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Results of an Evaluation Scheme to Improve Quality of Care at the Yaoundé Gyneco-Obstetric and Pediatric Hospital, Cameroon

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Abstract

Background: *Delivering quality care is essential to Universal Health Coverage. Resolution AFR/RC45/R3 urges member states of the WHO Africa region to develop evaluation schemes for continuous improvement of the quality of care. Herein, we describe an experience in developing a quality assurance scheme at YGOPH.*

Methods: *Quality assessment was carried out twice yearly, from 2016 to 2019. A four-step process was employed. Facility-based indicators were developed and used to collect data from all units by the internal auditing team. Each unit was scored on 100 points including positive and negative remarks from evaluators and service providers. Multiple amendable errors by head nurses were cause for dissuasive action. Survey results were presented at hospital rounds and conferences to foster emulation of best practices.*

Results: *Since 2016, the overall quality score improved progressively from 60.52% at baseline to 79.61% in 2019. The most significant outcomes were the positive changes in process of care, attitude of staff and innovations. The number of services with optimal performance scores (above 80%) for quality increased from three (12%) to eleven (44%) over the period.*

Conclusion*: The quality evaluation scheme enabled the hospital to be a safe and patient-centered structure, providing acceptable healthcare.*

Keywords: *Performance-Based Management, Quality of Care, Healthcare, Cameroon.*

Abbreviations

ECG: Electrocardiography, EEG: Electroencephalography, IOM: Institute of Medicine, PBM: Performance-Based Management, SDG: Sustainable Development Goal, SMS: Short Message Service, NBSR: Nursing Bedside Shift Report, UHC: Universal Health Coverage, WHO: World Health Organization,YGOPH: The Yaoundé Gyneco-Obstetric and Pediatric Hospital

1. INTRODUCTION

The Institute of Medicine (IOM) defines quality of health care as the degree to which health services for individuals or populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge [1,2]. An influential framework put forth by this institute includes seven domains of quality health care. These are: safety, effectiveness, people-centeredness, timeliness, equity, integration of care and efficiency [3].

Universal health coverage (UHC) is recognized as a unifying platform for making progress on Sustainable Development Goal 3 for health.. Until recently, however, many countries efforts have focused more on essential health coverage and financial protection, and far less on quality – an equally important component of UHC [4, 5]. According to the World Health Organization (WHO), inadequacies in the quality of care provided in hospitals is responsible for poor progress in indicators of maternal and child health despite increased coverage [6]. Resolution AFR/RC45/R3 urges member states of the WHO regional committee for Africa to motivate their healthcare institutions to develop evaluation schemes for continuous improvement of quality of care.

Cameroon has a pyramidal health system. The Yaounde Gyneco-Obstetric and Pediatric Hospital (YGOPH) is a tertiary hospital, at the top of the health pyramid, specialized in maternal and child care. At the intermediate level, there are regional hospitals and district hospitals and health centers at the base. Maternal mortality has dropped from 669 per 100, 000 live births in 2004 to 596 per 100, 000 live births in 2015 [7,8]. The latest demographic and health survey puts it at 467.

Audits done at the YGOPH between 2012 to 2013 militated for a change in the management strategy of the hospital to improve upon patient outcomes. To reduce hospital structural deficits and increase its efficiency, it was imperative to improve quality of care and services. This study sought to present and evaluate the quality assurance scheme at the YGOPH.

2. METHODS

2.1. Indicators of the Quality Control Scheme

Prior to implementation of the scheme, the assessment by the World Bank expert noted that despite staff surplus, services to users were of less than desired quality, drugs and consumables often out of stock and equipment broken down [9]. The quality improvement program was initiated in 2016 and is continuing. Quality of care was assessed once every semester; in July and December 2016, March and September 2017, April and September 2018 and April and November 2019. All 25 clinical and paraclinical units were evaluated at each session. See *Table 1* for the list of services and units at the hospital. The scheme was set-up using a four-step cycle.

Table 1. *List of services and units at the Yaounde Gyneco-Obstetric and Pediatric Hospital (YGOPH)*

Services	Units
Anesthesia and Reanimation	Anesthesia Reanimation
Operating Theatre	Theatre Utilities room Sterilization unit
Pediatric Surgery	Pediatric surgery unit
Gynecology and Obstetrics	Maternity Inpatient Gynecology unit Outpatient Gynecology unit Family Planning unit
Pediatrics	Outpatient Pediatric unit Inpatient Pediatric unit I Inpatient Pediatric unit II Neonatology unit
Emergency	Emergency unit
Laboratory	Radiology unit Laboratory unit
Anatomo-pathology	EEG/ECG unit Histopathology unit
Ophthalmology/ Dentistry/ ENT	Ophthalmology/ Dentistry/ ENT
Others	Physical therapy Acupuncture Dermatology Mortuary
Pharmacy	Pharmacy

2.2. Development

The first step in the elaboration of a quality assurance scheme at the YGOPH was the creation of a steering committee in 2015. This committee consisted of head nurses from all nine clinical and paraclinical services in the hospital. Preliminary investigations in Cameroon revealed that no hospital had quality assessment programs. The indicators for quality assessment were developed and improved upon progressively from the first to the eighth survey. The line and senior nurse managers initially elaborated some quality indicators. Then, each nurse manager was urged to propose other relevant indicators [3]. See *Table 2* for the exhaustive list of 28 indicators used. They were mostly related to the structure and process of care in different units. *See supplementary file for grading sheets used to assess hospital units.*

Table 2. *Hospital Indicators of quality of care (IQC), the YGOPH, Cameroon, 2017*

Code	Indicator	N° of units	Names of units in which indicator was assessed
IQC 1	Handover of nursing shifts	25	Acupuncture, Histopathology, Anesthesia, Theatre, Utilities room, Pediatric Surgery, Dermatology, EEG/ECG, Outpatient Gynecology Unit, Inpatient Gynecology Unit, laboratory, maternity, mortuary, neonatology, Ophthalmology/ENT/Dentistry, Outpatient Pediatrics unit, Inpatient Pediatrics I and II, Pharmacy, Physiotherapy, Family Planning, Radiology, Reanimation, Emergency, Sterilization
IQC 2	Prevention of Hospital-Acquired Infections (HAI)	25	
IQC 3	Quality of reception	23	Acupuncture, Histopathology, Anesthesia, Theatre, Pediatric Surgery, Dermatology, EEG/ECG, Outpatient Gynecology Unit, Inpatient Gynecology Unit, laboratory, maternity, mortuary, neonatology, Ophthalmology/ENT/Dentistry, Outpatient Pediatrics unit, Inpatient Pediatrics I and II, Pharmacy, Physiotherapy, Family Planning, Radiology, Reanimation, Emergency
IQC 4	Patient rights	23	
IQC 5	Infection, Education, Communication (IEC)	23	
IQC 6	Transfer protocol for patients/biological samples respected	14	Histopathology, Anesthesia, Theatre, Pediatric Surgery, Outpatient Gynecology unit, Inpatient Gynecology unit, laboratory, maternity, neonatology, Inpatient Pediatrics unit I and II, Outpatient Pediatrics unit, Reanimation, , Emergency
IQC 7	Equipment maintainance	14	Anesthesia, Utilities room, Theatre, Pediatric surgery, laboratory, EEG/ECG, maternity, neonatology, Ophthalmology/ENT/Dentistry, Inpatient Pediatrics unit I and II, Radiology, Reanimation, Emergnecy, Sterilization
IQC 8	Vital parameters taken	11	Pediatric surgery, Outpatient Gynecology, Inpatient Gynecology, maternity, neonatology, Outpatient Pediatrics, Inpatient Pediatrics, Family planning, Reanimation, Emergency
IQC 9	Planning of nursing care	10	Pediatric surgery, Inpatient Gynecology, maternity, neonatology, Inpatient Pediatrics I and II, Reanimation, Emergency, Acupuncture, Physiotherapy
IQC 10	Ward hygiene	4	Anesthesia, Theatre, Utilities room, Sterilization
IQC 11	Follow-up of samples	2	Histopathology, laboratory,
IQC 12	Reception of linen/instruments	2	Utilities room, Sterilization
IQC 13	Mastery of role as nurses	1	Theatre
IQC 14	Washing and treatment of linen	1	Utilities room
IQC 15	Transfer of linen	1	
IQC 16	Paraclinical investigations done	1	EEG/ECG
IQC 17	Preparation of working tools	1	
IQC 18	Partogram/checklist	1	Maternity
IQC 19	Distribution of tasks	1	Mortuary
IQC 20	Organisation of wake keeps	1	
IQC 21	Care of corpses	1	
IQC 22	Vaccination	1	Outpatient Pediatrics unit
IQC 23	Cash desk	1	Pharmacy

IQC 24	Dispensing of drugs	1	
IQC 25	ARV Dispensing point	1	
IQC 26	Cleaning and rinsing	1	Sterilization
IQC 27	Packing and sterilization	1	
IQC 28	Delivery of sterilized equipment	1	

Figure 1. *Indicators of quality of care overtime in the top-ranked and bottom-ranked service (10 services altogether) – See Table 2 for full meaning of indicator codes*

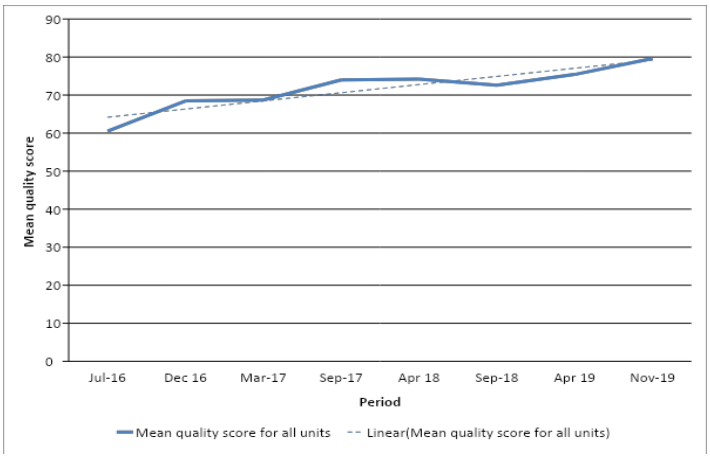

Figure 2. *Trend in the quality of care in the YGOPH from 2016 to 2019*

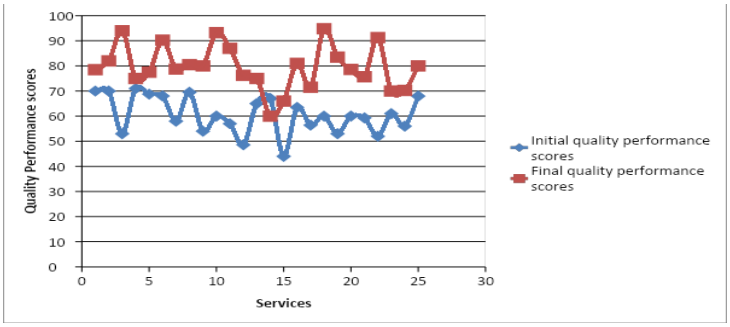

Figure 3. *Comparison of initial and final quality performance scores*

2.3. Data Collection

Prior to every assessment from 2016 to 2019, the committee was divided into five groups of three members each. These groups headed by a team leader, conducted biannual cross-sectional surveys in our facility. Each survey was carried out in three main phases.

2.3.1. The Preparatory Phase

In the preparatory phase of the survey, the steering committee held a working session five days prior to data collection. Roles and responsibilities for conducting the evaluation were discussed and validated.

2.3.2. Data Collection and Evaluation

Precautions were taken to ensure that the unit heads did not find themselves in the group assessing their unit, in respect of conflict of interest. During the first three surveys, data was collected in a six-column table (Indicator, positive remarks, drawbacks observed in healthcare, difficulties shared by personnel, recommendations and person in charge of implementing recommendations) while observing the healthcare providers on duty. From the 4th to the 8th assessment, an objective evaluation grid similar to that observed in *Table 3*, was designed to minimize the differences in assessment between the teams. A total of 100 points was assigned to each unit. These points were shared between sub items allocated per indicator on the grading scale. The surveys were carried out in the mornings, from 7:30 a.m., during handover sessions in all units. Optimal quality of care was attained by services scoring above 80% during assessments.

2.3.3. Report Writing

At the end of the evaluation, remarks were shared with the team on duty and each team met thereafter to summarize findings for each service. Team reports were submitted to the senior nursing manager within 48 hours of the evaluation.

2.3.4. *Implementation of Corrective Strategies*

In addition to the service quality of care score, there were motivational incitors for the personnel. This motivated staff to engage in quality improvement activities, thereby contributing to improve care as reported by other authors [10]. Each evaluation team recorded problems identified in each unit. Urgent actions were proposed to the hospital management and unit heads to solve untoward events. Where errors were identified on two or

more successive occasions and the service head nurse unable to correct, the result was lackluster performance. In such cases, the unit heads concerned were either replaced or lost bonuses allotted for optimal quality of care.

2.3.5. Evaluation and Dissemination Of Results

At coordination and the head nurses' monthly meetings, the personnel were coached on the primordial role of quality assurance. The results of the surveys were presented at these meetings and published in the hospital's newsletter, in order to foster hospital-wide emulation of best practices.

3. Results And Discussion

The mean performance scores for quality of care which we calculated for all 25 units were 60.52% at baseline. This increased overtime and peaked at 79.61% by the 8th survey, in November 2019. During the first survey, no unit performed optimally (scored at least 80%) and the following shortcomings were identified: poor coordination of care across provider teams, limited patient autonomy, monotony in practice, non-existence and poor adherence to standards of care, checklists or evidence-based protocols and the absence of effective supervision of healthcare providers [9]. To address these weaknesses, the new PBM approach was introduced to reorient resources and service delivery decisions. With the implementation of the quality evaluation scheme, the standard of care improved overtime. The units with the highest quality score at onset were Anesthesia and Theatre, both having 70.00%. Although the quality of care was better in most units by December 2016, only three (Theatre, Pharmacy and EEG/ECG) out of 25 were efficient, scoring at least 80%. This number dropped to two in the following survey. During the 4th, 5th, 6th and 7th assessments, 9/25, 7/25, 6/25 and 10/25 units demonstrated optimal quality in patient care. By the 8th evaluation, eleven services performed well. These were: Theatre, Utilities room, Histopathology, Outpatient Pediatrics, Dermatology, Mortuary, Pediatric Surgery, EEG/ECG, maternity, Family planning and Physical therapy. Five units (Family planning, EEG/ECG, Sterilization, Theatre and Utilities room) had an exceptional performance, scoring ≥80% at least half of the time. Albeit, four units (Reanimation, Inpatient Gynecology, Inpatient Pediatrics I and II) were ranked least performing as their quality scores didn't reach the top quintile.

Table 3. *Performance scores in quality of care in all 25 units at YGOPH between 2016 and 2019*

N°	UNIT	Baseline 07/16	1 12/16	2 03/17	3 09/17	4 04/18	5 09/18	6 04/19	7 11/19
1	Anesthesia	70	72.5	79.6	85	78.5	71.80	84	78.5
2	Theatre	70	83.33	76. 10	85	86	72.76	76.76	82
3	Utilities room	53	67.5	50.11	85	90	72.95	90.24	94
4	Ophthalmo/Dentistry/ENT	71	72	70.33	72.66	74.86	84.66	81.9	75
5	Acupuncture	68.75	55.12	68	86.5	72.53	87.83	71	77.5
6	Histopathology	68	37	76	75	57.69	54	58	90.25
7	Laboratory	58	64	61	81.95	88.77	70.5	64.5	78.75
8	Sterilisation	69.5	71.3	48.5	85	80	72.16	81.10	80.5
9	Outpatient Pediatrics	54	68.51	65	67.75	63.5	74	75.47	80
10	Dermatology	60	55.26	45	61.05	60.05	55	81	93.24
11	Mortuary	57	68.91	73	79	77.5	73	89	87
12	Pharmacy	48.6	87.5	62	50	75.92	63.5	68.5	76.25
13	Emergency Unit	65	65.5	69.72	79.52	80	65	91.60	75
14	Radiology	67	53	79.20	60.52	85	73	66	60
15	Reanimation	44	74.80	53.8	55.19	70.09	63.50	60	66
16	Pediatric Surgery	63.5	63	52	63.21	71	78.50	75.9	81
17	Inpatient Gynecology	56.4	64	76	67.37	67	59	69	71.5
18	EEG/ECG	60	86.5	81	88.55	76	74	85	94.8
19	Maternity	53	77.27	72	76.85	78.57	83.18	65	83.5
20	Neonatalogy	60	66.06	76	75.37	73.71	83.68	65	78.6
21	Outpatient Gynecology	59.3	68.6	76.5	66.6	71.5	68	81.17	75.69
22	Family planning	52	78.78	96	90.50	80.50	82	87	91.26
23	Inpatient Pediatrics I	61	70	76	58.45	75.75	72	75	70
24	Inpatient Pediatrics II	56	73	67	61.27	65.25	73.5	64.50	70.25
25	Physical therapy	68	68	78	92.10	55.75	86.83	79	80
	Mean score	60.52	68.46	68.71	73.98	74.22	72.57	75.42	79.61

The following innovations were introduced to improve quality as a result of the evaluations: antenatal care appointment reminders for pregnant women in the Outpatient Gynecology unit through Short Message Service (SMS); the institution of the Nursing Bedside Shift Report (NBSR) during handover in all clinical units [11]; conception and distribution of the patient's bill of rights; yearly randomized service rotation of nursing staff; replacement of persistently unproductive head nurses; the development of a handbook containing standard guidelines for nursing procedures; standard hand hygiene and disinfection procedures pasted in every unit; partnership with other health organizations such as Gifted mom, to improve access to vaccination services for children in the Outpatient Pediatrics unit [12,13]. Other initiatives were continuous pharmaceutical stock reporting as in the Ethiopian model [14]; white dashboards in every service to write daily patient care objectives and the introduction of kits for life-threatening emergencies in the pharmacy and emergency units. These kits allow service providers to carry out life-saving interventions while payment is deferred. The implementation of recommendations and actions mentioned above explains quality improvement observed in the Mortuary where a protocol for care of corpses and staff uniforms were made available; and at Outpatient Pediatrics with the creation of nursing registers for optimal follow-up of care and vaccine monitoring systems.

Over the study period, new indicators were added especially at beginning of the learning curve as we constantly sought to improve quality assessments. Prior to the eighth survey, quality was almost stationary; so another strategy was introduced to ameliorate care consisting of following up the implementation of recommendations made during the 7th survey. This significantly stepped up their execution, thereby further improving quality of care. Further, a smart definition of objectives and indicators that measure their attainment is important to maximize uniform grading and decrease subjectivity across teams and over the years. This work serves as an example of successful introduction of quality monitoring in resource limited settings. The inclusion of rate-based indicators will also ameliorate the quality assurance program [15,16]. Finally, external audits by neutral evaluators are being considered for future surveys.

4. Conclusion

The hospital staff have been progressively adapting to the changes made to improve quality, despite initial resistance. Systematic semester quality evaluations have been adopted in order to maintain good standards in healthcare and sustain staff engagement.

5. Authors' Contributions

NIEW: data interpretation, write up of first manuscript, translation of research documents from French to English, literature search; BIG: introduction of the quality evaluation scheme at the YGOPH, conception of research project, manuscript revision ; SLB: study design, data collection; SLB: data analysis, manuscript revision; JSD: supervision of data collection and manuscript revision; WT: data analysis, manuscript revision; AC: manuscript revision; ALB: review and correction of work; AIIIFF: supervisor of the research work, correction of manuscript. All authors read and approved the final manuscript.

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