

# Operational Strategy on Maternity Clinic Using Lean Six Sigma Method

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**Abstract:** Childbirth is always synonymous with severe pain, so the fear of not being able to dampen the pain is an anxiety for a mother who will undergo childbirth. Many mothers are very afraid to experience labour pain choosing caesarean delivery to give birth to their baby. Based on Indonesia Basic Health Research 2013, the practice of caesarean section in all provinces in Indonesia averaged 15.3%, or above the average standard issued by WHO. Maternity Clinic which have delivers excellent service without pain through the technique of epidural analgesia has a good prospect because the demand of the community that pregnant women who want to get a normal birth is comfortable and painless. The clinical operational management uses the concept of Lean Six Sigma as a customer-focused production process control, through the DMAIC or Define-Measure-Analyse-Improve-Control phase. In each phase, different activities will be performed according to the conditions occurring during the project. In the analyse stage, VSM (Value Stream Map) calculation obtained value added composition compared to non value added, for painless delivery service with epidural analgesia that is 15 hours: 41 hours 45 minutes (26.4%: 73.6%). The results show that the painless delivery service system has not been lean condition, so the clinical operation runs less efficiently, and caused a lot of waste and waste to be eliminated. After the lean process, there is improvement in service flow so that the hospitalization time without pain can be shorter than before that is only 48 hours. This will result in the efficiency of various service support elements as well as the cost of hospitalization. Improvements made are expected to continue and is a continuous improvement for operational activities in Maternity Clinic.

**Keywords:** Childbirth, Painless, Lean Six Sygma, Lean Process

## I. INTRODUCTION

Maternal and child health issues are one of the major health problems currently occurring in Indonesia. Every three minutes, somewhere in Indonesia, a child under the age of five dies. In addition, every hour a woman dies due to childbirth or related causes of pregnancy (UNICEF, 2012). Quality delivery service is still a requirement in the community. The number of clinics and maternity hospitals cannot keep up with the ever-increasing population. Because it becomes a vital requirement, the opportunities and prospects of the birthing clinic business is still wide open. Especially when the clinic has a superior service that is rarely owned by other clinics. Childbirth is one memorable experience for every mother, an experience that is always recorded with a strong mind or a mother's memory. So it is not surprising that many expectant mothers are worried about the delivery process. Labour from time to time is always synonymous with severe pain, so the fear of not being able to dampen the pain is an anxiety for a mother who will undergo childbirth. Many mothers are very afraid of experiencing labour pains through the vagina thus choosing a caesarean delivery to give birth to their baby. In Indonesia based on basic health research by the government, the practice of caesarean section in all provinces in Indonesia is 15.3%, above the standard issued by WHO. Other data show that Southeast Asian hospitals, including Indonesia, showed a caesarean section presentation of 27%. WHO estimates there are 3.18 million required caesarean section operations, and nearly twice as much, specifically 6.20 million is an unnecessary practice of caesarean section. Mothers generally want a normal labor process but the pain experienced becomes a concern for themselves for the mother. The normal birth alternatives with epidural analgesia techniques are greatly welcomed by mothers because they can undergo normal delivery and do not experience severe pain as normal childbirth, and do not need to experience postpartum pain experienced by the mother who gave birth by caesarean section. Regional analgesia technique is a very popular pharmacological technique and became the gold standard because it provides optimal analgesia during labor with minimal side effects on the mother and fetus when compared with systemic or inhalation analgesia. A normal delivery with additional epidural analgesia is the right choice of mothers to undergo a normal labor process with minimal pain. Maternity clinic that delivers superior service without pain through the technique of epidural analgesia has a good prospect by looking at the demand of the community specifically pregnant women who want to get a normal birth is comfortable and painless. In the competition in the global market only good quality products that will always be in demand, because the quality is the fulfillment of services to consumers. This can be used as a guideline that quality control is part of the production process that is very influential in improving product quality, so that the fulfillment of services to consumers can be achieved. Quality itself is the overall characteristics of a product or service that can give satisfaction to customers or consumers. Companies

that have high process capability will be able to produce defective products little or no. Process capability is a critical performance measure that demonstrates the process is capable of producing according to product specifications defined by management based on customer needs and expectations. In an effort to improve the quality of a company then must first know the level of process capability that has been owned by the company, it is intended to know the extent to which the final output of the process can meet customer needs, so by knowing the level of process ability it can be used as a basis for controlling and improving the quality of measured output characteristics.

## II. LITERATURE REVIEW

Clinic is a health service facility that organizes and provides basic medical services and or specialist, organized by more than one type of health worker and led by a medical staff<sup>7</sup>. The main clinic is a clinic that conducts specialist medical services or basic and specialist medical services. Specialism means specializing services in one particular area based on disciplines, age groups, organs or certain types of diseases. The clinic is led by a specialist or specialist dentist. Labor is a fetal excretion process that occurs in 37-42 weeks without complications in both the mother and the fetus<sup>6</sup>. Maternity Clinic is a health service facility that organizes individual health services by providing specialist services in obstetrics and gynecology with the requirement that labor be at low risk.

An operational strategy is a commitment to all planned activities or within the scope of the company and includes the operational functions that determine the direction in which a decision is integrated with the business strategy. The Operational Strategy creates a consistent pattern of making an operational decision. An operational strategy, known as a business strategy, provides the information needed to design a production system for a company to achieve its objectives. The operational strategy also provides information for all other functions within the organization to support the production system in carrying out its duties. Lean Six Sigma is an operational management concept that is a synergy of Lean and Six Sigma. With Lean Six Sigma, companies can earn Lean's "speed" and "quality" that Six Sigma has<sup>8</sup>. This methodology leads the company to the elimination of the seven wastes that occur in the manufacturing or service process, and the acquisition of quality at output that minimizes the creation of defective products. The goal is to increase corporate profits, provide sustainability (ability), and provide added value for customers.

The Six Sigma methodology was first coined in 1964 by Dr. Joseph Juran in *Managerial Breakthrough* and first introduced by Motorola in 1987 by an Engineer named Bill Smith and fully supported by Bob Galvin as CEO of Motorola at the time as a strategy to improve and improve process and quality control (process Improvement and Quality Control) in the company. Six Sigma came to prominence and became popular worldwide after Jack Welch used it as a strategy business at General Electric (GE) in 1995<sup>9</sup>. In general, Six Sigma is a methodology used to make continuous improvements.

Six Sigma can also be viewed as a customer-focused production process control, with an emphasis on process capability. There are key aspects in the application of Six Sigma concepts; identify the customer, product identification, identification of needs in producing products for customers, define the process, avoid mistakes in the process and eliminate waste and increase process continuously toward Six Sigma target<sup>8</sup>. In the six sigma application there are five steps called DMAIC (Define, Measure, Analysis, Improve, Control) (Gaspersz, V, 2002). Define (Definition), is the first operational step in six sigma quality improvement program. Before defining a key process along with a customer in a six sigma project, here we need to know the SIPOC process model (Supplier, Input, Process, Output, and Control)<sup>8</sup>.

Measure, is the second operational step in the six sigma quality improvement program. At this stage establish quality characteristics with the specific needs of customers. A quality characteristic (Critical to Quality) is a set key should be directly related to the specific needs of the customer, derived directly from the output and service requirements. Analyze (Analyze), is the third step in six sigma quality improvement program, in this step done something, among others that is determining stability and ability of process, determine performance targets of key quality characteristics to be improved in six sigma project and identify sources of root causes of disability or failure. Improve, once the root cause of the quality problem is identified, it is necessary to establish an action plan to implement the quality improvement. Control is the last operational stage in a six sigma quality improvement project. At this stage the results of quality improvement are documented and disseminated, successful best practices in improving the process are standardized and standardized work guidelines, and the ownership or responsibility of the process, which means six sigma ends at this stage.

## III. RESULT AND DISCUSSION

Clinical operational management uses the Lean Six Sigma concept through the DMAIC Define-Measure-Analyze-Improve-Control phase. In each phase, different activities will be performed according to the conditions occurring during the project. In the define phase, project identification includes operational objectives and targets, clinical capacity, and SIPOC (suppliers-inputs-process-output-customer) analysis. The long-term goal is to develop a major clinic into a Maternal and Child Hospital, and have an education and training center. The medium term goal is to open a

branch of clinic in Jakarta area. The short-term goal of establishing a premier maternity clinic with superior painless delivery services located in North Jakarta and obtaining a one-year normal birth patient is 80% of clinic capacity and 70% of whom are painless normal deliveries. The target payback period is reached within three years. The operational target of the Maternity Clinic is pregnant women who want normal, painless delivery service by epidural analgesia, pregnant women aged 20-35 years, middle- and upper-class pregnant women who use personal or private insurance coverage. SIPOC analysis is performed on every clinical process, including registration, outpatient (child-polyclinics and obstetric gynecology-polyclinics), painless delivery with epidural analgesia, home care and payment process at the checkout. Maternity Clinic has a maximum service capacity of 1800 births per year, 8640 patients for child-polyclinics and obstetric gynecology-polyclinics and 900 home care patients.

Measure phase aims to find out what process is going on, collect data on process speed, quality and cost to be used to find the cause of the actual problem. The analyze stage is done by creating Value Stream Mapping to identify the problems and waste that occur to get the solution. From the calculation of VSM (Value Stream Map) obtained value added composition compared to nonvalue added, for service delivery without pain with epidural analgesia is 15 hours: 41 hours 45 minutes (26.4%: 73.6%). This indicates that the painless delivery service system has not been a lean condition. In addition to VSM, the concept of lean states that all forms of waste and activities that do not bring value must be eliminated, then the identification of waste that can occur in the process of delivery services without pain.

The improving stage will provide an overview of potential solutions to problems with the process. Proposed improvement designs include improvement of floor plans, room layout suggestions, visual management improvements, improved outpatient service process processes, and elimination of processes that are not required to improve the value of services.

The form of visual management at the Maternity Clinic consists of patient flow charts, clinical maps / map, directions of polyclinic and room directions, information boards that are representative of service schedules and physician attendance. The five S methodology (Seiri, Seiton, Seiso, Seiketsu and Shitsuke) or in Indonesian 5 R, which is applied in the clinic to make the workplace become very organized. Kanban is an effective and simple method to manage inventory. Fast moving supplies inventory (often used) is made up of 6 months supply, while slow moving (rarely used) one year. Provisions on the medical supplies system in the warehouse using the FIFO and FEFO systems. The lean consumption principle is done to simplify the process. After doing the lean process time that can be saved customer is 15.4%. Time required before lean 56 hours 45 minutes, after lean 48 hours. The control stage is done by standardizing all processes. Maternity Clinic has a standard operational procedure (SOP) that must be implemented by all staff employees and physician partners. The process of monitoring and evaluation of clinics is done regularly by clinical management by means of internal audit and clinical accreditation process.

#### IV.CONCLUSION

From the results of the discussion can be concluded that the operational activities in Maternity Clinic before the lean process runs less efficient, so it will cause a lot of waste and waste that must be eliminated. After the lean process, there is an improvement in service flow so that the hospitalization time without pain can be shorter than before that is only 48 hours. This will show the efficiency of various service supporting elements and the cost of hospitalization. Improvements made are expected to continue and is a continuous improvement for operational activities in Maternity Clinic.

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