reliable information is the foundation of decision-making across the health system⁽⁴¹⁾. Systematic record-keeping that documents the chief complaint, diagnosis on admission and treatment plan i.e. normal delivery or C-section, ensures that patient management occurs in a logical and appropriate manner⁽⁴²⁾. Proper medical record-keeping can also safeguard the health care provider against medical litigation. For these purposes, a copy of discharge certificate should be kept with the patients' file as an evidence of full case summary of inpatient treatment⁽⁴²⁾. Our review of medical record-keeping in the hospitals under study revealed overall poor and inconsistent performance. The chief complaint and diagnosis on admission were missing for 20% of patient bed-head tickets and hospital copies for discharge certificates were available for only 30% of the case-records that were reviewed. Moreover, research reports that missing clinical records can be misleading with lower report of adverse events⁽⁴³⁾. Considering that lower prevalence of maternal and neonatal death and referral out case may not be the true scenario in presence of poor medical record keeping

With regards to EmOC signal functions, study findings indicated a readiness to treat both uncomplicated and complicated childbirth cases, although certain quality threats were present. Of particular concern were high institutional caesarean delivery rates (81% of all births) without supporting partograph (< 1). Furthermore, among the C-section records reviewed, almost all of them (97%) lacked absolute maternal indications, suggesting that they may be unnecessary. Similar to our study, other multicountry study done in South Asia demonstrated that C-section births in private sector is allegedly motivated by profit, from doctor desire or from patient's request without having clinical indications⁽⁴⁴⁾. Contributing to the infrequent or inconsistent application of evidence-based MNH practices, was a lack of available standard operating procedures or clinical guidelines in the hospitals under study. This deficit is especially concerning as it is well-established that clinical guidelines facilitate evidence-based practices⁽⁴⁵⁾. In private health facilities where consultants are only available part-time and health worker shortages are widely experienced, clinical guidelines serve the important end of supporting the decision-making of junior doctors or other health workers at least until the patient is referred or a specialist is availed⁽⁴⁶⁾.

Strength And Limitation:

This is the 1st ever study in Bangladesh that explore the technical aspect of Quality of MNH care in the autonomous private health sectors. A representative sample irrespective of the health facility size were included. The limitation of our study is that we have not followed the current WHO Quality monitoring framework that was published after commencement of our project⁽⁴⁷⁾. However, the Donabedian framework used in this study is considered as the ground rule of many quality frameworks developed globally so far⁽⁴⁸⁾. We only report technical aspect of quality of care and the perceived QoC from patient, health care providers and manager's perspective will be reported in separate paper. Considering privacy of patients, the technical quality of care reported in our study rely on documented evidences from medical records rather from direct observation.

Conclusions

Study results revealed poor quality of MNH care in the urban for-profit sector including skilled workforce shortages of midwives, nurses and doctors, poor record-keeping, and insufficient use of evidence-based clinical practices. An area of further research important in rectifying workforce shortages is a thorough examination of the scope and nature of private sector reliance on public sector doctors, and how these arrangements might be modified to improve quality of care in both sectors. Improper medical record-keeping, poor performance on evidence-based clinical practices such as the unavailability of clinical guidelines in the labour room, infrequent use of partograph for labour monitoring and high C-section rates with insufficient indication, are also areas of concern. In efforts to achieve universal health coverage in urban areas of Bangladesh, meaningful engagement of the private sector is necessary, and must encompass issues of quality, as well as affordability and responsiveness. These efforts are best guided by a national strategy that is collaboratively developed which includes quality guidelines that which benefit patient health and private sector practice.

Declarations

Ethics Approval and Consent to Participate:

We obtained ethical clearance from the institutional review board of icddr,b which is comprised of a Research Review Committee and an Ethical Review Committee under protocol number 14107. Consent was also obtained from Director Health, Sylhet Division, the Chairman of the Private Clinic Owner Association, Sylhet and all owners of private health facilities in Sylhet City Corporation area participating in the study.

Consent for publication

Not applicable

Availability of data and material:

Data supporting this study findings will be available from the Research administration of icddr,b with reasonable request of anonymous data. Please email to director research administration of icddr,b for further data request

Competing interests:

All authors declare they have no competing interests.

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Authors' contributions

Formulating the research question(s): IA, AAm; designing the study: IA, AAm; analysing the data: TB, HN,AR; interpreting the results: all authors; drafting, writing, reviewing and approving the final manuscript: all authors.

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Supplementary Figure Caption

Supplementary Fig 1: Distribution of study health facilities within Sylhet city corporation area

Figures

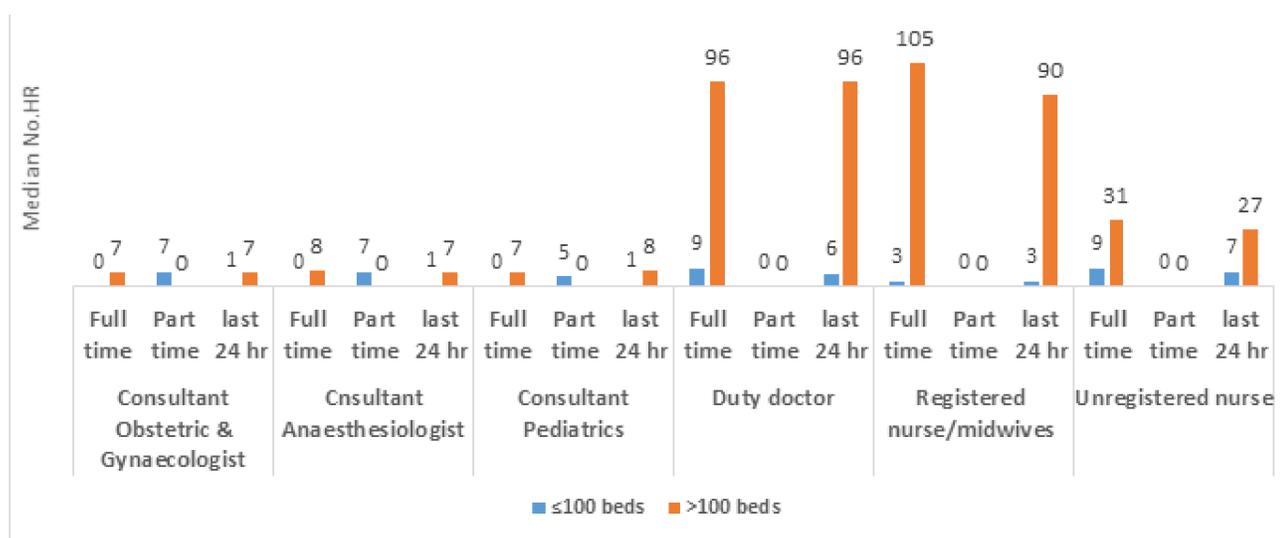


Figure 1

Human resource (HR) availability among two categories of for-profit private clinics and hospitals (N=34)

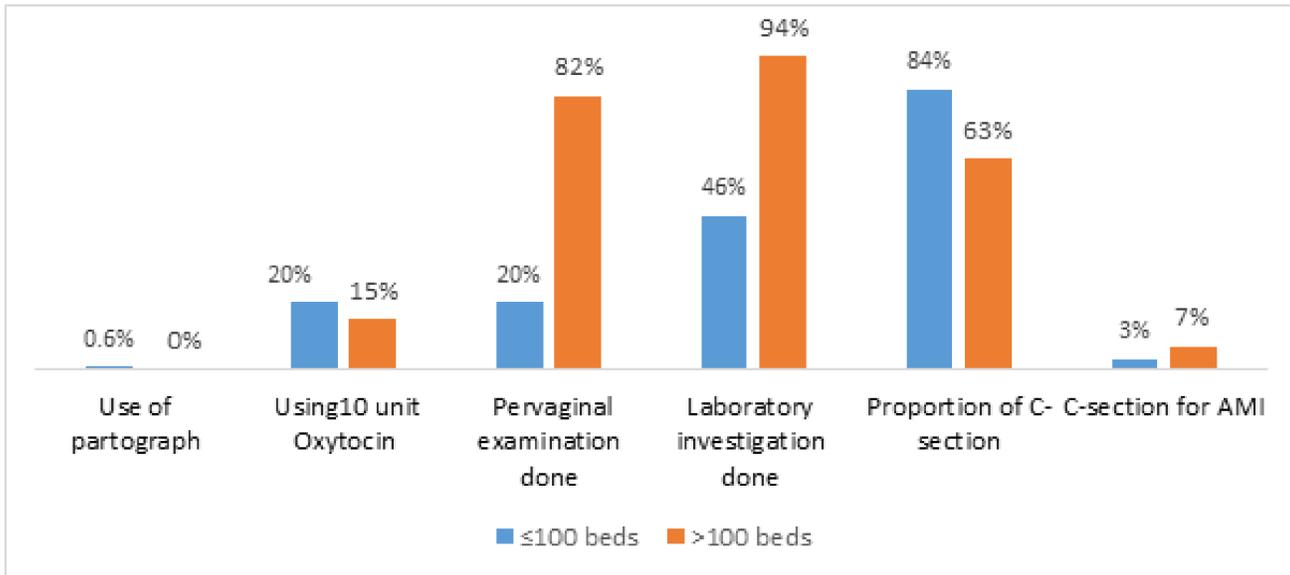


Figure 2

Evidenced based clinical practice among two categories of for-profit private clinic and hospitals (N=1343)

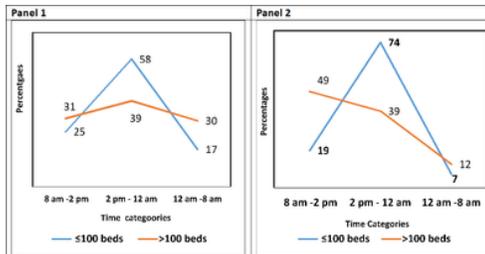


Figure 3

Distribution of delivery percentages by three different time periods; panel 1 (Normal delivery) panel 2 (Caesarean section) (N=1343)

Supplementary Files

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- [SupplementaryFig1healthfacilitymap.pdf](#)