

Improving Partograph Documentation and Use by Health Workers of Bwera Hospital: A Process Improvement Research

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Abstract

In this action based research we undertook a pragmatic quality-improvement approach to the research. This article describes improvements realized when an action research was carried out on maternity department in Bwera Government hospital Kasese district. We describe how practice research engagement was employed in the maternity department to contribute to health service improvement. The action research was carried between the months of June to August 2014, the study aimed at improving partograph documentation and use by midwives and doctors working in the department. The study used an exploratory, descriptive process improvement research to determine the most pressing problem on the department that required urgent improvement. Problems identified included inadequate infection prevention, poor partograph use and documentation, Comprehensive Emergency Obstetric and Neonatal Care (CEmONC), and failure to adhere to the 5S principles. Through pairwise ranking, inadequate partograph documentation and use by midwives and doctors while assisting mothers to deliver was the prioritized problem that required urgent improvement. *Basing* on guidelines adopted from the Ministry of Health by Engender Health Project on correct use and documentation of partograph, the number of deliveries conducted and had all the 18 (100%) indicators of the partograph monitored and documented stood at 8.3%. This, therefore, led to training all midwives and doctors working on maternity ward on correct use and documentation of a partograph, increase attachment of partographs to clients' files and address the practice of leaving partographs blank. The research targeted to increase the percentage of mothers monitored in labour by the correct documentation and use of the partograph. *Monitoring* of mothers through correct documentation and use of the Partograph at maternity department improved to 89.3%. Marked changes were realized in attaching partographs on clients' files from 96% to 99% and reduction of partographs left blank from 8% to 3%. *It is therefore recommended that clinical leadership, continuous professional development and support supervision on partograph use and documentation be emphasized in order to achieve the 100% national target in all parameters considered in the measurement of partograph documentation and use.*

Keywords

Partograph, Labour Monitoring, Documentation, Use

1. Introduction

Over 289,000 maternal deaths were reported in 2013 of which 99% occurred in developing countries [1]. The majority of these deaths are caused by obstructed and prolonged labour conditions which could be prevented by the use of partograph. It is a chart in a graphic format, cheap and easy to use to which observations of progress of labor are recorded by midwives and obstetricians thus alerting them of

deviation from normal labour progress as well as giving a cue on the maternal or fetal health during labour [2]. During labour, salient features of maternal and fetal conditions are recorded on this form hence aiding monitoring labor progress. In cases of deviation in labor progress, an alert line on the chart signals to the health provider monitoring the particular mother in labor of the changes from normal. In this event an action line on the chart will indicate the opportune time by which actions to correct the deviations should commence so that maternal and fetal complications are prevented [3].

During the monitoring of labour, the observations that are checked include vital signs on the fetus, maternal vital signs, features of labor progress and therapeutics undertaken in the course of labor [2].

World over, poor use of the partograph by health workers to monitor the progress of labour has been reported. In Ethiopia, for example, the poor utilization of the partograph was principally noted in public health facilities. This demonstrated poor monitoring of mothers in labour and led to poor labour outcome [4].

Generally a partograph has been used as part of the safe motherhood initiative for improving labour management, reducing maternal deaths foetal morbidity and mortality. It helps to identify abnormal labour progress. However, most parameters on the partograph are not properly monitored and most health workers do not document the findings after reviewing mothers in labour [5]. Therefore, the progress of labour is not closely monitored or labour monitoring may not translate into actions required when a need arises.

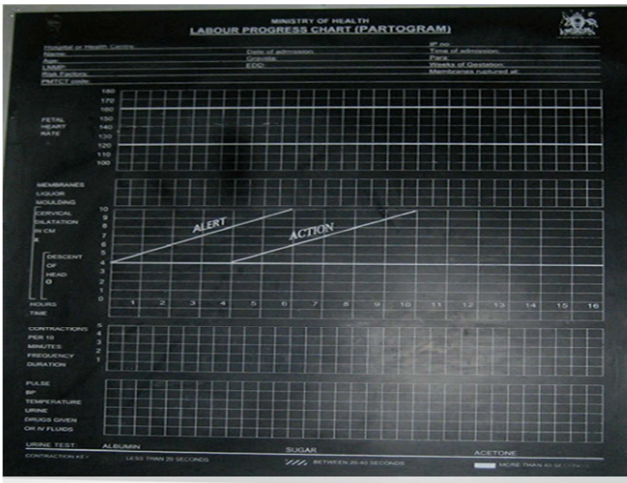


Figure 1. Job aid of Partograph recommended by Uganda Ministry of Health [6].

Correct use of the tool has been shown to be beneficial in that it clearly differentiates abnormal labour progress. Use of the partograph is associated with prevention of complications due to obstructed or prolonged labour like maternal exhaustion, fistula formation, and uterine rupture and Foetal Heart Rate (FHR) irregularities. Early detection of abnormal labour progress and prevention of prolonged labour significantly reduces the risk of Post-Partum Hemorrhage (PPH), sepsis and thereby reduce MMR. It helps to identify women likely to require immediate intervention thus improving both maternal and neonatal outcome [7]. The partograph enables midwives, nurses and doctors to record their findings after examinations on a standardized form, which generates a pictorial overview of labour progress reflecting both maternal and foetal conditions. It increases the quality and regularity of all observations made. In hospital settings where several people look at labour notes, a partograph is helpful for a quick, consistent review and aids good decision making [13], [14].

An evaluation of the impact of the new modified partograph involving more than 35,000 women in Indonesia, Malaysia and Thailand showed that when a partograph was introduced into clinical practice along with a management protocol, labour outcome were greatly improved [8]. In Uganda, study intended to assess partograph use during labour in Rujumbura Health Sub-District showed that only 30% of the mothers' labour had been monitored with the use of a partograph [15]. In a study to assess the risk factors for obstructed labour in Western Uganda, it was reported that among 536 women with obstructed labour, only 45.8% of their records had a partograph attached with only 3.5% of them fully documented [9]. This demonstrates how partograph use and documentation is a problem in the majority of the health facilities in Uganda.

2. Methods

2.1. Identifying the Problem and Need for Improvement

A joint meeting between the authors and the department staff was organized to identify the most pressing problems on the maternity department. The problems identified included; inadequate infection prevention methods, poor partograph use and documentation, unsatisfactory Comprehensive Emergency Obstetric and Neonatal Care (CEmONC) and inadequate implementation of 5S (Sort, Set, Shine, Standardize and Sustain) principles on the ward. Most staffs pointed out partograph use and documentation as the most urgent problem that needed to be given first priority, followed by 5S. This was arrived at through pair wise ranking that involved comparing the severity of each problem against each of the others. Based on this, 2 staffs were chosen to work with one of the author to review mothers' files that had delivered and discharged from the ward for the months of March, April and May 2014 to obtain baseline data and review performance of the documentation and use of the partograph.

Uganda Martyrs University Faculty of Health Sciences Board and Bwera hospital management team provided approval for the study. Bwera is the only government hospital in Kasese district. Kasese district is located in Western Uganda along the equator, bordering the districts of Kabarole and Bundibugyo in the north, Lake George and Kamwenge in the East, Rubirizi and Lake Edward in the South and the Democratic Republic of Congo in the West. Maternity department of Bwera hospital currently accommodates a total number of over 50 clients on a daily basis though it was intended to accommodate 25 mothers per day. The ward has four apartments namely labour suit, neonatal wing, post wings one Spontaneous Vaginal Deliveries (SVD) and sick pregnant women, the other one is for C/S. These units are being run by only 13 health workers (6 registered midwives, 2 enrolled midwives, 4 enrolled comprehensive nurses, 1 nursing assistant and 1 doctor). Over 15 mothers deliver per day.

In normal circumstances every mother who comes for delivery and if already in the active phase of labour (4cm vaginal dilatation) is supposed to be monitored on a partograph. All the parameters need to be observed and documented. The tool may not be consistently used to mothers with poor obstetric histories such as mal-presentations, previous Caesarean section (C/S) or elective C/S scars.

Table 1. Partograph review monitoring indicators.

INDICATOR	SCORE		
Partograph in patient's file	1 (yes)	0 (no)	
Cervical dilatation			
First vaginal examination in active labor plotted	2 (yes)	0 (no)	
Initial vaginal dilatation plotted correctly in relation to alert line	2 (yes)	0 (no)	
If the patient did not deliver within 4 hours of the first vaginal exam, was cervical dilatation plotted at least every 4 hours?	2 (yes)	1 (partially)	0 (no)
Descent of presenting part			
Descent of presenting part 2 hourly	2 (yes)	1 (partially)	0 (no)
Contractions			
Contractions charted ½ hourly	2 (yes)	1 (partially)	0 (no)
Membranes			
Membranes intact/leaking/ruptured	2 (yes)	0 (no)	
Color of the liquor	2 (yes)	0 (no)	
Fetal heart rate			
Fetal heart rate ½ hourly	2 (yes)	1 (Partially)	0 (no)
Maternal monitoring			
Blood pressure on admission	2 (yes)	0 (no)	
Blood pressure taken at least 4 hourly	2 (yes)	1 (partially)	0 (no)
Pulse on admission	2 (yes)	0 (no)	
Pulse taken at least 4 hourly for women who labored	2 (yes)	1 (partially)	0 (no)
Actions			
Timely oxytocin and/or caesarian section or vaginal operative delivery	2 (yes)	1 (partially)	0 (no)
Active management of third stage of labor	2 (yes)	0 (no)	
Assessment of completeness of placenta and membranes	2 (yes)	0 (no)	
Estimation and documentation of blood loss at the end of third stage	2 (yes)	0 (no)	
Outcome/ state of the new born	2 (yes)	0 (no)	

(USAID, Fistula Care and Engender Health, 2014
<http://www.fistulacare.org/pages/da/english-pages/t/6.html>)[12]

All health workers (midwives and doctors) involved in the use of partograph in Bwera government hospital maternity and theatre departments participated in the process improvement. Approximately 1200 mothers' files arranged on a weekly basis were reviewed for the months of March, April, May respectively to assess correct documentation and use of the partograph and the outcome of labour. Guidelines stipulated by Engender Health Project on correct use of the partograph were employed in determining the level of documentation and use of the tool in the study site as indicated in Table 1.

A correctly filled partograph that scored 100% and classified as *excellently filled* specified that all parameters considered in the monitoring of a mother in labour and foetus

were monitored and documented. These parameters include; *cervical dilatation, foetal heart rate, uterine contractions, mother's blood pressure, moulding and descent of the foetus and taking action*. In a partograph were initial findings are filled, mother monitored at least more than once before conducting second stage and outcome of labour recorded but with 1-4 indicators not being documented scored between 80-99% and was classified as *very good*. A partograph that was partially filled and indicating the main outcome of labour and only initial findings on admission (had between 5-9 indicators not being documented) scored between 50-79% and was classified as *Fair*.

A partograph with 1-8 indicators monitored and documented scored between 2-49% and was classified as very poor. A partograph attached to the mother's admission file but left *blank* scored 1%. Correct use of partograph is defined as; starting the monitoring process only after the woman is in active phase of labour (4cm vaginal dilatation) and measuring the essential parameters, such as descent of foetal head, FHR and uterine contractions [3].

The indicator is calculated for a specific reference period (e.g., 3 months or 12 months) as

$$\frac{\text{Number of deliveries correctly monitored with a partograph}}{\text{Total No. of deliveries}} \times 100$$

Partograph use and documentation in Bwera hospital maternity department is still underutilized basing on the scoring tool that was formulated by EHP. The percentage of deliveries that had been correctly (excellent) and those ranked as very good as far as monitoring of labour with a partograph in Bwera stood at 8.3% and 15.7% respectively for mothers who were delivered in the months of March, April and May 2014. This was far below the national target that aims to achieve 100% of all deliveries being correctly monitored with a partograph. Most of the partographs scored were incompletely or incorrectly filled in some respects. There was also a lack of documentation on findings obtained after reviewing mothers.

2.2. The Plan for Overcoming the Observed Problem

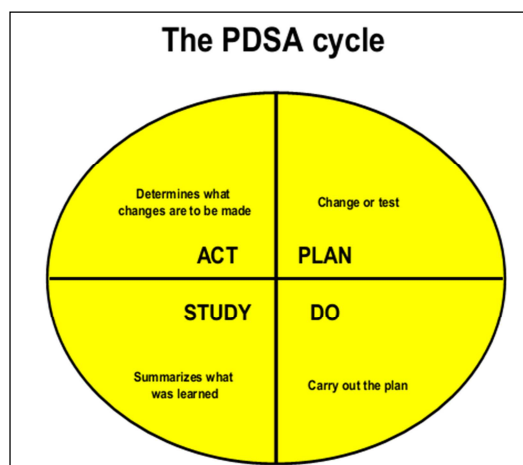


Figure 2. The Deming's cycle (PDSA) employed in the study.

The study employed the PDSA cycle to solve the problem of inadequate partograph use. The four cycles of the cycle are as demonstrated in figure 2

2.3. Planning

A focus group discussion conducted with health workers in the department, observations and inventory review were used to analyze the causes of the failure to correctly document and use the partograph. Findings indicated that; lack of essential supplies and equipment in maternity ward such as; stock out of partographs, 1 functional blood pressure machine, 2 foetal scopes and no wrist watches for all midwives working on labour suit contributed to poor use of partograph and inefficient maternal monitoring during labour process. Other causes included lack of ongoing support supervision and clinical audits which were evidenced by not finding any reports or updates on partograph use for a period of 2 years in the files. Rotation of staff after every 3 months, staffs going for study leave and some being transferred to other hospitals and health units resulted in the loss of valuable human resources with training and skills in the use of the partograph.

There were two different types of partographs that were offered by two different organizations i.e. Engender Health Project and Baylor Uganda that brought about confusions in which partograph to follow. Other causes of variations presented included heavy workload due to large numbers of deliveries attended to in Bwera hospital as compared to the neighboring hospitals in the district resulted in health workers not properly monitor mothers in labour adequately not completing the documentation of the partograph as mentioned by one of the medical officers that;

As per staffing level in maternity labour ward there are only 7 midwives who assist over 360 mothers to deliver on a monthly basis leading to a ratio of a midwife to mother of 1: 51. This ratio of 1 midwife assisting 51 mothers in a month to deliver is beyond the recommended number of at least 20 mothers by a midwife (medical officer, Bwera hospital).

Other causes of variations included inadequate knowledge on new updates concerning partograph use and documentation especially on the quality indicators for partograph use such as correct plotting of dilatation, descent, accurate foetal heart rate and vaginal dilatation which many were hearing about for the first time during the focus discussion. It was also observed that some staffs had a negative attitude on partograph use as they took it as extra work imposed on them in addition to the heavy workload they already had.

Based on the above findings, the authors who took the lead in the action research together with the Bwera hospital Maternity department staff came up with solutions to overcome the observed challenges which were classified into; *totally within control, partially within control and not within control.*

The solutions that were totally within the control of the authors and the department team included;

Conducting continuous professional development on

partograph use and documentation and mentoring and coaching of new staffs on updates of partograph use and documentation. The team also informed the hospital administration to allocate at least 20 midwives on maternity department. Timely feedback on performance and compiling reports and choosing focal persons for each improvement objective were suggested.

Solutions that were partially within the control of the authors and the maternity department team included holding a staff meeting to discuss about causes of the negative attitude of health workers on partograph use, instituting regular support supervision by the hospital quality improvement team and development partners. Others included ensuring adequate partographs within the ward and harmonizing the partograph type to be used on the maternity ward.

Solutions that were suggested by the process improvement team but not within their control included ensuring regular coaching and mentoring on emergency obstetric and neonatal care for the staff. Recruitment of more midwives to the hospital, ensuring that the staffs working on maternity ward are competent and qualified and ensuring that lower level health units are functional to reduce referrals to the hospital were suggested.

The team set up a general objective of ensuring efficient documentation and use of partograph by health workers while monitoring delivering mothers in maternity department during the months of June-August 2014. To achieve the above objective all midwives working on maternity were to be trained on correct use and documentation of a partograph by the end of August 2014. The team also set out to increase percentage of mother's' files attached with partographs from 95% to 100% in the same period, reduce percentage of partographs left blank from 8% to 1% in a period of June to August 2014.

2.4. Doing/Implementation of the Plan

One of the authors was selected to be the overseer of the implementation process. This involved coordinating activities as assigned to individuals as well as carrying out support supervision and to train all midwives working on maternity on correct use and documentation of partographs. A two-hour training that concentrated on the key indicators/parameters considered in measuring correct use and documentation of partograph as designed by Engender-Health-Project was carried out on 21st May 2014 by the authors. The training was attended by all staff working on Maternity department.

The in charge maternity was assigned to timely requisition enough stationery especially partographs and secured 2 more sphygmomanometers (blood pressure measuring machines). A focal person was chosen among the staffs to always attach partographs on client's admission forms. Two staffs were allocated on a weekly basis to score the already used partographs and compile findings. The in-charge estimated and requisitioned emergency drugs like (Pitocin, intravenous fluids, Magnesium Sulphate) on a weekly basis and always put vitamin K, Tetracycline eye ointment, near the

resuscitation tray for immediate essential neonatal care.

Through the supervision and interaction with the staff, the researcher always encouraged staff to practice the active management of third stage of labour on mothers who delivered by spontaneous vaginal delivery and to offer immediate essential neonatal care. Mentoring by the researcher was implemented regularly whenever demanded by a supervisee (staff). Regular display of data (data feedback meetings) and review meetings with staffs were organized on a weekly basis from which performance of the week was reviewed and discussed every Monday morning through a departmental meeting.

The hospital Quality improvement team carried out support supervision once a week a week in the Department including spot checking of staffs on duty as far as quality monitoring of mothers in labour was concerned in regard to partograph use and documentation.

2.5. Studying/Evaluating the Change

In order to test significance of improvement before and after the process improvement intervention of partograph use,

we used student t test; with 2 hypotheses stated

The Null Hypothesis was: “There is no difference in Percentage Scores before ‘Partograph Intervention’ and After Partograph Intervention”. Or rather no relationship between percentages changes following introduction of partograph intervention. “The Alternative (Ha) hypothesis: “There is a difference in Percentage Scores after ‘Partograph Intervention’ than before After Partograph Intervention”

Or there is a relationship between Percentage Improvement Scores after ‘Partograph Intervention’

3. Results

3.1. Changes Observed After the Process Improvement

Generally there was remarkable change on attaching partographs on clients’ files with an average of 99% from June to August 2014 up from 96% in the period of March to May 2014. This was though below the 100% recommended by World Health Organization (8).

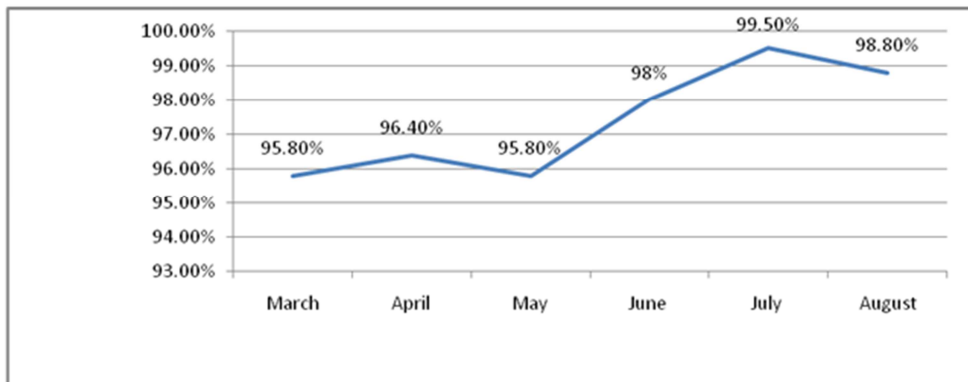


Figure 3. Percentage of mothers' files attached with a partograph in the period March to May 2014 (n=1,200) and June to August (n=1229).

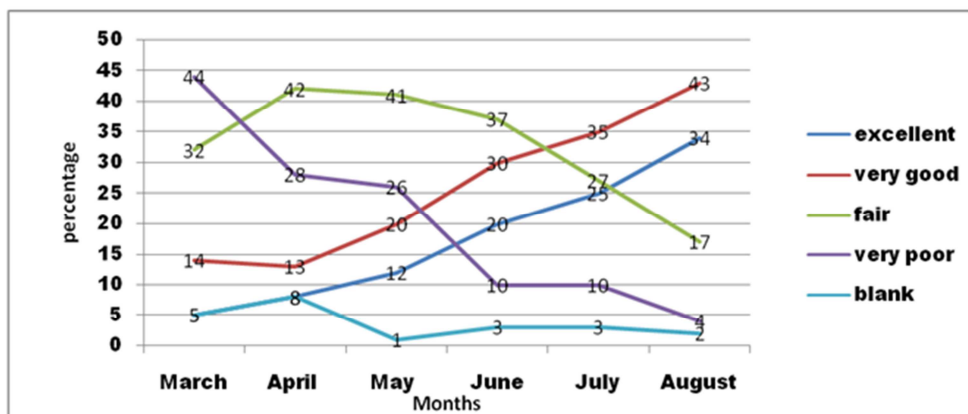


Figure 4. Trend of quality of Partograph documentation and use between the Months of March to May (n=1,200) and June to August 2014 (n=1229).

Improvements were recorded after the action research in various processes.

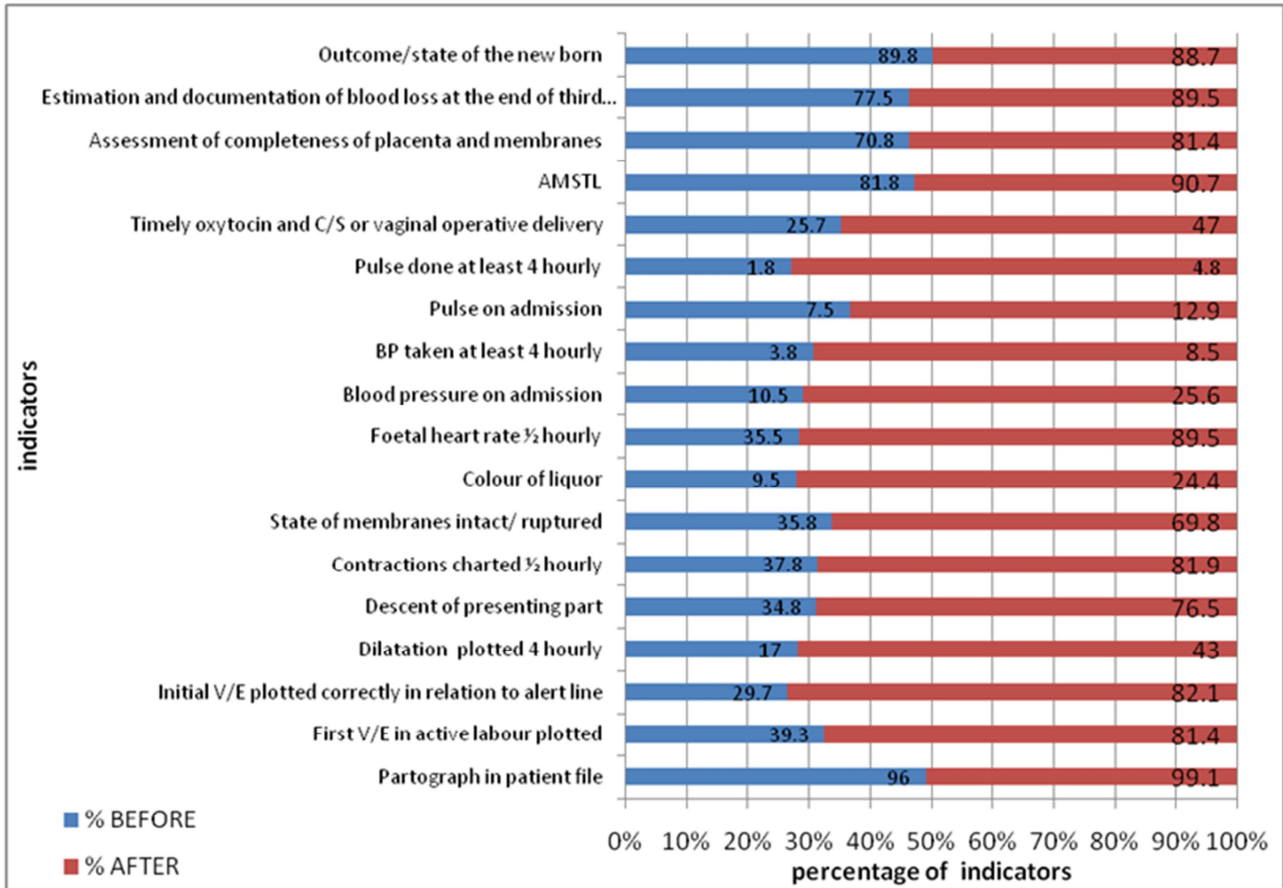
The percentage of partographs that were completely filled while monitoring mothers and classified as excellent increased from an average March to May of 8.3% to 26.3%. Partographs that had a few indicators not being monitored

and documented and classified as very good increased from a March to May period average of 15.7% to 36% in the period June to August. For the category of partographs classified as being fair and very poor in the periods March-May and June-August reduced significantly from an average 38.3% to 27% and 32.7% to 8% respectively. The percentage of partographs

left blank reduced from an average of 4.6% in the periods March to May to 2.7% in the period June to August.

Monitoring and documentation on the partograph of individual indicators showed an improvement in all indicators save for documenting outcome or state of the newborn which showed a decline of 1.1%. However, not all parameters were fully monitored up to the standard level as

required by MoH and WHO. Indicators for vital observations like blood pressure (15.1%), pulse on admission and four hourly pulses (12.9% and 4.8%), colour of liquor (24.4%) still remained poorly monitored and therefore not documented to a desired level even after the process improvement.



N.B: For timely oxytocin and caesarian section or vaginal operative delivery n=303 before and n=328 after the implementation of the action research.

Figure 5. Indicators monitored during labour on the Partograph before (n=1,200) and after (n=1229) the process improvement research

3.2. Hypothesis Testing and Significance

A study was done to find out whether partograph use before intervention improved after the process improvement. This improvement was tested with 18 known indicators before the intervention and after the intervention as reported in Table 2 using the t statistics for any level of significance noted.

$$1) t = \frac{\bar{X} - \mu_0}{s / \sqrt{N}}$$

$$2) t = \frac{\bar{X} - \mu_0}{SEM(X)}$$

$$3) SEM = \frac{\sqrt{\frac{\sum D^2 - \frac{(\sum D)^2}{N}}{N-1}}}{\sqrt{N}} = \frac{\sqrt{\frac{14,262 - \frac{(-391.5)^2}{18}}{18-1}}}{\sqrt{18}} = -5.02$$

Getting the t statistics from $t = \frac{\bar{D}}{s.e}$

Since N = 18, N-1 (the degrees of freedom) = 17, from the t- distribution table, we observe that we need a t-score value of ±2.110 or more for the results to be significant at α of 0.05 for a 2 tailed distribution.

Therefore, the current result is significant since there is rejection of the Null Hypothesis hence adopt the Alternative hypothesis as correct!

“The alternative hypothesis that there was relationship in improvement score after the partograph process intervention was supported at the 5% level of significance”

3.3. Action on the Observed Measures

The process improvement team met immediately and reviewed the progress realized after the implementation. During the review, reasons for the success realized were obtained and discussed. It was agreed to maintain all measures that had helped to realize improvement. The

indicators that were not realized during the process improvement formed the plan of the next course of action which was agreed to be commenced in the first week of the month of September 2014.

Table 2. Indicator and Percentage scores Before and After Partograph Intervention.

Indicator	BEFORE (X ₁)	AFTER (X ₂)	Difference, D=(X ₁ -X ₂)	D ²
Outcome/State of new born	89.8	88	1.8	3
Estimation and documentation of blood loss at end of 3 rd trimester	77.5	89.5	-12	144
Completeness of Placentae & Membranes	70.8	81.4	-10.6	112
AMSTL	81.8	90.7	-8.9	79
Timely Oxytocin /C/C or Vaginal delivery	25.7	47	-21.3	454
Pulse done at least 4 hourly	1.8	4.8	-3	9
Pulse taken on admission	7.5	12.9	-5.4	29
Blood pressure taken at least 4 hourly	3.8	8.5	-4.7	22
Blood pressure taken on admission	10.5	25.6	-15.1	228
Faetal heart ½ hourly	35.5	89.5	-54	2,916
Colour of Liquor	9.5	24.4	-14.9	222
State of membranes intact/ruptured	35.8	69.8	-34	1,156
Contractions charted ½ hourly	37.8	81.9	-44.1	1,945
Descent of the Presenting part	34.8	76.5	-41.7	1,739
Dilatation plotted 4 hourly	17	43	-26	676
Initial V/E plotted correctly in relation to alert line	29.7	82.1	-52.4	2,746
First V/E in active labour plotted	39.3	81.4	-42.1	1,772
Partograph in patient file	96	99.1	-3.1	10
<i>Sum</i>	<i>704.6</i>	<i>1096.1</i>	<i>-391.5</i>	<i>14,262</i>
<i>Mean</i>	<i>39.14</i>	<i>60.89</i>	<i>(21.75)</i>	

Mean Difference of 21.75 % after process improvement as Compared to before

4. Discussion

The Maternity department of Bwera hospital made remarkable changes on documentation and use of the partograph after the process improvement research and the implementation of the change. In order to conduct a successful process improvement research, it is required that a problem is identified, underlying causes of the problem clarified, study the deviations from the standards of the process, hypothesize and test possible solutions and changes to overcome the problem and thereafter track progress in solving the problem [11]. All these steps were implemented in this study under the stewardship of the authors who employed the PDSA/Deming's cycle to guide the

implementation of the study. The problem was investigated based on the Ugandan ministry of health guidelines and standards on the use of the partograph and based on the Engender Healthcare project guidelines on partograph documentation and use.

As per the Deming's cycle, improving partograph use required first planning and this which involved identifying the most pressing problem and its possible causes in the department. The problem of poor partograph documentation and use had been arrived at through a pairwise ranking of problems as explained by [12]. This was during a departmental planning meeting between the staff of the maternity department and the authors where it was identified that poor use of the partograph had affected the performance of the department. Baseline data through review of records of mothers who had delivered between the months of March to May 2014 was obtained and this served to highlight how big the problem was. This information was shared with the staff and the hospital management team who appreciated that an urgent solution had to be obtained. Lack of adequate partographs, presence of only one sphygmomanometer, presence of only 2 foetal scopes and having no wrist watches for all midwives working in the labour suit, lack of ongoing support supervision and clinical audits contributed to poor use of partograph and inefficient maternal monitoring during labour process. Rotation of staff after every 3 months and transferring of staffs to other hospitals and health units had resulted into periodically losing skilled personnel in partograph use. Heavy workload by staffs brought about by inadequate numbers of human resources and the presence of two types of partographs to be used has as well contributed to the problem.

Identifying the causes of the problems was possible because the frontline staffs had been involved in their detection. The presence of the management team of the hospital particularly the medical superintendent and principal nursing officer in the planning meetings gave assurance to the staff that the management of the hospital was ready to offer support in addressing the problems. This reaffirmed findings reported in the literature that leadership commitment and support is critical for successful process improvement initiatives [13]. One of the authors who was the in-charge of the department well known by most of the staffs but had been away for a study leave. Being the head of the process improvement research, she created close relationships with the between the staffs, the hospital management team and the quality improvement team in order to implement the change. The meetings also helped to institute teamwork which had not been existent in the department and was very crucial for the success of the process.

The implementation/doing phase mainly involved activities or solutions that the process improvement team was in control. These included harmonizing the partograph to be used, re-arranging the duties so that fairly adequate numbers of health workers were on duty, forecasting of medicines and supplies required in labour and for neonatal care and ensuring their constant availability. Other measures that were

implemented included encouraging staffs and reminding them to stick to the guidelines of partograph use and documentation, mentoring of staffs in partograph use, monitoring performance of staffs as per the indicators of partograph use on a weekly basis as well as adequate support supervision by the quality improvement management team of the hospital. Even with these trivial implementations, significant changes were noted within the shortest possible time and tangible results realized especially in the monitoring and recording of contractions, foetal heart rate, monitoring of the descent of the presenting part, carrying out and documenting dilatation of the cervix. This success was basically supported the view that achieving best practices of care in healthcare in most times does not require overhauling an entire health system or requiring sophisticated technology. This process improvement basically involved reminding of and mentoring health workers in practices they knew but had ignored to implement.

The proper preparation of the health workers in the improvement of the documentation and use of the partograph further contributed to the success of the research. Generally it has been observed that implementation of one strategy can solve more than one problem. For instance midwives have also improved on recording outcome of labour in the maternity register and signing patient treatment sheets.

However, the process change strategies did not achieve the desired results in some indicators such as taking and recording of pulse, taking of blood pressure of the clients and monitoring the colour of liquor. Lack of commitment and to some extent negative attitude on partograph documentation and use by a few of the staffs were found responsible for the failure to achieve desired results in some of the indicators. Change in any institution is always not embraced by all especially in tasks requiring mental complexity like this to which not all employees are expected to be at the same level [12].

The success of the process improvement in documentation and use of the partograph was affected by factors that were partially and totally beyond the control of the researchers such as inadequate stationery, inadequate equipment like sphygmomanometer, thermometers and Uri sticks that are used in monitoring some of the indicators. This was basically due to the research being carried out when budgeting for the hospital had already been carried out and, therefore, the purchasing of this equipment had been forwarded to the financial year starting in August. However, the challenges identified formed key planning strategies for the period September to December.

5. Conclusions

This study showed that improving partograph documentation and use requires constant monitoring, supervision and review of the performance of health workers involved in its use by a partograph focal person. Regular feedback meetings on performance should be held and trends should of the use communicated to the staff so that there is a

sense of ownership for the process by all staff. Adequate resources such as staffing and stationery are also crucial to offer and achieve quality partograph use. Continuous professional development on new updates concerning partograph use and documentation so that the staff can attain more knowledge and skills is also suggested.

The challenges faced during the implementation were that not all staffs attended the continuous professional development (CPD) training as two were attending to mothers in labour and one was off duty after having worked the previous night hence requiring special training thus stretching the budget. The training was conducted in a small room thus not enabling adequate demonstration. Some health workers were more informed about the Partograph while others had little knowledge on the modified partograph. This required harmonization of the different groups which was tiresome. Some staff negative attitude on partograph use and documentation still persisted and this could have affected the performance of the research.

References

- [1] WHO, Trends in maternal mortality: 1990 to 2013. Estimates by WHO, UNICEF, UNFPA, the World Bank and the United Nations Population. WHO World Health Organization. 2014. Geneva: Switzerland
- [2] Orhue, A. A. E., Aziken, M.E . and Osemwenkha A.P., Partograph as a tool for team work management of spontaneous labor. *Nigerian Journal of Clinical Practice*. Vol. 1, No15, 2012, pp.1-8.
- [3] Lavender, T., Hart, A. and Smyth, R., Effect of partogram use on outcomes for women in spontaneous labour at term. *Cochrane Database Syst Rev*, 2014, pp.8: CD005461. doi:10.1002/14651858.CD005461.pub3.
- [4] Yisma, E., Dessalegn, B., Astatkie, A. and Fesseha, N. Completion of the modified World Health Organization (WHO) partograph during labour in public health Institutions of Addis Ababa, Ethiopia. *Reproductive Healt*. Vol. 10, No. 23, 2013 <http://www.biomedcentral.com/1471-2393/13/17>,
- [5] Floyd, L., Helping midwives Ghana to reduce maternal mortality. *AFRICAN Journal of Midwifery and Women's Health*. Vol 7, No 1, 2013, pp.34-38.
- [6] Levin, K., and Kabagema, J. d'A., *Use of the partograph: Effectiveness, training, modifications, and barriers—A literature review*. 2011, New York: EngenderHealth/Fistula Care.
- [7] Ndola, P., Paige, P., Sreenivas, A. and Gerdtts, C.E., Maternal mortality in developing countries: challenges in scaling-up priority interventions. *Women's Health*. Vol.6, No. 2, 2010.,pp.311-327.
- [8] World Health Organization Maternal and Safe Motherhood Programme, 1994. World Health Organization partograph in management of labour. *Lancet*, 344(1), pp.399-404.
- [9] Ogwang, S., Karyabakabo Z. and Rutebemberwa, E., Assessment of partogram use during labour in Rujumbura Health Sub District, Rukungiri District, Uganda. *Africa Health Sciences*, Vol. 1, No. 9, 2009, pp.27-34.

- [10] Kabakyenga, J. K., Östergren, P., Turyakira, E., Mukasa, P.K. and Pettersson, K. O., Individual and health facility factors and the risk for obstructed labour and its adverse outcomes in south-western Uganda. *BMC Pregnancy and Childbirth*. Vol.11, No.73, 2011, pp.<http://www.biomedcentral.com/1471-2393/11/73>.
- [11] Daudelin, D. and Laurel, K. L.,. *Research Process Improvement*, 2014. [Online] Available at: <http://www.tuftsctsi.org>. [Accessed 29 June 2014].
- [12] Aragon, T.J., Dalnoki-Veress, F. Shiu, K., Chawla, C., Louie, J., and Wagner, G.,. *Deriving Criteria Weights for Health Decision Making: A Brief Tutorial*, 2012. [Online] Available at: <http://www.academia.edu> [Accessed 25th June 2014].
- [13] USAID, Fistula Care and Engender Health,. *The Fistula Care Digital Archive: Monitoring Tool for Partograph Review*. 2014, [Online] Available at: <http://www.fistulacare.org/pages/da/english-pages/t/6.html> [Accessed 29 June 2014]
- [14] Dangal G. Preventing Prolonged Labour by Using Partograph. *The internet journal of gynecology and Obstetrics*.2006 Volume 7 Number 1.
- [15] Bowles, S. and Green-Goldsborough, K.,. *Leading Process Excellence: A Champions's Role in Process Improvement Initiatives*, 2010, New York: Environmental Protection Agency EPA Lean Government.
- [16] Bottles, K.,. *Help your hospital employees embrace change*, 2012. [Online] Available at: <http://www.hospitalimpact.org> [Accessed 13 Augustus 2014].