การรับรู้วัฒนธรรมความปลอดภัยของบุคลากรโรงพยาบาลหางดง จังหวัดเชียงใหม่: การวิจัยเชิงคุณภาพ
Perceptions on Safety Culture among Hang Dong Hospital Personnel, Chiang Mai Province: A Qualitative Study

นิพนธ์ต้นฉบับ

ฐิติมา น้อยวินิจ มาแก้ว[1], ศิริตรี สุทธจิตต์[2] และ พักตร์วิภา สุวรรณพรหม[2]*

[1] กลุ่มงานเภสัชกรรม โรงพยาบาลหางดง อ.หางดง จ.เชียงใหม่ 50230
[2] ภาควิชาบริบาลเภสัชกรรม คณะเภสัชศาสตร์ มหาวิทยาลัยเชียงใหม่ อ.เมือง จ.เชียงใหม่ 50200

* **Corresponding author:** puckwipa.suwan@elearning.cmu.ac.th

Original Article

Thitima Noiwinit Makaew[1], Siritree Suttajit[2] and Puckwipa Suwannaprom[2]*

[1] Department of Pharmacy, Hangdong Hospital, Hangdong, Chiang Mai, 50230, Thailand
[2] Department of Pharmaceutical Care, Faculty of Pharmacy, Chiang Mai University, Muang, Chiang Mai, 50200, Thailand

* **Corresponding author:** puckwipa.suwan@elearning.cmu.ac.th

บทคัดย่อ

วัตถุประสงค์ : เพื่อศึกษาการให้ความหมายและลักษณะของวัฒนธรรมความปลอดภัยในมุมมองของบุคลากร และปัจจัยที่มีผลต่อการพัฒนาให้เกิดวัฒนธรรมความปลอดภัยในโรงพยาบาล **วิธีการศึกษา :** งานวิจัยเชิงคุณภาพโดยการสัมภาษณ์เชิงลึก เลือกกลุ่มตัวอย่างแบบเจาะจงจากบุคลากรของโรงพยาบาลหางดง จ.เชียงใหม่ ตามระดับการปฏิบัติงาน จำนวน 36 ราย รวบรวมข้อมูลโดยแนวคำถามกึ่งโครงสร้างและคำถามปลายเปิดเพื่อเก็บข้อมูลระหว่างมีนาคมถึงมิถุนายน 2562 และวิเคราะห์ข้อมูลเชิงเนื้อหา **ผลการศึกษา :** บุคลากรของโรงพยาบาลหางดงรับรู้วัฒนธรรมความปลอดภัยผ่าน 7 คุณลักษณะ คือ 1) มีเป้าหมายร่วมกันในเรื่องความปลอดภัย 2) มีการปฏิบัติงานตามแบบแผนการปฏิบัติเพื่อให้เกิดคุณภาพและความปลอดภัย 3) มีฐานคิดและพฤติกรรมการทำงานด้วยความปลอดภัยจนเป็นนิสัย 4) มีการเฝ้าระวัง ป้องกันเหตุการณ์ความไม่ปลอดภัยไม่ให้เกิดขึ้น 5) ทำงานเป็นทีมเพื่อให้เกิดความปลอดภัย 6) ยอมรับข้อผิดพลาดและป้องกันไม่ให้เกิดความผิดพลาดซ้ำ 7) มีการถ่ายทอดประสบการณ์ในการจัดการความปลอดภัย ปัจจัยสนับสนุนการพัฒนาให้เกิดวัฒนธรรมความปลอดภัยประกอบด้วยปัจจัยด้านผู้นำ ด้านการจัดการองค์กร และปัจจัยส่วนบุคคล โดยทั้ง 3 ปัจจัยสนับสนุนให้เกิดพฤติกรรมการทำงานที่ปลอดภัยของบุคลากรของโรงพยาบาลหางดง **สรุป :** องค์กรมีทั้ง 7 คุณลักษณะของวัฒนธรรมความปลอดภัยได้โดยการบูรณาการส่วนผสมของปัจจัยทั้ง 3 คือผู้นำ การจัดการองค์กร และปัจจัยส่วนบุคคล เข้าด้วยกัน ซึ่งจะส่งผลต่อค่านิยมในแต่ละองค์กร จนเกิดเป็นพฤติกรรมการทำงานที่ปลอดภัยของบุคลากร นำไปสู่องค์กรแห่ง "วัฒนธรรมความปลอดภัย"

คำสำคัญ : วัฒนธรรมความปลอดภัย, ความปลอดภัยของผู้ป่วย, ประกันคุณภาพโรงพยาบาล

Abstract

Objectives: To explore the meaning and nature of safety culture perceived by hospital personnel, and to search for factors affecting the development of safety culture at Hang Dong Hospital, Chiang Mai Province. **Method:** This study was a qualitative research by in-depth interview. Sample was 36 workers of Hang Dong Hospital selected by purposive sampling, according to their management level. We used semi-structured and open-ended questions to collect data from March to June 2019, and analyzed the data by content analysis. **Results:** Hospital personnel recognized safety culture through 7 characteristics; 1) sharing a common goal for safety, 2) working in accordance with the action plans for quality and safety, 3) having basic mindsets and behaviors for working with safety, 4) employing surveillance systems for preventing unsafe incidents, 5) working as a team for safety environment, 6) accepting an error and preventing repeated errors, and 7) having process for knowledge transferring in safety management. Factors contributing to the development of a safety culture included leadership, organizational management, and personal factors. These three set of factors supported the development of safe behavior among personnel at Hang Dong Hospital. **Conclusion:** An organization develops the seven characteristics of a safety culture by integrating leadership, organizational management, and personal factors together. This combination affects personal value, which will form a safe working behavior, resulting in the organization of "safety culture."

Keywords: safety culture, patient safety, hospital quality assurance

Journal website: http://ejournals.swu.ac.th/index.php/pharm/index

Introduction

Preventing harms from using medical services is a global policy. The World Health Organization (WHO) reported that adverse events occurred at 10% of patients using services at the hospitals. Among these, 4 - 17% happened while patients were hospitalized and 5 - 21% resulted in deaths. However, there were evidences that half of these events were preventable.[1] Several factors contribute to medical adverse events. One crucial factor is unsafe medical practices at all points of service, for instance at operation, medication use, blood transfusion, and others.

There are many ways to deal with these unpleasant events, either to use legal process for medical victims' compensation or to promote patient safety culture among healthcare personnel.[2] The approach supported by the WHO is to promote patient safety by encouraging and supporting personnel to work with safety until it is being a part of deep-rooted corporate culture.[3]

The current health services system development has focused on total quality management, risk management, as well as safety management for both patients and service providers. In Thailand, with the policy of Patient Safety and Personnel Safety (2P Safety), the Healthcare Accreditation Institute (Public Organization) set safety criteria as priority for certifying or accrediting a hospital. The hospital safety management system suggests that the organization should focus on changing the way people think about errors, as they should identify root cause of the problem embedded in a bigger system of the organization, then develop their own practice guideline for preventing the event.[4,5]

Stratergies to improve an organization expand gradually from individual to system focused, as seen in safety culture policy. The safety culture of an organization is defined as "the product of individual's and group's values, attitudes, perceptions, competencies, and patterns of behavior that determine commitment to, and proficiency of, an organization's health and safety management."[6] Organizations with a positive safety culture show communications founded on mutual trust, shared perceptions of importance of safety, and confidence in efficacy of preventive measures. Components of safety culture suggested by the Canadian Patient Safety Institute and the Association of periOperative Registered Nurses (AORN) include informed culture, reporting culture, just culture, flexible culture, learning culture[7] and wary culture.[8]

Hang Dong Hospital is a 60-bed community hospital under the Ministry of Public Health. It provides secondary healthcare services (F1 category) for people in Hang Dong district, Chiang Mai province. The hospital has undergone continuous quality development programs under the guidance of the Hospital Accreditation Institute by encouraging and supervising personnel to have quality working behaviors and emphasizing on safety at every step of the services. To improve the quality of services, hospital safety is the highest goal. Its strategy for safety organizational management focuses on harm prevention for both service personnel and patients, resulting in increasing confidence and trust in receiving services at the hospital.

To develop a sustainable culture of safety in an organization, it needs a cooperation of all personnel at all levels. They must be aware of safety, learning about action plans, and demonstrating the attitudes related to safety.[9,10] They should learn to manage adverse events and be able to transfer their know-how to other personnel in the organization.

In general, there are standardized tools to assess an organization's safety culture, for instance, the Patient Safety Climate in Healthcare Organization (PSCHO) Survey, the Safety Attitude Questionnaire (SAQ), and the AHRQ Hospital Survey on Patient Safety Culture.[11] These quantitative tools provide an evaluation of organization's safety culture and contributing factors on evaluator's perspectives. However, an equivalent and valuable piece of information for continuous development should come from insider's point of view. Using open-ended questions of qualitative research to explore the perceptions and norms on practicing daily services would provide rich evidence for supporting sustainable safety culture for the organization.

This study aimed to explore hospital personnel's perceptions of safety, and factors affecting development of safety culture in Hang Dong Hospital, Chiang Mai Province. The findings would provide valuable information for enhancing safety culture, which would lead to quality services. Additionally, the hospital administrators in general could apply these evidences as guidance for understanding personnel's work behaviors, and for developing strategies for promoting a safety culture in their organization.

Methods

This study was a qualitative research using a case study approach to develop an in-depth understanding of an issue of safety culture from informants representing personnel from diverse departments and management levels at the study site, Hang Dong Hospital, Chiang Mai Province, Thailand. To collect data, a question frame was used for semi-structured in-depth interviews. The research protocol has been approved by the Institutional Review Board of the Faculty of Pharmacy, Chiang Mai University on March 5, 2019 (IRB Approval No. 11/2562).

Study informants were selected from a pool of Hang Dong Hospital's personnel. Selection criteria included 1) having at least one-year work experience at the study period, 2) being representatives of top management level, middle management level, and operational level, and 3) being either confirming or disconfirming with the safety practice. Out of 224 workers, an initial set of potential informants was selected by the head of the hospital's quality development

center to ensure that the informants were representatives of each management level, and of groups in both confirming and disconfirming the safety practice.[12] Snow-balling technique was used to get additional informants. From top management level, 6 out of 12 persons were selected. From middle management level, 10 out of 25 persons were recruited. For operational staff, 20 individuals from 10 departments, 2 persons from each department, were selected. The main researcher (T. Noiwinit Makaew) collected and analyzed data from each of the key informant until its saturation was reached at 36th informant.

Research instruments

Instruments for this qualitative study included an interview guide, field note, and voice recorder. The interview guide consisted of a list of semi-structured and open-ended questions developed from literature review and validated by three experts in the field of qualitative research, hospital management, and hospital accreditation. To ensure that the main researcher gained expertise in collecting data, she practiced with the research team, and conducted a series of mock interview with 2 - 3 staff members in the pharmacy department and quality development department of Hang Dong Hospital.

The interview guide consisted of 2 parts. Part 1 questions explored the informant's definition of safety and safety culture, responsibilities, experience with an unsafe event, and practice regarding safety culture in his/ her department. The questions were developed from literature review on safety culture.[7,8] Examples of key questions were: In your own words, how would you explain safety culture for a new staff member or a visitor of the hospital?, What is your major responsibility and how it's related to safety of the hospital?, and Please give an example of unsafe event that you have experienced. What happened? What did you do encountering with the situation? What have you learned? In part 2, questions were developed to explore organizational factors helping develop a culture of safety.[11] Examples of questions were: What is the main mission of your department? What do you think about safety and safety culture in your department and in this hospital? What are the main factors for achieving safety culture in your department and in this hospital? For each question, why and how questions were asked for additional explanations.

Data collection procedure

Data collection took place at Hang Dong Hospital from March to June 2019, after the protocol was approved from the Institutional Review Board and the hospital executive committee. Each potential informant was informed about the research project according to the approved participant information sheet, and only those willing to participate were asked to sign an informed consent and asked for an interview. An interview took approximately 30 - 40 minutes with additional 10 minutes for the researcher to summarize main points of discussion for verification to the informant. Three days after the interview, the researcher took interview summation gained from voice recorder and field note to ask for another round of verification. The interviews stopped when data were saturated.

Data analysis

Data analysis was conducted after all data were transcribed verbatim. Using content analysis, the researchers read through all materials and extracted for themes and sub-themes. By comparing, contrasting, and making connections, the researchers discussed together until achieving consensus to develop study's conclusion.

Results

Findings were gathered from interviewing scripts of 36 hospital personnel. Among these informants, six were in top management positions, ten were in middle management positions, and 20 of them were practitioners. Most of the informants are government officials. Majority was female, aged 38 - 52 years with Bachelor's degree of education. They had more than 25 years of working experience and 10 - 20 years working with Hang Dong Hospital.

Perceptions of safety culture

The study findings revealed that among hospital personnel, they recognized safety culture through seven characteristics; 1) sharing a common goal for safety, 2) working in accordance with the action plans for quality and safety, 3) having basic mindsets and behaviors for working with safety, 4) employing surveillance systems for preventing unsafe incidents, 5) working as a team for safety environment, 6) accepting an error and preventing repeated errors, and 7) having process for knowledge transferring in safety management. These conclusions were obtained from

personnel practicing in all three operation levels. Each characteristics was elaborated as follows.

1) Sharing a common goal for safety

The main finding gained from the informants on their definition of safety culture was that everyone in the organization shared a common goal for work safety, for both patients and working personnel. With the same goal, they could agree on developing alliance safety practice guidelines that workers could follow easily.

"Within a safety culture, every staff member has to do everything to achieve the same goal, which is safety, the number one goal for themselves and for others." – Manager, 58 years old

2) Working in accordance with the action plans for quality and safety

The informants of all three levels agreed that an institute with a safety culture was an organization in which everyone worked together in accordance and strictly followed the designed work procedure for the quality and safety of services.

"It is measured by human behaviors in workplaces that follows work guidelines that are created to achieve safe work and reduce risks." – Manager, 48 years old

"Everyone must follow practice guidelines, which was developed from brainstorming, from everyone. We work together to develop it and we must follow." – Practitioner, 28 years old

3) Having basic mindsets and behaviors for working with safety

Respondents explained that in an organization with safety culture, its members worked together like a society. They worked, lived, and practiced their routines with safety mindset. With the safety mindset, the members adopted and practiced with safety behaviors.

"It is by default that all officials must work with the concern about safety as number one priority." – Manager, 58 years old

"Safety must be embedded in our trait. Also, we must take responsibility for our own actions too, in order not to cause damage to other people." – Practitioner, 50 years old

4) Employing surveillance systems for preventing unsafe incidents

The respondents highlighted a method of reviewing work processes, to monitor and identify any working steps that

may be at risk of being unsafe, then develop a prevention protocol for risk management and risk prevention.

"Everyone is aware of it and not being quiet about safety. We must be on guard to prevent any harms on patients and ourselves. We must identify a risk and be careful not to cause it. Precaution is the best." – Practitioner, 42 years old

5) Working as a team for safety environment

The study findings revealed that under safety culture, all personnel did not only perform their responsibilities with caution, but also work as a team to provide services under working protocols created together. Working protocols were developed from everyone who are involving the practice. They worked together as a team in sharing experience and planning on event prevention together. To work as a team included practicing effective communication, providing constructive feedbacks, and developing working systems to achieve safety, collaboratively.

"Team must be ready to help solve the problem. In working together, we have to talk about anything, to admit when doing something wrong, to stick to the rules that we developed together. We have to follow the rules, otherwise we all are at risk. If we hold on to something, and we fail, we then review and revise to make our care safe." – Manager, 55 years old

6) Accepting an error and preventing repeated errors

Respondents mentioned that learning from errors was essential. In learning process, organization members who experienced a harmful event, disclosed, and accepted the mistake of oneself and others. They would have an open discussion where the experience was shared, and the prevention process would be developed accordingly.

"We must accept our error because an error report would let everyone know and the system needs to be justified. Just admit the mistake. If the mistake keeps repeating, we could learn what is the root problem. – If a person always picks a wrong medicine, what's the problem? Not knowing the drug, not being aware, having poor eyesight, or look-alike packaging. We can set up a better system to prevent the error." – Practitioner, 34 years old

7) Having process for knowledge transferring in safety management

From the findings, informants explained that under safety culture, the organization had shared knowledge and experience on safety management to other members. They

shared experiences in harmful events and preventable events to others. These processes helped transfer their know-how to younger generations and new staff.

"There are teams to teach how to work safely, including to teach on correct work procedures. The mentoring system is very good. I use coaching system to teach new staff members. We teach the younger staff members on good systems so that they can work well in their responsibilities, and importantly working safety as well." – Practitioner, 52 years old

Factors contributing to the development of a safety culture

From the study findings, the informants mentioned contributing factors to achieve organization's safety cultures. From their perspectives, these factors could be grouped into 3 categories including leadership, organization management, and personal factors.

Organization leadership

Characteristics of organization's leaders in every level affected safety culture development. Leaders with these characteristics were mentioned including those who set example for working safely, those not blaming when a practitioner made mistakes, those listening to practitioners' suggestions, and decisively using power when appropriate.

"It's important that leaders have to be serious and expect for good results." – Manager, 51 years old

"If a boss did wrong, he or she must dare to admit it and not be afraid to lose face. This is how my boss is. It makes me dare to report my errors. I respect her for bowing for apology when she did something wrong." – Practitioner, 35 years old

Additionally, leader's characteristics for safety culture were having vision for development, being a change agent, having good communication and collaboration skills, and being supportive for system change.

"A leader with leadership is very important. That person should be a change agent, a decision maker, and a problem solver." – Practitioner, 33 years old

"Having daily conversation with understanding. This makes the staffs want to ask for consultation, confess when errors occurred, and participate in safety practice standards." – Practitioner, 28 years old

Organization management

Good governance and organization management plays significant role in developing safety behaviors among staff.

These factors included having clear policy on safety organization, team building activities for safety culture, balancing manpower workload, supporting budgets and resources, and positive relationships within the organization. A clear policy on safety organization was a firm foundation for setting practice standards and monitoring criteria that everyone in the organization to abide by.

"The executive committee must have a clear policy that can be communicated to practitioners. Also, there should be a support system to help each unit in reviewing and revising their practice, continuously." – Manager, 56 years old

Team building activities for safety development helped engage people to share and exchange their experience on safety activities across departments. Working in team whose members sharing the same goal resulted in better patient's outcomes, effective work, and safety environment.

"Our staff always work on innovations for quality service improvement. With service review, it helps us to see what is an encountering problem that put our customers at risk. Then, we work together to design a way to solve that problem." - Manager, 48 years old

Workforce management for staff and workload allocation could prevent error and improve staff's quality of life. Similarly, supporting staff with sufficient and suitable equipment and tools would result in safety at work.

"Nobody wants to make mistakes. However, under constraint situations, such as heavy workload, errors might occur. Thus, staff allocation system and queuing system would help preventing errors." – Manager, 48 years old

Personal factors

Persons who were at risk of unsafe practices were those with less professional experience, younger age, and less concerns about safety practice. These personal characteristics played an important role for organization management to move towards a safety culture.

"Newly graduate staff are inexperienced. There was a complaint notice for my ward on the other day, a new staff could not insert a needle to draw blood from a child patient, until a senior staff came to help. She just did it successfully at once." – Practitioner, 35 years old

"Some people have high ego. They rarely want anyone to direct and monitor. They think that they are experienced enough. Some people feel that wearing gloves reduce their

agility. These people are ones with high risk of errors." –
Manager, 55 years old

Discussions and Conclusion

People give meaning of each issue differently due to perception and experience on that issue.[13,14] Therefore, by asking hospital personnel at Hang Dong Hospital to give a definition and explanation of safety culture, their answers were slightly diverse with some major similarities. The seven main characteristics of safety culture concluded from this study were 1) sharing a common goal for safety, 2) working in accordance with the action plans for quality and safety, 3) having basic mindsets and behaviors for working with safety, 4) employing surveillance systems for preventing unsafe incidents, 5) working as a team for safety environment, 6) accepting an error and preventing repeated errors, and 7) having process for knowledge transferring in safety management (Figure 1).
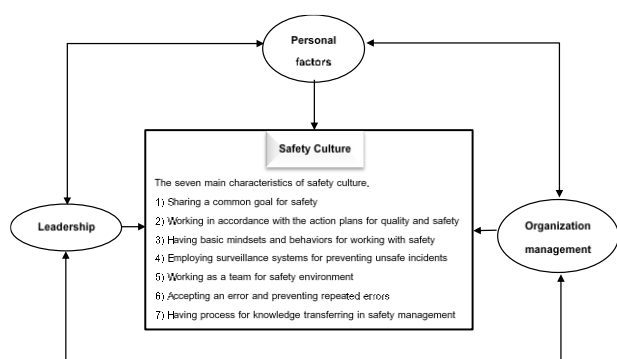

Figure 1 Components for safety culture obtained from the study's key findings.

Asking open-ended questions with hospital members, their answers reflected their understanding and beliefs in behaviors and practices regarding safety workplace. Their answers were in concordant with many of components of safety culture suggested by the Canadian Patient Safety Institute.[7,15] These concordant components were informed culture, reporting culture, learning culture and wary culture. However, the components of flexible culture or a culture in which an organization is able to reconfigure themselves after encountering a certain kind of challenge, and just culture or a culture of 'no blame' where any mistakes are perceived as a product of system failure, rather than solely by persons' errors, were seldom mentioned by the hospital members.[7,15] Therefore, the hospital's lead team at Hang Dong Hospital

should pay attentions on these two components for further improvement in strengthening the hospital's safety culture. These components are good foundations for building better quality services for both patients and providers.

Findings on influencing factors on development of organization's safety culture showed that safety culture did not arise naturally from individuals' values, beliefs, or behaviors. Safety culture could be grown within an organization with well-designed structures and activities by good organization management and supporting leaders at any levels, resulting in optimal working environments. These findings affirm the social cognitive theory stating that individual's decision of behavior is related to personal standards and environmental circumstances.[16] With supporting environmental contexts, an organizational culture could develop.

As mentioned by the hospital personnel, leadership and organization management were important factors to develop safety culture. To have persons at administration position with leadership characteristics and to design organization structures for cultivating safety culture, it needs concepts of functions of management (planning, organizing, leading, and controlling) and total quality management (customer-focused, employee-involvement, process-entered, integrated system, systematic approach, continual improvement, evidence-based decision, and communication).[17-19]

This study set an example of using a qualitative research method to explore perspectives of safety culture by insiders' point of view. This study had few limitations. First, it was conducted only at Hang Dong Hospital, Chiang Mai. Findings might not be applicable to other sites. Another limitation was due to the use of a single format of data collection. In addition to interviews, additional sources, such as observations and documentations to enrich and validate the data would give richer findings and stronger conclusions. Although it contains these weaknesses, this study highlights a usefulness of applying qualitative research method to gain a deep understanding of an event or situation. Together with a quantitative method, it serves as a magnifier to reflect well-established components and gaps for improvement. Implementing this approach of data collection in other settings could provide a valuable evidence for improving safety culture for hospitals in Thailand.

Implications drawn from this study were as follows. To promote safety culture, hospital management team must

establish a clear policy to set a solid goal for every member of the organization and to develop practical strategies for hospital safety culture. Organization management plays a significant role in developing desirable culture. Organizational management for total quality management that needs customer-centered, employee-involvement, process-entered, systematic approach, continual improvement, evidence-based decision, and communication would help cultuvate informed, reporting, just, flexible, learning and wary culture, which are the cornerstones of the safety culture organization. Leadership of management teams in all levels is essential in setting clear policies and practical guilines, as well as setting exaples for their subordinates. Developing safety culture is a long-term process, which needs commitments of everyone within the organization. However, it results in trust and learning working environment that would benefit both patients and customers in the long run.

Acknowledgement

References

1. World Health Organization. Reporting and learning systems for medication errors: the role of pharmacovigilance centres. 2014. (Accessed on Dec. 2, 2017, at http://www.who.int/medicines/areas/quality_ safety/safety_efficacy/emp_ mes/en/)

2. Sri-ngernyuang L, Jongudomsuk P. Foreign experience: compensation system for damage from health services. Bangkok. Health Systems Research Institute (HSRI), 2010: pp.16-29. (in Thai)

3. World Health Organization. Regional strategy for patient safety in the WHO South-East Asia Region (2016–2025). 2014. (Accessed on Dec. 2, 2017, at http://apps.who.int/ iris/bitstream/10665/205839/1/B5215.pdf?ua=1)

4. Supachutikul A. HA update 2016: enjoy quality every moment. Bangkok. The Healthcare Accreditation Institute (Public Organization), 2016: pp. 41-59. (in Thai)

5. The Healthcare Accreditation Institute (Public Organization). Hospital and healthcare standards. 4th ed. Bangkok. The Healthcare Accreditation Institute (Public Organization), 2018: pp.52-64. (in Thai)

6. Rockville W, Sorra J, Gray L. AHRQ hospital survey on patient safety culture user's guide. 2016. (Accessed on Sep. 6, 2017, at https://www. ahrq. gov/ professionals/ quality- patient- safety/ patientsafetyculture/ hospital/index. html)

7. Canadian Patient Safety Institute. Patient safety culture. 2017. (Accessed on May 9, 2018, at http://www.patientsafety institute.ca/en/toolsResources/ PatientSafetyIncidentManagementToolkit/ PatientSafetyManagement/Pages/Patient-Safety-Culture.aspx)

8. Association of Perioperative Registered Nurses (AORN). AORN guidance statement: creating a patient safety culture. *AORN J* 2006; 83(4):289-294.

9. Persson KD. IAEA safety standards on management systems and safety culture. 2000. (Accessed on Jan. 28, 2020, at http://aij.batan.go.id/index.php/aij/article/view/104)

10. Sngounsiritham U. Management for creating safety culture in nursing service. *Nurs J* 2011;38:168-177. (in Thai)

11. Cooper D. Improving safety culture: a practical guide. 2001. (Accessed on Oct. 11, 2017, at http://www.behavioral-safety.com/articles/Improving_safety_culture_a_practical_guide.pdf)

12. Sutheewasinnon P, Pasunon P. Sampling strategies for qualitative research. *Parichart J* 2016;29(2):31-48. (in Thai)

13. Speaks J. Theories of meaning. 2019. (Accessed on Apr. 30, 2020, at https://plato.stanford.edu/archives/win2019/entries/meaning/)

14. Chamnanhong K. Social construction of "holistic health" by a community in Chiang Mai province. M.A. (Social Development) thesis. Chiang Mai. Chiang Mai University, 2000. (in Thai)

15. Reason J. Human error: Models and management. 2008. (Accessed on Jan. 20, 2019, at http://www.safetymed.com.br/arquivo/errohumano_reason_bmj2000.pdf)

16. Bandura A. Social cognitive theory of self-regulation. 1991. (Accessed on Jan. 20, 2019, at http://www.uky.edu/~eushe2/ BanduraPubs/Bandura1991OBHDP.pdf)

17. Louis AA. Management and organization. 1954. (Accessed on Jun. 20, 2020, at https://babel.hathitrust.org/cgi/pt?id=mdp.39015002881467&view=1up&seq=10)

18. American Society for Quality. What is total quality management (TQM)? 2019. (Accessed on Jan. 20, 2019, at https://asq.org/quality-resources/total-quality-management)

19. Ratchagit T. Management concept. 2019. (Accessed on Jan. 20, 2019, at https://th.hrnote.asia/ orgdevelopment/ 190419- management-concept/) (in Thai)