


Open Access Article

 <https://doi.org/10.55463/hkjss.issn.1021-3619.61.28>

Building a Model of “Leaned Hospital Administration Made in Vietnam” Solution to Transform Vietnamese Public Hospitals into a Mechanism of Full Autonomy and Self-Responsibility

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Received: March 13, 2023 ▪ Reviewed: April 10, 2023

▪ Accepted: May 18, 2023 ▪ Published: June 30, 2023

Abstract:

This study was conducted to evaluate the model and operation of hospital administration in public hospitals in Vietnam today; it also identified the shortcomings and shortcomings of hospital administration activities in public hospitals. Vietnam. In the study, the authors proposed a model of “Made in Vietnam Lean Hospital Administration” built based on Lean Thinking “Made in Vietnam” following cultural, social, and economic characteristics. Vietnam's economy and people are expected to be the solution to transform Vietnam's public hospitals into a mechanism of comprehensive autonomy and self-responsibility. The model has been effectively applied in some hospitals in Vietnam and provides the application process and some conditions for successful implementation. The model can be extended to domestic and international hospitals, including developed and developing countries. The research direction uses the theoretical basis of “The Made in Vietnam lean management” and the results of this study will be the first step for future studies to expand in other developing countries as well as developed countries to search according to the application conditions, a more complete element than the model so that developing and undeveloped countries can refer to and apply in addition to the hospital governance model in developed countries.

Keywords: hospital management, Tam The, the Made in Vietnam lean management philosophy.

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建立“越南制造的精益医院管理”解决方案模型，将越南公立医院转变为完全自主和自我负责的机制

摘要：

本研究旨在评估当今越南公立医院的医院管理模式和运作；还指出了公立医院管理活动中的缺点和不足。越南。在研究中，作者根据“越南制造”的精益思维，遵循文化、社会和经济特征，提出了“越南制造精益医院管理”模型。越南的经济和人民有望成为将越南公立医院转变为全面自治和自我负责机制的解决方案。该模式已在越南部分医院得到有效的应用，并提供了应用流程和成功实施的一些条件。该模式可以推广到国内外医院，包括发达国家和发展中国家。该研究方向采用“越南制造精益管理”的理论基础，本研究结果将是未来研究扩展到其他发展中国家以及发达国家根据应用条件进行搜索的第一步。比模型更完整的要素，使发展中国家和不发达国家除了发达国家的医院治理模式外也可以参考和应用。

关键词： 医院管理，谭氏，越南制造的精益管理理念。

1. Introduction

Hospital governance is a topic of interest to scientists and first appeared in European countries in the 2000s when associated with changes in financial autonomy from budget-dependent states to complete financial independence like social enterprises (Saltman et al., 2011). The hospital governance model in European countries was built including three different levels, each with its distinct characteristics, interacting with each other in the decision-making process, ensuring functional management, and tasks governance structure. The model is considered by the World Health Organization as a standard model for countries around the world to apply when transitioning to an autonomous mechanism to meet practical requirements. The transformation of hospital governance models in Asian countries began after being motivated by successes in Europe and was associated with reforms in health policy, especially the policy of broad autonomy of medical institutions' public health departments (WHO, 2020). Transforming the model of sustainable management in most countries from Asia, sub-Saharan Africa, Asia Pacific. All are associated with implementing changes to apply the hospital governance model in Europe. As recommended by the World Health Organization, countries have created specific improvements in service quality, capacity to provide medical services, increase revenue, and improve medical staff income. Except for recording positive results in some countries like Japan, China, Singapore (Bloom, 2017). As a result of the change in the hospital governance models, most of the remaining countries still need a transformative higher management performance to overcome the challenges facing public hospitals in the study areas (WHO, 2020). Studies also show that only when hospitals can comprehensively change their hospital governance model to suit the unique characteristics of each hospital, region, and country will the initiatives enhance service delivery capabilities. Create a culture and sustainable working

relationships with stakeholders at different levels inside and outside the hospital.

In Vietnam, we applied the three-level hospital governance model as recommended by the World Health Organization, piloting a broad autonomy and self-responsibility mechanism at four hospitals: Bach Mai, Cho Ray, Viet Duc Friendship, and K Hospital. Bach Mai and K hospitals are two hospitals that have been operating under a new model since 2020. After two years of application, the results of the pilot process of the model revealed many problems such as brain drain, mass layoff, or employee dissatisfaction with the hospital's strategies and methods of implementation in implementing the application. Besides the old problems that have not been completely solved, such as hospital overload, medical waste, hospital hygiene, hospital revenue... and finally, they all asked to stop the pilot application, new problems arose during the experimental period. The point of comprehensive autonomy and self-responsibility mechanism of hospitals recently has raised questions about the appropriateness of sustainable management that is being applied.

Stemming from these practical issues, the research was carried out to (1) review the model and activities of hospital governance in public hospitals in Vietnam today, (2) research the shortcomings and shortcomings of hospital governance activities in hospitals in Vietnam today, and (3) propose a new model of sustainable management that is suitable for Vietnamese culture, social, economic and human characteristics based on the theory of The Made in Vietnam lean management (Minh & Ha, 2016) and requires the transformation of Vietnamese public hospitals to a mechanism of full autonomy and self-responsibility.

2. Theoretical Basis

2.1. The Made in Vietnam Lean Management Philosophy

The Made in Vietnam lean management philosophy is a management thinking that creates profits (added value) for an organization (enterprise) by using human intelligence (intelligence of the organization) to minimize waste costs. This thinking is explained through the following formula system (Minh, 2015; Yingao, 2014):

$$\text{Profit} = \text{Revenue} - \text{Cost} \quad (1)$$

where:

$$\text{Costs} = \text{Actual costs} + \text{Waste} \quad (2)$$

$$\text{Waste} = \text{Tangible waste} + \text{Intangible waste} \quad (3)$$

According to the Made in Vietnam lean management philosophy, Vietnamese organizations (enterprises) actively generate profits using the organization's human intelligence to identify and cut waste costs in each activity (Minh, 2015). Waste costs exist in two forms: tangible and intangible waste costs. Actual wasteful prices are easy to identify during the organization's operation (enterprise), such as the cost of wasted facilities (working rooms, equipment, machinery that is not used at total capacity). Waste costs due to errors (errors in the performance of employees' work, mistakes in records, documents...), wasted time costs... Intangible waste costs will be challenging to identify in the operation process due to the waste in operational thinking, operating methods, operating models, and employees' attitudes.

2.2. Tam The

“Tam the” – the foundation of Made in Vietnam lean management, is defined by the formulae:

$$\text{Tâm Thế} = \text{Thấu 1} + \text{Thấu 2} + \text{Ý} \quad (4)$$

Formula (4) is Vietnamese term.

Tam The = Deep Understanding 1 + Deep Understanding 2 + Consciousness (Minh, 2015; Yingao, 2014).

Accordingly, the attitude is two through one mind; the mentality is not born naturally; it must be formed through education through three main areas: family (from birth) and continuing to foster at school. (agency, organization) when going to school to work and in society (when working and communicating daily) (Minh, 2015; Yingao, 2014). “Tam the” is at the heart of the Made in Vietnam lean management philosophy and is a central and critical factor in the successful implementation of poor management (Figure 1).

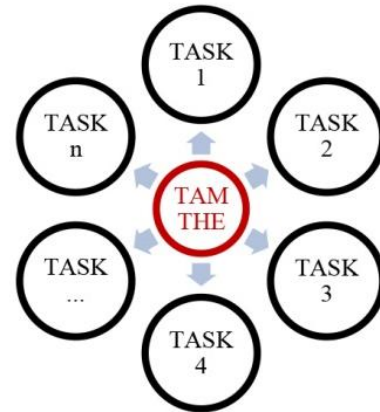


Figure 1. “Tam the” fundamental elements of the Made in Vietnam lean management philosophy (Minh, 2015)

First, people understand that a job (or study) is beneficial for them, nurturing passion and working hard. Second, people seriously understand that by taking their work seriously (studying), they can improve their thinking ability (when learning) and their ability to work (when doing a job), thereby benefiting themselves. The meaning of “Tam the” is the consciousness that people must have good behavior, attitudes, and ethics toward work to reflect and implement these two understandings.

If the Made in Vietnam lean management philosophy focuses on human intelligence, then “Tam the” focuses on spiritual strength. “Tam the” unites everyone in the organization and directs their thinking on a common axis to strengthen the collective knowledge and resilience of all involved to create added value for the agency (Minh, 2018). Therefore, “Tam the” plays an essential role in establishing a foundation of thinking for Vietnamese enterprises and organizations.

2.3. Lean Application in Hospital

Applying lean management to health has been studied by the authors since the late twentieth century. By 2011, Mark Graban, when applying the lean governance model to healthcare and healthcare services, has shown that the application of lean governance and its tools will bring success and success. improve operational efficiency in hospitals (Grabana, 2011).

In Spain, lean management has been applied in hospitals since 2009 with the starting point of The Consorci Sanitari del Garraf Hospital, after 5 years about 30% of hospitals in Barcelona city are applying the principles of corporate governance. lean has made better use of resources and helped save costs for medical examination to at least US\$2000/week thanks to reduced patient waiting time, reduced travel time, system communication between departments is more accurate and faster avoiding the collection of information too many times (Priolo, 2016). Graban when applying lean management to inventory

management for patient care activities of hospital departments and wards in the Netherlands and Denmark (Graban, 2011; Saltman et al., 2011). Research in the UK and some European countries has shown that lean management seems to have no end, and more and more hospitals in Europe decide to apply it. Lean governance is considered one of the keys to accelerating the transition of public hospitals in most European countries to successful autonomy and back to the leading position in the service delivery market. healthcare in Europe.

Made in Vietnam lean management has been studied and applied in the medical examination department of Bach Mai Hospital, which has cut 30-55% of the total time spent in the medical examination department. Recently, research on the management of tangible factors at the Department of Medical Examination, Viet Duc Friendship Hospital (Minh & Thanh, 2020) over the past 2 years has proven effective and fundamentally changed the image of the clinic. medical examination, no more crowded scenes. In addition, during the COVID-19 pandemic, Viet Duc Friendship Hospital still operated safely when many other hospitals had to close down.

3. Methodological Approach

3.1. The Research Process

The study uses a combination of survey methods, in-depth interviews, and practical observation of daily activities at 06 special-class hospitals, 20 central-level hospitals, and first-class hospitals. The data is analyzed as a basis for proposing a governance model. The research procedure and data collection method are depicted in the Figure 2.

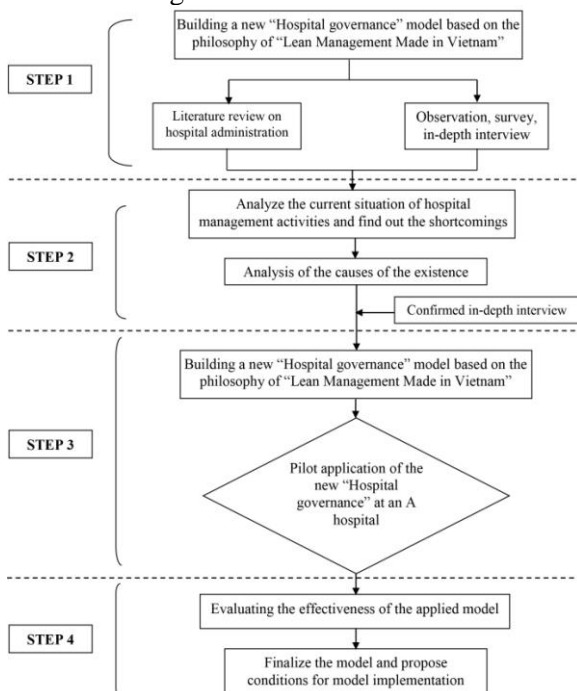


Figure 2. The research process

3.2. Data Collection Methods

The research team collected data (primary and secondary) through the synthesis of research documents, practical observations, surveys, and in-depth interviews (done in two rounds). The data collection process is shown in Figure 3.

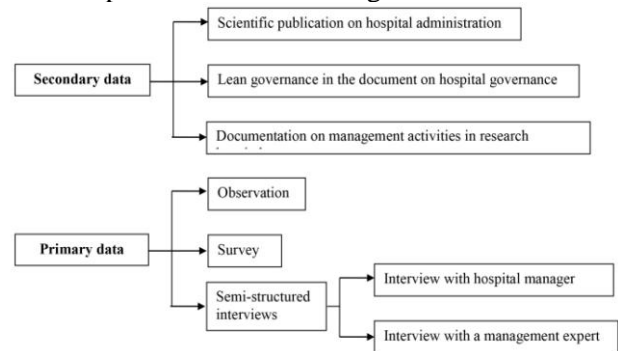


Figure 3. Data collection methods

3.3. Secondary Data Collection Method

The study uses a method for collecting secondary data to synthesize and analyze the problems that sustainable management activities are facing. From there, identify the problems (waste) existing in the hospital, from which the author will build a research model and an appropriate theoretical framework in the context of Vietnam.

3.4. Primary Data Collection Method

Primary data used in the study was collected using three methods:

3.4.1. Observation

Through practical observation of medical examination and treatment activities (welcoming patients, registering for medical examination and treatment, performing clinical examinations, performing paraclinical tests, imaging diagnostics, summarizing results, purchasing drugs, making payments) along with other routine activities at the hospital (training, scientific research, social work, administration), field survey at 02 special-class public hospitals, 06 central-level public hospitals, etc. Central, typical class I in Hanoi.

3.4.2. Survey by Questionnaire

Survey by questionnaire was carried out at 06 special-class hospitals, 20 central-level hospitals, and first-class hospitals nationwide (research hospitals had a total of 38,044 beds, accounting for 12.4% of the beds of public hospitals in the whole country. country and 8,306 doctors equal to 7.6% of the number of doctors working in public hospitals nationwide).

Although accounting for only 12.4% of the hospital beds, the 26 public hospitals studied were the leading general or specialized hospitals in the country at the

regional or provincial and city levels (13 provinces and cities in total, containing 35,319,000 people, equivalent to 35.7% of the total population of Vietnam in 2022), so the subjects selected for the study are very representative of the Vietnamese public health system.

Survey subjects in the hospital are divided into two groups: direct workers (doctors, nurses, medical staff) accounting for 84% and direct administrators (directors, management boards, heads of staff) vice-department, department) accounting for 16% (according to the proportion of employment positions in current public

hospitals). The survey questionnaire was built into two main parts:

- Part I. Surveyor Information - to collect information related to survey participants (expertise, qualifications, seniority, working position);
- Part II. Current Status of Hospital Governance - through 12 semi-closed questions designed to discover the current situation of the hospital governance model applied in Vietnam today through five factors: organizational structure, policies, training activities, methods of governance, and operating procedures.

Table 1. Survey participants by questionnaire

Survey participants	The number of surveyed hospitals	The number of people surveyed
Hospital Management Board	26	13
Hospital Board of Directors		13
Head of the department, hospital room		52
Doctors at hospitals		260
Medical staff at the hospital		78

3.4.3. In-Depth Interview

Conduct in-depth interviews with 50 hospital leaders, department managers, and rooms at 06 special-class hospitals, 20 central-level hospitals, and first-class hospitals. During the study, the discussion was conducted twice.

First time: In step 1 of the research process, leaders, department managers, and hospital wards were interviewed using representative sampling. On average, each interview occurred in 60 minutes to clarify the results collected through the survey by questionnaire, determine the main issues in hospital governance, analyze the causes and effects classify groups of reasons (subjective, mechanism, policy, institution etc).

Second time: Implemented in step 3 of the research process, the time was conducted with 05 members of

the Management Board and 05 members of the Board of Directors of selected hospitals for interviews by representative sampling method. The selected hospitals included both hospitals piloting the comprehensive autonomy model (Bach Mai Hospital, K Hospital) and two hospitals that are about to show up (Viet Duc Friendship Hospital, Cho Ray) to conduct the interview. Each interview takes about 50 minutes on average. Conduct the second interview to get feedback on the model of "Made in Vietnam Lean Hospital Administration" proposed by the research team.

The results of in-depth interviews are essential input to help the research team develop proposals, evaluate effectiveness, modify and perfect the model, and determine conditions for implementation.

Table 2. Participants in in-depth interviews in rounds

The number of people participating in in-depth interviews	The amount of people
Round 1:	78
Hospital Management Board	13
Hospital Board of Directors	13
Head of the department, hospital room	52
Round 2:	16
Hospital Management Board	8
Hospital Board of Directors	8

3.5. Survey Methods, In-Depth Interviews, and Data Processing Methods

Based on three identified research objectives, the team researched documents on the current Vietnamese public hospital governance model, especially the pilot model of comprehensive autonomy and responsibility at Bach Mai Hospital, K hospital, to determine the current status of the applied governance model. Building in-depth interviews with representatives of stakeholders in operations at public hospitals for qualitative research to identify inadequacies and waste as a basis for building survey questionnaires and quantitative analysis to identify inadequacies, existence, waste, and extent of

each problem. After qualitative research, group discussion, and expert analysis to determine the group's causes using the theory of Made in Vietnam lean management with three factors bearing cultural, social, economic, and human characteristics. Vietnamese:

- "Tam the" is the foundation to support the activities of staff and doctors in the hospital when performing the work of upholding the Hippocratic oath and medical ethics.
- Using lean thinking in all activities to make every medical examination and treatment work more accurately, faster, and more satisfied with patients.
- Commitment from hospital leaders, departments to

staff, doctors and nurses will always be maintained so that the quality of medical examination and treatment and expertise is always maintained at the best.

From that analysis and the Made in Vietnam lean management model, the research team proposes a new hospital governance model to overcome the problems of reality by cultural and social characteristics. Vietnamese economy and people today.

4. Research Results

4.1. Results of the Current Practice of Hospital Governance in Vietnam

Through analysis of secondary documents, observations, surveys and in-depth interviews, the research team synthesized the hospital governance model currently applied in public hospitals in Vietnam (Figure 4).

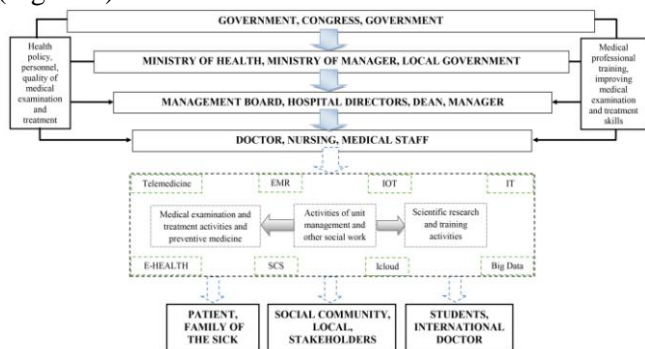


Figure 4. The current model of hospital management in Vietnam (IT - information technology; IoT - Internet of things; EMR - electronic medical records; SCS - safety cyber security; E-HEALTH - electronic health)

The model is divided into three levels: macro (National Assembly, State, Government, Ministry of Health), intermediate (Management Board, Board of Directors), and micro (the department that carries out specialized activities subject, profession). The results for this model are being applied at 100% of the module. The model is recommended by the Ministry of Health to be used in all public hospitals across the country:

- The organizational structure is under the strict management of personnel, strategy, expertise and finance at the macro level in a one-way direction.
- Hospital management policy operates according to management principles for state-owned non-business units with revenue, partial or complete autonomy.
- Training activities are mainly based on theoretical principles at universities and clinical practice at hospitals. There are few retraining programs or internal training programs in hospitals, and if any, focus on professional training is significant.
- The management method follows the principles of state management and administrative orders.
- The operating process is based on the manager's experience in the hospital operation experience since its establishment (which has undergone many changes in

institutions and mechanisms).

4.2. Problems in Medical Examination and Treatment

Medical examination and treatment is the leading professional activity of the hospital. At the same time, it is also an activity that creates visible added value, directly impacting the hospital's customers (patients) and society.

The survey results show that medical examination and treatment activities at public hospitals from the viewpoint of Made in Vietnam lean management have 07 main types of waste (Figure 5).

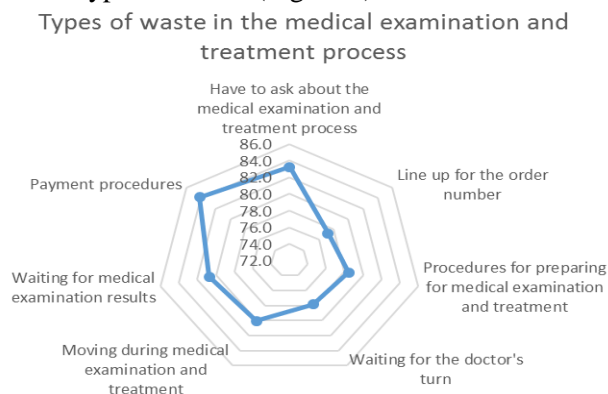


Figure 5. The main types of waste in the medical examination and treatment process

The most are two wastes: procedure payment (84.2%) and medical examination and treatment process (83.2%). The primary wastes in the medical examination and treatment process shown in Figure 5 show that the primary scraps belong to the management of medical examination and treatment activities: payment procedures, having to ask for the medical examination and treatment process, and waiting for results. Medical examination and treatment, Travel during medical examination and treatment (all fees are assessed by 80.1% of respondents as existing).

Research on the medical examination and treatment process found that 78.5% of the surveyed people rated the medical examination and treatment process at the hospital as unorganized and optimal as the leading cause of the above seven types of waste. Also, from the viewpoint of Made in Vietnam lean management, the layout of clinical, subclinical, and laboratory departments in the medical examination and treatment process is not optimal (82.6% of survey respondents rated it) as one of the causes of the unnecessary increase. According to the survey results in Figure 6, two content is not good: the medical examination and treatment process is waiting for the conclusion of a specialist doctor (72.5%) and moving to the examination rooms and room testing (62.1%), see Figure 6.

The most wasted time in medical treatment

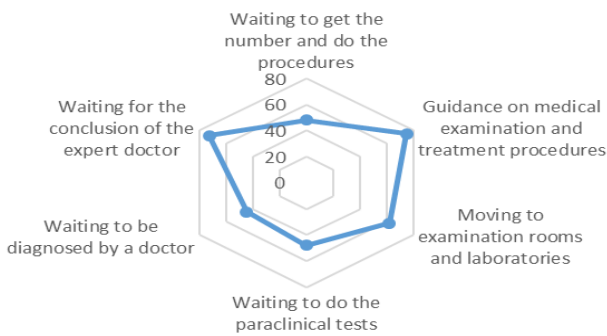


Figure 6. The most time wasted on medical examination and treatment

The wastes from the point of view of Made in Vietnam lean management when analyzing the causes mainly stem from problems in hospital governance; this is the premise for the research team to continue investigating the issues. Topics in hospital governance activities, the next part.

4.3. Problems in Hospital Governance

After the survey, the research team conducted in-depth interviews with medical professionals, managers, and heads of specialized departments in the hospital who are directly involved in medical examination and treatment daily. Management activities from the department level to the whole hospital.

Table 3 below summarizes the general opinions of experts about the inadequacies in the governance model of public hospitals in Vietnam today.

Table 3. Results of in-depth interviews with experts in the hospital

Interview	n	Unreasonable detected	Waste type
Member of the Management Board of a public hospital	13	The current organizational structure has not yet defined the position, role, and function of the Hospital Management Board, especially in decision-making	Invisible (operating pattern)
		The staff structure of the hospital management board is still too inclined toward medical expertise and management expertise has not paid attention	Invisible (operating pattern)
		The mechanism for consulting and proposing health policies of the Board of Management to higher levels is fragile and is not given due attention	Invisible (active thinking)
Member of the	13	The role of stakeholders in establishing the hospital management board structure has not been considered	Invisible (active thinking)
		The way of	Invisible

Board of Directors of a public hospital		management development strategy depends a lot on expertise personality, and leadership capacity in different periods	(active thinking)
		Current hospital governance activities are administratively rigid and inflexible like a social service unit	Invisible (method of operation)
		Patient medical data that is still closed is considered a separate property that has not been linked between hospitals for sharing and use	Tangible (facilities, equipment)
		Current hospital governance activities are administratively rigid and inflexible like a social service unit	Invisible (method of operation)
Heads and deputy heads of specialized departments in the hospital	52	The current way of operating requires medical professionals to be both specialists and managers, so it is difficult to do both well	Invisible (method of operation)
		Many regulations and processes are framed without openness for hospitals to actively research and apply novelty actively	Tangible (waiting)
		Monitoring and evaluation still use people; people in the hospital will not ensure objectivity and fairness	Tangible (discrete knowledge, error correction)
		Human resource management is still administratively heavy, and expertise usually has not oriented the development roadmap for each employee	Invisible (active thinking)

The results of this practical study are similar to those of Dale and Krishna (2015) when researching the Asia Pacific region including Vietnam for ten years (2003-2013).

4.4. Reasons of Current Hospital Governance Model Problems

According to the in-depth interviews, hospital managers at all levels agree that public hospitals in Vietnam face a problem of efficiency in hospital governance. The results of Autonomy over the past few years have shown that most hospitals cannot continue usefully self-management without the support of the state budget. Through in-depth interviews, the research team used the 5-Whys tool to analyze the causes and find the root cause of the problem (Figure 7). This method was introduced by Sakichi Toyoda in the 1930s and has been widely used in the Toyota group until

now.

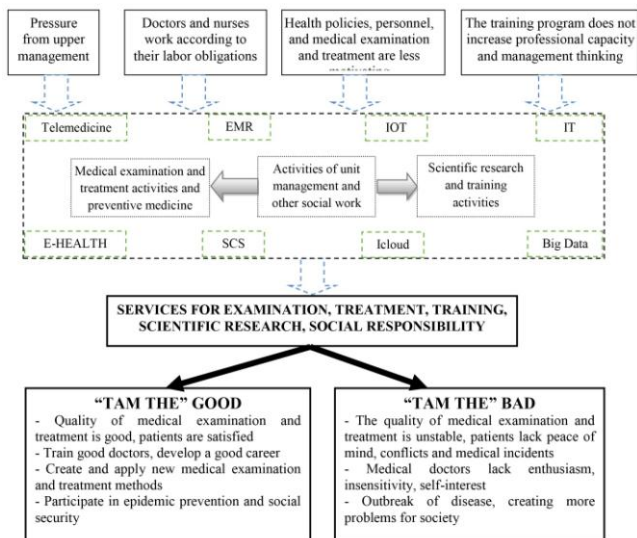


Figure 7. Current issues and results of hospital governance in Vietnam

When research on problems in hospital governance was discovered, the team asked “why” questions to query the underlying cause of the problem. The why steps stop when the leading cause occurs; in the study group, the “why” question an average of 5 times helped us estimate the primary reason. After analyzing the causes of current hospital management problems:

- Pressure from superiors (state management principles, administrative orders).
- Doctors and nurses work according to their labor obligations (have not yet created the mentality to participate in activities at the hospital).
- Policies on health, personnel, and medical examination and treatment are less motivating (state management for units with partial Autonomy).
- The training program does not increase professional capacity and management thinking.

From Figure 7, it can be seen that hospital activities (medical examination and treatment, training, scientific research, social responsibility) that need to be supported and pulled to have the best quality are under pressure from tissue activity figures. Besides, there are other important reasons such as the lack of the “Tam the” factor of human resources (managers, department heads, doctors, medical staff) participating in activities at the hospital; in addition, there is currently no suitable hospital governance model, which has turned the hospital governance process into pressure instead of motivation for professional activities. Figure 7 shows that if people participate in the activities at the dynamic hospital, the “Tam the” is not goodwill: the doctors and nurses will lack enthusiasm and emotion in medical examination and treatment, thereby creating an unstable quality of medical assessment and treatment. Unsatisfactory patients create more problems for society.

4.5. Proposing a New Model of “Lean Hospital Administration Made in Vietnam”

4.5.1. Building a Model Based on the Philosophy of “Made in Vietnam Lean Management”

From the current situation of the hospital's management activities analyzed above, the research team uses the Made in Vietnam lean management philosophy, which has been successfully applied in many recognized domestic and foreign enterprises [6]. The research team proposes using a new “Lean hospital administration Made in Vietnam” model, as shown in Figure 8 below.

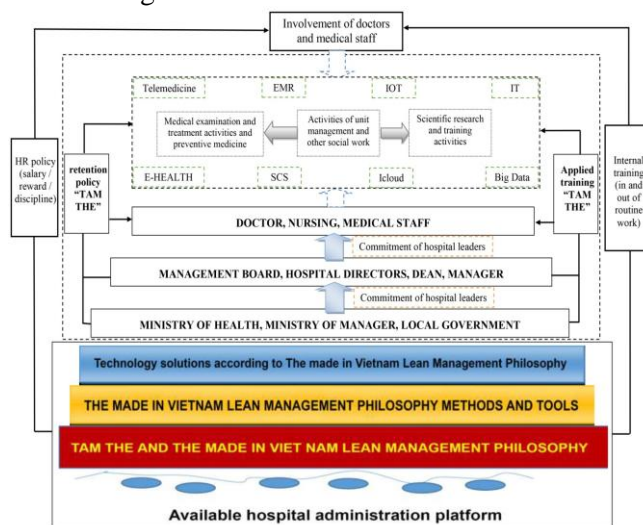


Figure 8. New model of “Lean hospital administration made in Vietnam”

The new model was built to eliminate waste in the hospital's operation, improve the efficiency of medical examination and treatment, and increase the reliability of hospital safety, which helps the hospital ensure regular operations. The new model is a constructive model that constantly creates and improves added values for Vietnamese public hospitals. Hospital governance activities under the new model are illustrated in Figure 9.

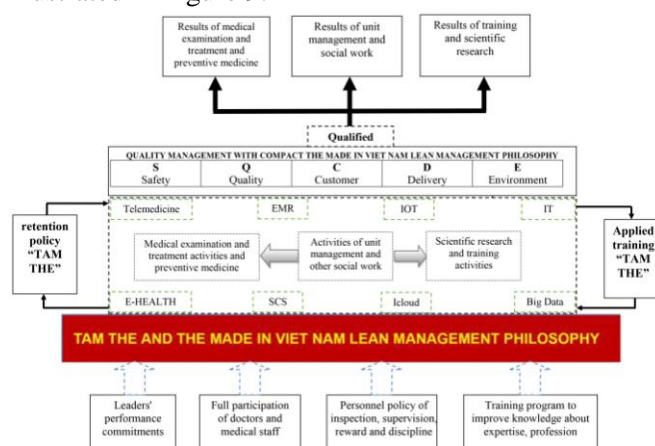


Figure 9. Hospital governance activities in the new model

New hospital governance activities based on Made in Vietnam lean management philosophy using support

from hospital leadership's commitment; HR policies, training programs, and the full participation of doctors and nurses in the hospital are the traction to keep the quality of medical examination and treatment services, training, scientific research, and social responsibility of the best and stable quality. With the “Tam the” pedestal and the use of applied peaches and the “Tam the” maintenance policy, all activities in the hospital are guaranteed by “Service quality management according to the lean thinking Made in Vietnam” referred to as “SQCDE” before delivery to the customer. Accordingly, SQCDE (Safety, Quality, Customer, Delivery, Environment) based on the Made in Vietnam lean management method and tool with the “Tam the” platform will improve the management and value platforms. Hospital culture treatment available, interpreted:

- *Safety* is the first criterion for all hospital governance activities because safety affects human life, so the condition is guaranteed. S is the set of standards {S1, S2, S3... Sn} in the operation of the whole hospital.

- *Quality*: As a set of criteria, all hospital governance activities should meet the standard set of criteria. All normal activities will bring the quality of operation of the whole hospital to a standard. Q is the set of criteria {Q1, Q2, Q3... Qn} in the process of the entire hospital.

- *Customer*: Under the “Tam the” lens of Made in Vietnam lean management, “C” is understood as the customer (patient) and not cost like many other quality models for life, safety, and satisfaction, the patient's heart is first, and the patient is always the center of all activities in the hospital. C is the set of criteria {C1, C2, C3... Cn} in the operation of the whole hospital.

- *Delivery*: The time to provide products to the patient will be optimized so that each stage and stage will have the least amount of delay and waste, and in the hospital, time is still meaningful to the patient's life. D is the set of criteria {D1, D2, D3... Dn} in the operation of the whole hospital.

- *Environment*: A safe and secure environment also needs special attention to ensure safe and effective medical services. E is the set of criteria {E1, E2, E3... En} in the operation of the whole hospital.

The new hospital management model based on the Made in Vietnam lean management philosophy will ensure that all operations are created according to $Y = \text{Tam the } X (A1; A2; A3; A4)$, where:

- A1 is the commitment to the support of hospital leaders;
- A2 is the driving force for the full participation of doctors and nurses in the hospital;
- A3 is the personnel policy, inspection, supervision, reward, and discipline in the hospital;
- A4 is a training program fostering knowledge for all doctors and nurses in the hospital.

Suppose the highest efficiency is considered $Y = 1$.

In that case, it is necessary to “Tam the” of all personnel in the hospital to ensure the highest (1), then multiply by the components (A1 -> A4) in the new system to get the result tallest. If “Tam the” and one of the components (A1->A4) is equal to 50% of the standard, then through the above relation, the efficiency is only 25%, so applying, maintaining, and ensuring “Tam the” is also essential equally essential to ensure the SQCDE standard.

4.5.2. Model Verification Results

The proposed model was discussed and verified again with medical experts and practitioners (members of the Board of Management of the Public Hospital; the Board of Directors of the public hospital, and deputy heads of specialized departments in the field of medicine) Hospital). The test results are listed in the Table 4.

Table 4. Practical verification of the new “Leaned hospital administration made in Vietnam” model

Medical professionals, administrators	n	Comments on the model
Member of the Management Board of a public hospital	8	- The professional position is worthy compared to the manager position when making hospital management decisions - Medical examination and treatment process quality standards are built, measured and monitored to ensure standards will limit incidents - Ensure the rights, roles and responsibilities of relevant parties in the process of governance and decision-making
Member of the Board of Directors of a public hospital	8	- Activities of medical examination and treatment, preventive medicine, training and scientific research are flexible, easy to adapt to changes and can be fully autonomous - The hospital operates safely against epidemics, ensuring the goal of both fighting the epidemic and providing medical examination and treatment to meet social needs - Developing a hospital culture, motivating creativity and innovation, and creating a sustainable brand independent of individuals - People (medical doctors) are the center of medical equipment, technology, science, and technology that will enhance operational efficiency and service quality to meet the requirements and changes of society - Doctors and nurses feel secure with their work and life for a long-term commitment

4.5.3. Pilot Application of the Model “Lean Hospital Management Made in Vietnam”

The new model of “Leaned hospital administration Made in Vietnam” has been deployed and applied at Hospital A (central line) in Hanoi city according to the following process:

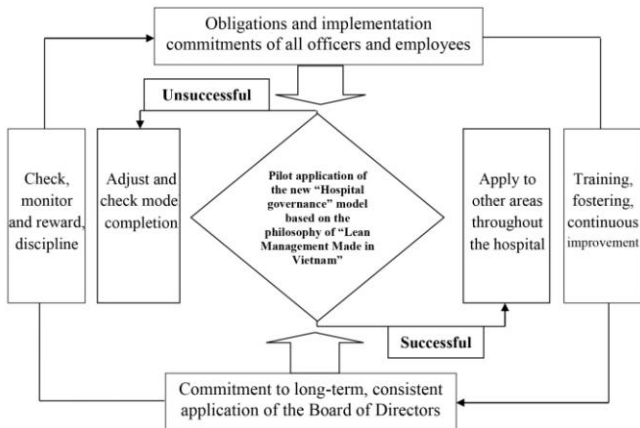


Figure 10. The process of applying the model “Leaned hospital management made in Vietnam”

After six months of pilot application at the emergency department of Hospital A, it has brought about remarkable results, and the measurement results are shown in the Table 5.

Table 5. The effective pilot application of the model "Lean hospital administration made in Vietnam" at a hospital

Criteria	Before applying	After applying	Improvement
Time from emergency to clinical transfer	118,3 minutes	69,8 minutes	41%
Operating time for emergency patients	134,4 minutes	87,6 minutes	35%
Time to the hospital until cerebral vascular intervention	55,2 minutes	48 minutes	14%
The total time the patient was in the emergency department	112 minutes	65 minutes	42%
Satisfaction rate when going to the emergency department patients	45%	76%	31%

Based on the pilot results of applying the “Made in Vietnam Lean Hospital Administration” model after 6 months of application, Hospital A has summarized and submitted to the governing body and the Ministry of Health for permission to apply to departments and other rooms of the whole hospital.

Due to the pilot application in a particular ward, the emergency department, the most recognizable effect is the reduction of waiting time (emergency, waiting, cerebral vascular intervention, clinical transfer), while the other effects on scientific research, training, unit management, social work, preventive medicine etc. have not yet measured or known the effectiveness of the new model. Therefore, to further confirm the effectiveness of the “Made in Vietnam Lean Hospital Administration” model on the remaining aspects of hospital administration, it will be necessary to apply it to other departments and wards of the hospital. Institute shortly to further evaluate the effectiveness of the model for the remaining contents.

4.5.4. Conditions for Successful Application of the “Made in Vietnam Lean Hospital Administration” Model

Based on summarizing the process of applying the pilot into practice, the research team proposes as well as conducts in-depth interviews to draw out the conditions for successfully using the new model as follows.

Leaders at all levels in the health system need to clearly define the philosophy of healthcare development with the spirit of national pride (Made in Vietnam) throughout, and at the same time make a firm commitment and determination to implement it in the long term until the end does not change according to term thinking.

Hospital leaders are committed to supporting doctors and medical staff to be autonomous in medical examination and treatment activities, creative in research and innovation through the full support policy for doctors and staff healthcare does its job. Hospital leaders support through training and policy development (HR policy, post-monitoring supervision), not replacing the work of subordinates.

With the support of hospital leaders and doctors and nurses' central position, medical staff needs to be seriously involved and responsible for always being proactive and creative in cutting waste costs and improving operational efficiency in health care services quality. Take responsibility for yourself and be accountable for the assigned tasks.

Both medical leaders and medical staff are committed to continuous improvement flexibility in their work, always ensuring the conditions to maintain “Tam the” to improve efficiency, quality, safety, and effectiveness, resulting in meeting requirements and adapting to new social changes.

5. Conclusion

The Made in Vietnam lean management philosophy has proven effective in businesses (manufacturing, services) and organizations in Vietnam. The research has created a new model of “Leaned hospital administration Made in Vietnam” and proven practical results; the new model will eliminate irrationalities in hospital management today. The study has pointed out the components of the model, the implementation process, and the necessary conditions to implement the model into practice in the Vietnamese health sector.

After 6 months of pilot application in the emergency department of a public hospital, the model of "Leaned hospital administration Made in Vietnam" has brought about remarkable results such as a 41% reduction in emergency time to hospital transfer. In clinical practice, 42% of the total time of patients in the emergency room and 35% of the time of surgery for emergency patients. Based on the pilot results, we applied the following model of "Lean hospital management Made in

Vietnam" After 6 months of application, Hospital A was summarized and submitted to the governing body and the Ministry of Health for permission to apply to other departments and rooms of the whole hospital in the next 01 year. After 1 year, it will summarize and report to the Ministry of Health for consideration and use as a model for administration in public hospitals to switch to a comprehensive autonomy and self-responsibility mechanism.

Acknowledgment

Based on The Made in Vietnam lean management philosophy suitable to the culture, social, economic and human characteristics of Vietnam in particular and developing countries in general has been added to the model. Hospital governance is currently applied in Vietnam and the pilot is recommended by WHO as the "mood" factor as the pedestal, the lean thinking "Made in Vietnam" is the driving force along with the commitment of all parties. Hospitalization and training policy and maintenance are conditions for changing hospital governance models in developing countries like Vietnam to successfully help improve operational efficiency, quality of medical services, and safety.

Research direction, theoretical basis "The Made in Vietnam lean management" and the results of this study will be the first step for future studies to expand in other developing countries as well as other developing countries. developing countries to search by application conditions, a more complete element than the model so that developing and undeveloped countries can refer to and apply in addition to the hospital governance model in developed countries currently recommended by WHO.

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