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A Model for Safe Delivery Based on Clinical Governance: Mixed Method Study

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ABSTRACT
Because of the current population policies adopted in Iran that followed by increasing the number of births this study was aimed to investigate the current situation of safe delivery and present a model based on clinical governance. This study is a combinatorial-exploratory research (Mixed Method) conducted in 2014 in four hospitals in provinces of Qazvin and Semnan and consists of two stages. 1) assessment of the current situation; clarifying of safe delivery, reviewing literatures, providing tow checklists , assessment of the current situation based on assessment of continuous quality improvement and assurance of the quality. 2) Presenting the model: codification of safe delivery model in 7 axes of clinical governance, the approval of the model on the panel using nominal group technique. In quality assurance, hospital (4) received the maximum score (1431) and hospital (2) received the lowest score (1237). Four hospitals in continuous quality assessment, admitting in the intensive care unit (P < 0.001), mothers with severe consequence of pregnancy (P = 0.004) and in 16 cases of 27 errors had significant statistical difference. In order to improve the quality in the Maternity ward: 1. accreditation of hospitals should be based on the principles of clinical governance. 2. Delivery wards should have a protocol based on clinical governance 3. Pay Attention to outcome of the maternity wards 4. To be used of the World Health Organization standards such as Near-miss mothers' criteria for clinical audit.
Keywords; Model, Safe Delivery, Clinical Governance, Quality Improvement

INTRODUCTION

The significance of mothers, health is because it is one of the eight major goals set for the millennium development [1]. Over two decades ago, the global health community came together at a conference in Nairobi, Kenya, and launched the Safe Motherhood Initiative. Its aim was to mobilize resources, generate political will and identify effective interventions for maternal survival [2]. By the time of the landmark International Conference on Population and Development (ICPD), held in 1994, every world region had held a safe motherhood conference [3, 4]. From 1990 to 2013, the maternal mortality rate was reduced from 380 to 210 in the world, from 83 to 23 in Iran, from 10 to 8 in England [5]. Due to improvements in the most Central indices in the world, attention to other aspects of health, such as equity and quality is reasonable [6].Safe delivery is one of the main factors that lead to a safe motherhood. Safe delivery is a delivery assisted by educated and skilful individuals in a proper environment which is accessible at an affordable cost and within a short time, where delivery is performed at the highest level of standard and through a proper method, and the result will be a healthy neonate and a healthy mother [7].

The way to address clinical quality has become an important movement all over the world. The core responsibilities of health-service providers for quality improvement are different. In each case, they will ideally be committed to the broad aims of quality policy for the whole system, but their main concern will

be to ensure that the services they provide are of the highest possible standard and meet the needs of individual service users, their families, and communities [8].

A wide range of tools and techniques is used for identifying, measuring, prioritizing and improving processes, which are critical to quality [9].

In recent years, health system pioneers in different countries used various methods to improve quality and safety of health services which can be categorized in two main groups: 1) based on external evaluation and quality Assurance that increase the commitment toward quality.

2) Continuous quality improvement models that help quality management in organizations.

Hospital accreditation can be mentioned as a first category and clinical governance as a second group in a way of implementing high quality standards [10].

Observance of clinical governance principles helps improving the quality of clinical services. It has been the central point of health reform efforts in the United Kingdom since the late 1990s. The reason for investing in clinical governance is to improve quality of care and response to public and governmental intolerance of poor performance in health care [11]. Clinical governance is a "framework through which NHS organizations are accountable for continually improving the quality of their services and safeguarding high standards of care by creating an environment in which excellence in clinical care will flourish"[12].

In the beginning of 2010, clinical governance office was established in Iran Ministry of Health in order to plan, organize, implement and monitor clinical governance programs also to coordinate clinical governance offices of medical universities all over the country. The seven pillars of clinical governance are as follows: : public private involvement, patient safety and risk management, personnel management, education and personnel management, use of information, clinical effectiveness and clinical audit [13, 14].

Maternity services need to be organized on the principles of 'availability, accessibility and acceptability. The services need to be safe as safety is the back bone of quality. Observance of clinical governance principles helps improving the quality of clinical services in maternity cares [15].

Considering the current population policies adopted in Iran that followed by increasing the number of delivery, it is expected that by increasing the quantity, the quality services in this part would be affected and also the lack of attention to the quality causes weakness in the quantity of care and associated outcomes. In order to reduce maternal and infant mortality, there is no choice but to pay more attention to the quality. Following the establishment of clinical governance (a model for continuous quality improvement) in hospitals of the country and maternity centres, redesign guidance for safe delivery process is essential to improve its quality.

This study was aimed to investigate the current situation of safe delivery and present a model based on clinical governance.

MATERIALS AND METHODS
This study is a combinatorial-exploratory research (Mixed Method) conducted in 2014 in four maternity hospitals in provinces of Qazvin and Semnan and consists of two stages. 1) The first stage consists of four phases: (A) a qualitative study in the area of mothers, experts, specialists and midwives; (B) reviewing literatures; (C) providing tow checklists to assess the current situation; (D) assessment of the current situation based on assessment of continuous quality improvement and assurance of the quality. Data were analysed using descriptive statistics indexes and chi-square test. 2) Presenting the model: (A) codification of safe delivery model in 7 axes of clinical governance; (b) the approval of the model on the panel of reproductive health experts and midwives using nominal group technique.

This study performed in four maternity centres, Governmental and educational hospital in the provincial capital (hospital 1), governmental and educational hospital in the city (hospital 2) , governmental and non-educational hospital (hospital 3), nongovernmental and subspecialty hospitals (hospital 4) which is a county with the aim of evaluating the status quo of safe delivery based on clinical governance criteria. It was designed based on 1) external evaluation and quality Assurance models 2) continuous quality improvement models.

Qualitative study
 A qualitative content analysis conducted based on Colaizzi model for content analysis [16]. The content analysis is beyond extraction of visible content taken from textual data. In this study, Participants in this research include: 10 midwives (Master of Science), 4 obstetricians (Specialist physician), 5 managers (PhD), 5 hospital doctors (Specialist physician and experts). Totally 28 samples were selected for interview that 4 persons were left out according to lack of interest to continue cooperation , and by

interviewers' discretion. Participants were selected based on their experiences and the research objectives. For mothers area Participants include: 32 pregnant women with average of 28.

Inclusion Criteria of this study were based on their own tendency to participate in the research and they were all familiar with the concepts of safe baby delivery and clinical governance. Exclusion criteria of this study were based on lack of tendency toward continuing the cooperation, revoking conscious satisfaction. Purposive sampling through maximum variation sampling was initially used for data collection. In this sampling method, the basis of selecting participants was having special information about the considered phenomenon, and the aim of their selection was to collect these data.

On the basis of a goal-oriented sampling managed by the researcher, some deep semi-structured interview was held to extract the themes. The duration of each session lasted 1 to 1.5 hours. The interview sessions were repeated several times until the researcher found out that some answers were stated in repetition (data saturation). Sessions were held at the peoples' workplaces (hospital, maternity centre, clinical office, Ministry of Health and Universities).

The questions which were concordant with the goal of the predesigned plan and were used to control the interview sessions and to keep them on clinical governance were as follow:

1- What is a safe delivery, in your opinions?
2- How is the present condition of safe delivery compared with clinical governance standards?
3- What are the inhibitors of a safe delivery?

Interviewer had good communication skills and specialty about interview. Interviewees, written consent was obtained prior to recording their voices, and the research aims were explained to them. In addition, they were assured that all of their information will remain confidential. All of the participants studied and signed the form of conscious satisfaction designed by the research team. The interviews were conducted in face-to-face approach.

After each interview, the interview tape was transcribed and analysed prior to the next interview. Ultimately the findings were compared to the researcher's interpretations. This finally led to presentation of a deep explanation about the concept of "safe delivery" as believed by the experts and mothers. For data analysis, at first, the interview text was studied several times, and then, important sentences were highlighted and codified. Data were considered, and comparative analysis was performed in order to extract primary codes. In the next stage, themes were organized based on their concept in separate categories. In this part, the primary codes were classified based on differences and similarities in abstract categories and key concept (16). The continuous analysis of data began from the beginning of codification, and continued until the end of data collection. Two of the authors participated in data coding process. The credibility was indebted to the researcher's sufficient experience, scientific knowledge and academic degree. The MAXQDA10 software was employed for management of codes.

Assessment of the current situation

For external evaluation and quality assurance model - since it was not possible in Iran to conduct private evaluation in the delivery ward based on clinical governance - a checklist comprising of the combination of the evaluation of accreditation standards of the delivery ward [17] and "the evidences of the second state festival of the patients' safety and clinical governance [18]" was prepared. After combining accreditation standards evaluation of the delivery ward and clinical governance evaluation, the common criteria were omitted and the criteria were categorized based on 7 axes of clinical governance. No changes were made in the scoring and it was based on the instruction booklet. The checklist contained 22 criteria on the axis of management and leadership (112 points), 58 criteria on the axis of personnel management & education (240.5 points), 400 criteria on the axis patient safety and risk management (912 points), 5 criteria on the axis of clinical efficiency (110 points), 8 criteria on the axis of clinical audit (114 points) and 5 criteria on the axis of information application (125 points), and 23 criteria on the axis of general patient involvement (181.5 points). The reliability coefficient of the checklist was revealed by Chronbach's Alpha Test, to be 0.95. The validity of the checklist was checked through content analysis and formal credit supply method. For this, a panel comprising of 10 experts from the domains of midwifery, pregnancy health, clinical governance management and obstetrics surveyed the validity of the checklist in three sessions and approved it. Moreover, using inter-rater agreement method, checklist was simultaneously completed by the provincial expert for delivery ward accreditation and by the project executor. This was carried out to make sure about the authenticity of the scoring whit 95% confidence interval (p< 0/000), (kappa =0/83). Ultimately, the validity of the checklist was verified. For external evaluation, questionnaire was completed and scored through observation and interview.

1- For continuous quality improvement model , a checklist was prepared based on the Criteria of The WHO Near Miss Approach for Maternal Health [19] (Direct death, indirect death, intensive bleeding, intensive preeclampsia, eclampsia, fourth degree laceration, neonate Apgar of less than 7, intensive

systemic infection or sepsis, embolism, Uterine laceration, shoulder Dystocia, ectopic pregnancy, systemic function disorders that threaten mother's life, critical interventions such as: transfusion of blood and blood products, bleeding control measures, hospitalization in Intensive Care Units, Giving Antibiotics to treat infections, postpartum laparotomy, hysterectomy through surgical operation due to postpartum bleeding and infection) and based on the main criteria of Mother Friendly Hospitals of Iran [20] (Participation in the training courses held for pregnant women, number of caesarean operations, delivery pain inductions, episiotomy, painless delivery methods and delivery pain control). According to the definitions of the WHO, a Near-Miss Mother is a mother who was going to die due to pregnancy and delivery complications and complications of the first 42 days after delivery, but survived for any reason. The validity of the checklist was controlled through content analysis and formal credit supply. For this purpose, in three panel sessions, 10 experts from the domains of midwifery, pregnancy health, clinical governance management and obstetrics, surveyed the validity and accredited it. The reliability coefficient of this checklist was proved to be 0.97 by Chronbach's alpha test. Using inter-rater agreement method, checklist was simultaneously completed by the head of delivery wards and the project executor. This was carried out to make sure about the authenticity of the scoring whit 95% confidence interval (p< 0/000), (kappa =0/78). Ultimately, the validity of the checklist was verified.

At this stage evaluation to be carried out using this checklist, the delivery wards of the four hospitals were assessed on a monthly basis, for 6 months. The number of deliveries, caesarean operations, episiotomies, inductions of delivery, painless methods of delivery and delivery pain controlling methods, direct and indirect deaths of mothers, and maternal complications were registered based on Near-Miss Criteria as specified in the WHO Protocols. The files of the Near-Miss Mothers were studied through clinical audit process in order to diagnose and analyse the errors. Ultimately, the data were analysed using descriptive statistics and Chi-Square test by SPSS-22 software.

Second Step: Presenting a model
A. Presentation of a model based on clinical governance: in order to present a model, a comprehensive review of available literatures relevant with the subject was performed and with respect to the results obtained in the first step, a proper model for safe delivery based on 7 pillars of governance was developed.

B. Formation of a nominal group to confirm the model:
The model was confirmed by experts and scholars with the panel implementation and presence of 11 experts and managers of the reproductive health group using the nominal group technique and the priority table. This method combines qualitative and quantitative methodology because decisions are taken through voting and discussion. The maximum variation sampling method was used to select the experts familiar with the concepts of clinical governance and safe delivery. Each of the experts received an envelope of information before the meeting. The envelope contained a letter about objectives of the study, a summary of the results of the previous stage and the pattern of clinical governance.

In this panel, using the following table, at first the required criteria were scored by members to assess the proposition of the model. Of the 10 criteria presented to the members, 5 criteria were selected in priority order from 1 to 5 based on scoring. The panel also approved the propositions that have more than 70% of the scores are confirmed.

All Ethical issues (such as informed consent, conflict of interest, misconduct, co-authorship, double submission, etc.) have been considered carefully. Ethical permission (930/21) for the study was obtained from Shahroud University of Medical Sciences on February 17, 2012.

RESULTS
In qualitative study :the research findings revealed that there is a vicious cycle of causes and factors that hinders implementation of safe delivery; some of these are: insufficient attention to number of personnel does not meet; empowering mothers for making wise decisions and enabling them to identify their needs; there is no proper culture in the society to propagate the proper type of delivery; paying attention to mothers' mental health dignity and privacy; separating low risk of high-risk mothers correctly, lock of sufficient knowledge about clinical governance.

In assessment of the current situation: the total number of deliveries in 6 months was 2578 in hospital (1) and 1416 in hospital (2) 1382 in hospital (3) 549 in hospital (4). In quality assurance, hospital (4) Scores (1431) as a high score and hospital (2) the lowest score awarded (1237) (Table 1).

Table1. A comparison of the scores of the four hospitals in external evaluation based on the seven pillars of the clinical governance in external evaluation

pillars	hospital 1	hospital 2	hospital 3	hospital 4
Management and Leadership	70	59	62	70
Risk management	712	699	704	754
Patient involvement	121	113	113	168
Education and personnel management	185	162	172	208
Use of information,	98	96	96	112
Clinical effectiveness	75	68	66	68
Clinical audit	44	40	42	51
Total	1305	1237	1255	1431

In continuous quality assessment, 42 women in hospital (1), 16 women in hospital (2), 7 women in hospital (3) and 2 women in hospital (4) entered the study and they all had the Near-Miss conditions. The four hospitals were statistically different as far as normal delivery and caesarean operation were concerned (P<0.001). The four hospitals were statistically different as far as also in regard with pregnant women's training (P<0.001), physiological delivery (P<0.001), induction (P<0.001), Methods of analgesia (Pharmaceutical and Non pharmacologic) (P<0.001), episiotomy (P<0.001), hospitalization in ICU (P<0.001).

Also, in continuous quality assessment, among 27 reasons and factors associated in 16 cases, the four hospitals had statistically significant difference (Table 2).

Table 2: Table comparing the ratio of Errors to Near - Miss Mothers in each hospital

Errors	hospital 1	Hospital2	hospital 3	hospital 4	P value
	Frequency (Percentage)	Frequency (Percentage)	Frequency (Percentage)	Frequency (Percentage)	
1.Failure to complete Partograph during labor	42(100)	16(100)	7(100)	2(100)	-
2.Hospital's failure to follow up patients experiencing intensive pregnancy outcomes after release	40(95.2)	15(93.8)	4(57.1)	2(100)	0.011
3. Failure to attend to the principle of unnecessary interventions reduction	21(50)	14(87.5)	6(85)	2(100)	0.019
4. Absence of coordination between governmental and nongovernmental sectors	19(42.23)	5(31.3)	3(42.9)	2(100)	0.304
5. Failure to decision making on treatment on time	18(42.84)	12(75)	6(85.7)	0(0)	0.018
6.Failure to provide services concordant with national guideline (especially in regard with induction)	17(40.5)	13(81.3)	5(71.4)	2(100)	0.015
7.Improper history taking and failure to pay attention to vital signs at the time of admission	15(35.7)	13(81.2)	2(28.5)	2(100)	0.016
8.Failure to diagnose on time before referring to hospital	13(31)	9(56.25)	3(42.9)	0(0)	0.216
9.Failure to refer on time	13(31)	11(68.8)	5(71.4)	0(0)	0.014
10. Failure to pay attention to patient isolation when it is necessary (Preeclampsia and eclampsia)	12(28.6)	4(25)	3(42.9)	0(0)	0.658

11. Making mistakes and failure to write clinical reports and sheets precisely	9(21.42)	9(56.25)	7(100)	2(100)	$P<0/001$
12. Failure to reflect all facts in patients file (neonate's Apgar, laceration degree, induction…)	9(21.42)	9(56.25)	6(85.7)	2(100)	$P<0/001$
13. Failure to attend to urgent cesarean criteria	7(16.7)	6(37.5)	3(42.9)	2(100)	0.023
14.Failure to create files in a uniform way	7(16.7)	5(31.3)	6(85.7)	1(50)	$P<0/001$
15. Failure to diagnose on time at the hospital	5(11.9)	6(37.5)	5(71.4)	2(100)	$P<0/001$
16. Failure of the health service providing centers	3(7.1)	2(12.5)	3(42.9)	0(0)	0.05
17. Failure to take prenatal cares and sometime absence of prenatal cares	4(9.5)	4(25)	2(28.5)	0(0)	0.305
18.Releasing patient on the husband's demand	4(9.5)	3(18.8)	6(85.7)	0(0)	$P<0/001$
19. Insufficient presence during labor	3(7.1)	8(38.1)	6(85.7)	0(0)	$P<0/001$
20.Failure to diagnose the ectopic pregnancy	5(11.9)	2(12.5)	3(42.9)	0(0)	0.170
21.Unnecessary repetition of some tests, consultations and procedures	6(14.3)	5(31.3)	4(57.1)	2(100)	0.006
22. Failure to follow up clinical studies and tests	4(9.5)	2(12.5)	3(42.9)	1(50)	0.064
23. Failure to assess bleeding properly and failure to control it on time	6(14.3)	5(31.3)	4(57.1)	2(100)	0.016
24. Failure to refer patients to public and private hospitals on time	6(14.3)	5(31.3)	2(28.5)	0(0)	0.392
25. Failure to attend to dispatched patients	2(4.8)	1(6.3)	0(0)	0(0)	0.908
26. Improper dispatch facilities and condition	2(4.8)	1(6.3)	0(0)	0(0)	0.908
27. Failure of patient and her family to cooperate	5(11.9)	3(18.8)	3(42.9)	0(0)	0.2
Delivery rate	2578	1416	1382	549	
Failure rate to delivery	291(11)	198(14)	187(12.8)	29(5.3)	$P<0/001$
Near miss mothers to delivery	42(1.62)	16(1.12)	7(0.5)	2(3.6)	0.004

Propositions of model was developed from the results of the qualitative study and extracted errors from the patients, dossiers. Eventually the final model was confirmed by priority table (table3).

Table3. Table of the Nominal group to confirm final pattern

| 1 score for Each proposition	Selected criteria					Total score	Scores (Percentage)
Axes of clinical governance	In accordance with principles of safe delivery	Ability to run	Effectiveness	Accordance with the principles of clinical governance	Necessity		
Risk management	142	99	136	142	138	715	657(91.9)
Clinical audit	41	35	42	44	44	220	209(95)
Staff management	65	55	58	63	66	330	307(93)
Patient and public involvement	55	45	52	53	53	275	258(93.8)
Education and training	44	40	42	43	44	220	213(96.8)
Clinical effectiveness	43	33	40	43	43	220	202(91.8)
Use of information	32	26	29	32	31	165	150(90.9)
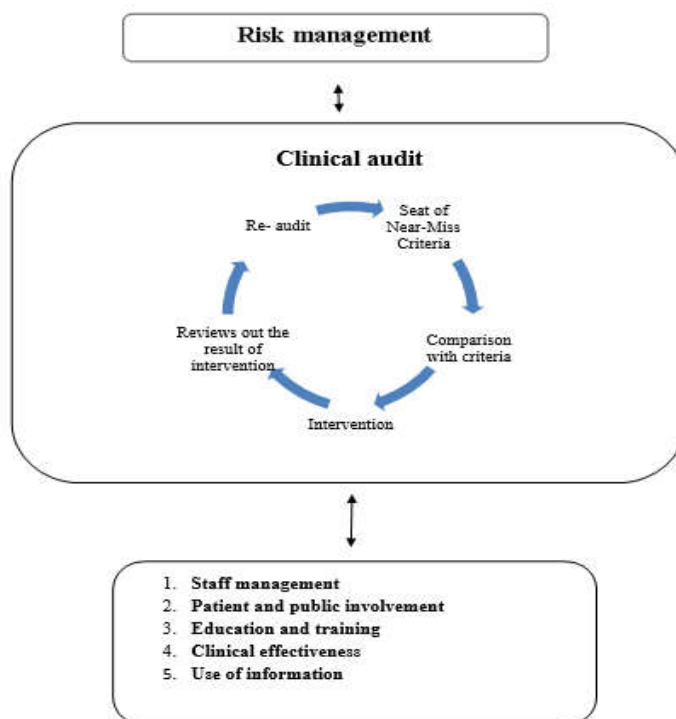
Figure1. The final model based on clinical governance framework for safe delivery

DISCUSSION

The study of the research findings proved that in quality assurance, nongovernmental and subspecialty hospitals (hospital 4) scores as a high score and governmental and educational hospital (hospital 2) received the lowest score. However, the evaluation of continuous quality improvement based on clinical governance model showed that in term of clinical governance indices, causes, associated factors and errors in maternity centres shall be evaluated in a different way. Because, hospitals at different levels are not the same due to differences in performance. This reveals that it is not sufficient to merely conduct an external evaluation; external evaluation (quality assurance model) and continuous quality improvement model evaluations are complementary. The important result of this section was that in accreditation of hospitals in the country as a way of quality assurance, the principles of clinical governance pattern, which implemented for continuous quality improvement in hospitals, have not been considered. So that to assess the current situation of hospitals based on the clinical governance, we had to make changes in accreditation maternity wards.

According to the obtained results from the previous stages of the study, the following model is purposed for safe delivery in Iran (Figure 1). Then take steps to fix the problems. Based on the framework of the proposed model, the arrangement of 7 pillars of clinical governance is in a way that it must be started with the risk management pillar and then errors to be evaluated with clinical audit pillar, which is closely related to risk management pillar, and classified in 5 other pillars. Then the required actions must be taken to solve corresponding problems.

Risk management; the proposed model includes 13 propositions for the overall process of risk management in the delivery block:

1. Organizing how to complete the pantograph during labour
2. Following up patients with severe pregnancy outcomes after discharge from the hospital by the hospital
3. Considering to the principle of reducing unnecessary interventions during delivery
4. Sufficient attention to separate low-risk mothers from high-risk mothers in the hospital and timely referral of high-risk mothers to centres with adequate facilities for care
5. Suitable strategy to reduce caesarean delivery

6. Considering to the work is urgent in the maternity ward, creating a risk identification system for maternity unit
7. Designing patient dossiers in a way that being consistent in all centres and it forces personnel to implement the national guide and prevents forgetting mothers during labour and delivery process
8. More attention to organize the request for tests and follow up them
9. Organizing the request for unnecessary laboratory activities and performing those
10. Organizing the request for consultation and following up the execution of these requests
11. Appropriate strategy for pharmacological and no pharmacological analgesic methods
12. Considering to a correct and timely diagnosis at admission
13. Providing a list of common risk and placing it in the delivery wards.

According to the risk management standards of the British Royal College of Obstetricians and Gynaecologists, basic steps to manage risk in obstetricians and gynaecologists include: 1. investigating the process as an attention to outlines and details of it per step 2. Investigating the ways in which each step may be confused that is so-called "failure mode" 3. Determining the consequences of any error or failure 4. Determining contextual factors (effective factors) 5. Studying the amount of each of the effective factors and the failure mode in the terms of reputation, probability of incidence and intensity of consequences 6. Identifying controlling factors (each factor that causes detecting, preventing, monitoring and reducing that risk) 7. Prioritizing the risk 8. Developing an operational plan for that [21].

Clinical audit; the purposed model for this process in the delivery wards includes four propositions: 1. considering to perform continuous clinical audit based on Near Miss criterion and appropriate interventions based on that and learning lessons from pervious events to prevent the repeat of that 2. Organizing how to implement the national clinical guide and operating that 3. Developing a standard tool based on clinical guidelines and international standards for clinical audit 4. The ability to evaluate the activities by clinical guideline.

In 2009, Graham in his article stated that in low-income countries, the use of criteria-based clinical audit can be effective to improve the quality of mothers care. Base on this method, a list of standard criteria can be provided and clinical audit can be carried out based on that. He recommended the use of standards criteria of the World Health Organization as Near Miss [22].

Staff management; the proposed model for staff management in the delivery block includes 5 proclamations: 1. considering to the conditions and sufficiency of the number of employees per shift based on standards 2. The need for greater collaboration between midwives and specialists in obstetrics and gynaecology and related fields 3. Information of midwifery personnel about the protocol of low-risk and high-risk wards to transfer the mothers to the high-risk ward, if necessary 4. Monitoring the appropriate presence of personnel and specialists in delivery ward 5. More attention to obtain management and Responsibility positions of maternity and obstetric wards by midwives. Staff management includes the following items:

1. placing each individual at his/her position 2. Developing and progressing the workplace so that the staffs be prepared based on the changes over time in patients demands for services. 3. Ensuring personnel job satisfaction [23].

According to the minimum definition for personnel of delivery ward by the Royal College of Obstetrics and Gynaecology of England:

1. The number of midwives should be in accordance with the standard. Using clinical criteria, required midwifery personnel should be estimated in different situations. 2. In order to achieve a minimum midwifery intervention and reduce caesarean section, the number of advisor midwives should be increased. 3. Anaesthesia personnel should be present twenty-four hours. 4. Obstetricians and gynaecologists, anaesthesiologists and paediatricians and other disciplinary specialists and midwives are members of a team for caring pregnant women, and women who need to consult with other medical disciplines should use their services. 5. If the ward needs, paediatricians must be present in delivery block within 10 minutes. 6. Low-risk maternity ward staffs would be familiar with this protocol and if necessary, they would be able to transfer mothers from the low-risk ward to the high-risk ward as soon as possible. 7. All midwives and specialists would pass heart and lung resuscitation courses. 8. The presence of a responsible midwife, who is skilled in the management of crisis situations, is necessary in each team [7].

Patient and public involvement; the suggested model for this process in delivery labour block includes five propositions: 1. considering human dignity, mothers' privacy, rights and beliefs patient and designing labour and delivery in such a way that it would come true 2. Conducting research on factors affecting the participation of mothers and their families in hospitals 3. Identifying mothers and families who do not obey in different stages of treatment and care and attracting more of their cooperation 4. Formation of

health councils comprised of mothers and wives and their families to form the perspective for planning social and health services based on the needs of patients 5. Empowering mothers to accept the role of motherhood and recognize own needs to do it.

In developed societies, formation of health councils, formation of the perspective for planning social and health services based on the needs of patients, increasing expectations about the rights and responsibilities of patients, identifying patients skills and capabilities and their caregivers in the process care in chronic diseases, and the focus of the health system and modern treatment on patients' experiences and approving the law of the necessity of participation of patients and the community as a part of duties of health care centres have an important role in the formation and stabilization of participation of patients and the community [24].

In 2007, Davis et al. reported that 5 factors are effective in patient participation: 1. the factor related with the patient (patient demographic characteristics and beliefs) 2. The factor related with the disease (type and severity of the disease) 3. The professional factor (knowledge and beliefs of staff and specialists) 4. The factor of health care type (primary or secondary) 5. The job factor (clinical ability of staff and specialists) [25].

Education and training; the proposed model for this process in delivery and labour block includes four propositions: 1. Encouraging and supporting mothers to participate in educational programs for pregnant women 2. Educating and informing the families of pregnant women and the society 3. More monitoring the clinical skills training for midwifery students, residents and teachers in the maternity ward of the educational hospitals 4. More coordination of continuing education programs according to the needs of specialists and staffs and delivery block.

According to the article of Chambers and Wakli in 2000, in training the individuals the following points should be considered:

1. Students should have pre-familiarity of the subject 2. Planning should be performed based on the assessment has been performed from the individual 3. It should be problem-cantered. 4. It should involve active participation of the individual during training 5. It should use the student resources and be presented based on his/her experiences 6. It should include timely and relevant feedbacks 7. It should be presented when the person feels and experiences the need to know that 8. It should be along with self-assessment [26, 27].

Clinical effectiveness; the proposed model for this process in delivery block includes four propositions:
1. More support of the Educational Deputy of Ministry of Health from the clinical guideline booklet 2. More attention of specialists and midwives to evidence-based medicine
 3. Creating more opportunities for accessing to updated scientific contents of delivery ward
 4. Effective linking of guideline booklet of clinical with forensic.

When the three components of the best available knowledge, physicians' clinical skills, values and preferences of patients would be combined with each other, physician and patient create a relationship, which improves clinical outcomes and life quality of the patient. The main reasons for the need for evidence-based medicine are: 1. Daily need for reliable information. 2. Inadequate common and traditional resources, which are expired 3. Updating the knowledge of physicians [28].

Use of information; the proposed model for this process in delivery labour block includes three propositions: 1. Participation of all clinical staffs of delivery block for adopting decisions related to events, which should be collected 2. Appropriate hardware and software for storing, extracting and analysing information in delivery block 3. Having access online or in writing to information by target groups (patients, midwives staffs, specialists, managers.).

In 2000, MacColl and Ronald stated the subset of using information as follows: 1. using the maximum level of information technology 2. Comprehensive management of information 3. Creating and providing information for patients 4. Relationship with future plans [29].

In order to improve the quality in the Maternity ward: 1. accreditation of hospitals should be based on the principles of clinical governance. In addition to evaluations with quality assurance and annual accreditation, assessment using continuous quality improvement methods based on clinical governance is essential 2. Delivery wards should have a protocol based on clinical governance 3. Pay Attention to outcome of the maternity wards 4. To be used of the World Health Organization standards such as Near-Miss mothers criteria for clinical audit.

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