The Development and Validation of Evidence-based Handoff for Thai Operating Theatre Nurses

Ratjai Vachprasit

A Thesis Submitted in Fulfilment of the Requirements for the Degree of

Doctor of Philosophy in Nursing (International Program)

Prince of Songkla University

2012

Thesis Title	The Development and Validation of Evidence-based Handoff for Thai Operating Theatre Nurses
Author	Ms Ratjai Vachprasit
Major Program	Nursing (International Program)

Major Advisor:	**Examining Committee:**
……..	……...……...……...Chairperson
(Assist. Prof. Dr. Wongchan Petpichetchian)	(Assoc. Prof. Dr. Aranya Chaowalit)
	……...……...……
Co-advisor:	(Asst. Prof. Dr. Wongchan Petpichetchian)
……..	……...
(Assoc. Prof. Dr. Praneed Songwathana)	(Assoc. Prof. Dr. Praneed Songwathana)
……..	……..
(Prof. Dr. Mary A. Blegen)	(Prof. Dr. Veerapol Chandeying)
	……...……...
	(Assoc. Prof. Dr. Sunuttra Taboonpong)

The Graduate School, Prince of Songkla University, has approved this thesis as fulfillment of the requirements for the Doctor of Philosophy Degree in Nursing (International Program)

……..……..

(Prof. Dr. Amornrat Phongdara)

Dean of Graduate School

Thesis Title	The Development and Validation of Evidence-based Handoff for Thai Operating Theatre Nurses
Author	Miss Ratjai Vachprasit
Major Program	Nursing (International Program)
Academic Year	2011

ABSTRACT

Purpose: To develop and validate the evidence-based handoff for Thai operating theatre (OT) nurses.

Method: The development and validation process of this study consisted of 4 steps: 1) literature review, 2) generation of the evidence-based handoff for Thai OT nurses Version I by using the results from the previous step, knowledge and experience of the researcher, and opinions from a focus group discussion of 5 senior OT nurses, 3) content validation of the developed evidence-based handoff for Thai OT nurses by a panel of 17 experts using a two-round Delphi technique, and 4) a large scale applicability validation study with 148 Thai OT nurses.

Results: The evidence-based handoff for Thai OT nurses consisted of two components: information and strategies required for OT handoffs. Initially, a total of 281 statements divided into 252 information and 29 strategy statements were constructed. The information statements, initially structured by using the SBAR mnemonic and subsequently by using the I-SBAR mnemonic, were used across 5 sets of OT handoffs throughout perioperative care. A two-round Delphi technique was conducted involving 17 and 15 experts, at each round which resulted in 90.06 % of

expert's agreement on the content validity of the evidence-based handoff for Thai OT nurses. The findings from the large scale applicability study with representative samples of Thai OT nurses was used to guide the final revision of the evidence-based handoff for Thai OT nurses Final Version, yielding 65 statements in total: 45 information and 20 strategy statements. It obtained agreement of 80.22 % of Thai OT nurses participating in the large scale applicability validation study.

Conclusion: The evidence-based handoff for OT nurses Final Version is considered valid and applicable for Thai OT nursing handoffs. However, its effectiveness is not yet assessed. Further studies for evaluating its effectiveness, further improvement, and implementation are therefore recommended.

Keywords: handoff, operating theatre, perioperative nursing

ชื่อวิทยานิพนธ์ การพัฒนาและการตรวจสอบคุณสมบัติของแนวทางการส่งต่อข้อมูลผู้ป่วย สำหรับพยาบาลห้องผ่าตัดในประเทศไทยที่มาจากหลักฐานเชิงประจักษ์

ผู้เขียน นางสาวรัดใจ เวชประสิทธิ์

สาขาวิชา การพยาบาล (นานาชาติ)

ปีการศึกษา 2554

บทคัดย่อ

วัตถุประสงค์: เพื่อพัฒนาและตรวจสอบคุณสมบัติแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทยที่มาจากหลักฐานเชิงประจักษ์

วิธีดำเนินการวิจัย: การพัฒนาและการตรวจสอบคุณสมบัติของแนวทางการส่งต่อข้อมูลผู้ป่วยฯ ประกอบด้วย 4 ขั้นตอน คือ 1) การทบทวนวรรณกรรม 2) การสร้างโครงร่างแนวทางการส่งต่อข้อมูลผู้ป่วยฉบับที่ 1 โดยอาศัยข้อมูลจากการทบทวนวรรณกรรม ความรู้และประสบการณ์ของผู้วิจัย และจากการสนทนากลุ่มกับพยาบาลห้องผ่าตัด 5 คน 3) การตรวจสอบความตรงของเนื้อหาของแนวทางการส่งต่อข้อมูลผู้ป่วย โดยผู้เชี่ยวชาญ จำนวน 17 คน ด้วยการใช้เทคนิคเดลฟาย (Delphi technique) 2 รอบ และ 4) การตรวจสอบความสามารถในการนำแนวทางการส่งต่อข้อมูลผู้ป่วยไปปฏิบัติจริง โดยพยาบาลห้องผ่าตัดทั่วประเทศไทย จำนวน 148 คน

ผลการวิจัย: แนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทยที่มาจากหลักฐานเชิงประจักษ์ ประกอบด้วย 2 ส่วน คือ 1) ข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วย และ 2) วิธีการที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วย แนวทางการส่งต่อข้อมูลผู้ป่วยฉบับร่าง ประกอบด้วย 281 ข้อความ แบ่งเป็นข้อความที่เป็นข้อมูลที่จำเป็น 252 ข้อความและข้อความที่เป็นวิธีการที่จำเป็น 29 ข้อความ ผู้วิจัยนำแนวคิด SBAR มาใช้ในการจัดโครงสร้างของข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วยในช่วงแรก และภายหลังได้เปลี่ยนไปใช้แบบ I-SBAR แทน ทั้ง 5 ชุดของการส่งต่อข้อมูลในระยะผ่าตัด ผลการตรวจสอบความตรงของเนื้อหาแสดงให้เห็นว่า แนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดฯ ได้รับการยอมรับว่ามีความตรงเชิงเนื้อหา โดยมีจำนวนความสอดคล้องระหว่างผู้เชี่ยวชาญ ร้อยละ 94.85 และเมื่อนำไปตรวจสอบความสามารถในการนำแนวทางการส่งต่อข้อมูลผู้ป่วยไปปฏิบัติจริงกับกลุ่มตัวอย่างตัวแทนพยาบาลห้องผ่าตัด ปรากฏว่าแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดฯ ฉบับสมบูรณ์ ประกอบด้วยข้อความ 65 ข้อความ เป็นข้อความที่เป็นข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วย 45 ข้อความและเป็นข้อความที่เป็นวิธีการที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วย 20 ข้อความ โดยเฉลี่ยกลุ่มตัวอย่างร้อยละ 80.22 ระบุว่าสามารถนำไปใช้ในการปฏิบัติได้จริง

สรุปผลการวิจัย: แนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทยที่มาจากหลักฐานเชิงประจักษ์ฉบับสมบูรณ์ มีความตรงเชิงเนื้อหาและสามารถนำไป

ปฏิบัติได้จริง อย่างไรก็ตาม ยังไม่ได้มีการศึกษาเพื่อประเมินถึงประสิทธิผลของแนวทางการส่งต่อข้อมูลผู้ป่วยนี้ ดังนั้น จึงควรมีการศึกษาเพิ่มเติมในเรื่องของประสิทธิผลภายหลังการนำแนวทางดังกล่าวไปปฏิบัติต่อไป

คำสำคัญ: การส่งต่อข้อมูลผู้ป่วย ห้องผ่าตัด การพยาบาลผ่าตัด

ACKNOWLEDGEMENTS

Completion of this dissertation is the most challenging in my life. It would be impossible to successfully accomplish this work without contributions from the following individuals.

Firstly, I would like to express my warmest gratitude and highest appreciation to my major advisor, Assistant Professor Dr. Wongchan Petpichetchian. She always lightens me up when I am in the middle of the tunnel so that I can find my way to walk through this academic pave way. Her constructive feedback and contribution to this work is invaluable. She has been my role model for twenty four years, since I was her advisee during my undergraduate study. There is nothing to represent my gratitude to her but I promise to dedicate myself to do the best things for patients under my care. My sincere thanks go to my co-advisor, Associate Professor Dr. Praneed Songwathana for her valuable guidance and encouragements. She has never said “no” whenever I needed help. To Professor Dr. Mary A. Blegen my third advisor, her thoughtful insight about my work is remarkable. She had mentored me and gave the best care during my overseas study at the Center for Patient Safety, University of California, San Francisco, School of Nursing, USA.

My special thanks also go to all experts and operating theatre nurses participating in this study. Without their valuable opinions and suggestions, it would be impossible to complete this study. Further, my deep appreciation and thankfulness is offered to the former and the present nurse directors, head nurses of the operating theatre, and colleagues at Songklanagarind Hospital, Prince of Songkla University,

who always provide help, support, and encouragement. Without their helping hands, I could not sometimes leave my duty to complete this dissertation.

I would also like to thank the academic staffs of the Faculty of Nursing and examining proposal and thesis defense committee, as well as the other examining committee for their valuable suggestions. My special gratitude is further given to the Graduate School, Prince of Songkla University, and the Thailand Nursing and Midwifery Council for research grant partially supported this study.

The last but not least, this work is dedicated for my family, particularly my mom who has inspired me until her end of life. Throughout this past couple of years when mom passed away, it is my dad who has taken care of me and has cheered me up whenever I have felt down so that I can stand up again and my two sisters who have always fed my favorite dishes and taken care of many other family tasks on my behalf. I am a lucky woman who has been raised in the family that gives highest priority to "education." It does help everyone to strongly provide supports without any conditions. There is no word to express my gratitude but "Mom and Dad, I'm so proud to be your daughter, also to be your sister, P' Roong, and Ruang."

Ratjai Vachprasit

CONTENTS

CONTENTS (Continued)

CONTENTS (Continued)

LIST OF TABLES

LIST OF TABLES (Continued)

LIST OF TABLES (Continued)

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

Background and Significance of the Problem

Communication is an important component of all healthcare services. Through communication, health caregivers can gather information that enables them to provide quality care for their patient. Particularly, delivering continuity and safe care in a 24-hour working period of healthcare personnel actually demands effective communication. This is because these qualities of care rely on current information about the patient that is passed between caregivers during patient care transitions (Sexton et al., 2004; Taylor, 2002). Although effective communication is vital in the healthcare environment, it has been found that communication failure is continuously evidenced associated with the lack of liaison between health caregivers (Lingard et al., 2004).

Communication failure has accounted for the majority of unanticipated adverse events of patients. According to the report of the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) in 2005, communication issues were often the contributing factor of sentinel events (over 60%) (as cited in Lingard et al., 2004). In addition, Christian et al. (2006) found that 86% of communication failure, information lost or degraded, had significant negative consequences for care progression. Greenberg et al. (2007) discovered that communication failure was a cause of approximately 23% of surgical malpractice claims that led to patient injury. They further found that communication failures were commonly verbal in nature with 43% of failures occurring in handoff

(Greenberg et al., 2007), the communication process of passing patient-specific information for the transition of patient care between caregivers (JCAHO, 2007). Moreover, Gandhi et al. (2006) found that handoff was one of contributing factors that led to the errors resulting in patient harm and death.

As stated by the JCAHO, handoff refers to a real-time communication process of passing patient specific information from one caregiver to another, or from one team of caregivers to another, for the primary purpose of ensuring the continuity and safety of patient care when patient care is transferred (JCAHO, 2007). In a 24-hour working context, handoff is designed to allow healthcare personnel to change or transfer the duty between team members with minimum disruption to the work as well as the continuity of patient care (Bomba & Prakash, 2005). By performing handoff for patient care transition, incoming caregivers will easily familiarize themselves with patients they will be responsible for (Arora, Johnson, Lovinger, Humphrey, & Meltzer, 2005). Therefore, providing for the subsequent care process would be 'easy' and 'simple' (Bruce & Suserud, 2005).

Definitely, effective communication is necessary for handoff. The information communicated during handoff needs to be accurate, current and sufficient about the patient's condition, and recent or anticipated changes in order to enable the next caregivers to form a holistic picture of the patient, thus help them make effective decisions for subsequent care (Bruce & Suserud, 2005; Jenkin, Abelson-Mitchell, & Cooper, 2007). As a result of effective handoff, continuity and safety of patient care can be carried on. Unfortunately, many studies found that inappropriate handoffs, including ineffective communication, have continuously

been experienced which resulted in unfavorable effects for both caregivers and patients. The negative effects taking place among caregivers involved making uncertainty in further patient management, performing unnecessary or repeated work, wasting time, delaying or missing patient care, management, and investigation, and creating inefficient or suboptimal care (Arora et al., 2005; Christian et al., 2006; Ye, McD Taylor, Knott, Dent, & MacBean, 2007). These effects appeared to decrease the caregivers work efficiency, therefore leading to adverse events. On the other hand, the negative consequences to patients included delayed or missed investigations, therapy, disposition and care; patient inconvenience; threats to patient confidentiality; medication errors; resource waste; wrong-site surgery; waste of time; last-minute cancellation of surgery; patient injury; procedure error; and re-hospitalization (Christian et al., 2006; Jirapaet, Jirapaet, & Sopajaree, 2006; Lingard et al., 2004; Makary et al., 2007; C. Moore, Wisnivesky, Williams, & McGinn, 2003; Ye et al., 2007).

Several studies indicated that the problems surrounding handoff were inaccurate or incomplete information; redundant, and not relevant to patient information; inconsistent, disorganized, inappropriate length, and error prone. Moreover, information transferred during handoff was usually informal, unstructured, and relied on the discretion of the informant and inter-personal relationships (Arora et al., 2005; Bomba & Prakash, 2005; Smith, Pope, Goodwin, & Mort, 2008; Ye et al., 2007). Because of the aforementioned reasons, many studies suggested developing guidelines or protocols to standardize handoff processes (Arora et al., 2005; Sexton et al., 2004; Ye et al., 2007). This suggestion is concordant with a requirement of the JCAHO (2007) in order to promote

National Patient Safety Goals, ensuring patient care information is communicated consistently during all patient handoffs which creates an opportunity to improve healthcare quality and safety.

Various methods have been invented and designed with the ultimate goal of improving clinical handoffs. These included using the reflexivity method (RM) for improving medical handoff (Broekhuis & Veldkamp, 2007), implementing bedside handoff to overcome the problems surrounding traditional handoff (Kassean & Jagoo, 2005), using a Formula one pit-stop and aviation model for transfer post operative patient from OT to intensive teams (Catchpole et al., 2007), and implementing electronic handoff systems (Cheah, Amott, Pollard, & Watters, 2005; Van Eaton, Horvath, Lober, Rossini, & Pellegrini, 2005). Moreover, JCAHO (2008a) and several studies recommend various strategies for standardized handoff. Examples of these strategies were using interactive communications including an opportunity to ask clarifying questions and to receive answers in a time frame; consisting of up-to-date information regarding the patient's care, treatment and services, condition, and any recent or anticipated changes; including a process for the verification of the received information as repeat-back or read-back; opening an opportunity for the handoff receiver to review relevant patient information; eliminating interruptions during handoffs to minimize the possibility that information would fail to be conveyed or would be forgotten; and so forth (The Association of periOperative Registered Nurses: AORN, 2007d; Arora et al., 2005; JCAHO, 2008a; Patterson, Roth, Woods, Chow, & Gomes, 2004).

Information for handoff needs to be accurately and appropriately communicated to meet quality and safety goals (Patterson et al., 2004), therefore

standardizing handoff could help caregivers prevent the omission of essential information when transferring to subsequent caregivers, and then ensuring the continuity of care and patient safety. By following standardized handoff, only accurate and relevant information to patient care could be passed on in a time-efficient manner. Although recommendations to standardize handoff across the healthcare context were proposed, there has been a lack of study paying attention to the development of standardized handoff, especially for specific patient populations. Literature reviews from 2002 to 2008 found only two studies that had developed handoff guidelines or models to formalize handoff. One was for an emergency environment (Fenton, 2006) and the other for transferring post operative patients from OT to intensive care teams (Catchpole et al., 2007). However, since each healthcare circumstance is of a unique nature, then information and strategies required at handoff need to be specifically associated with the patient population. The members in every setting need to design their own standardized handoff to meet the specific needs of their patient care with the ultimate goals to ensure the continuity of care and patient safety, then to improve the quality of care.

The perioperative nursing environment is a technologically complex patient care environment with multidisciplinary teams coordinating throughout the perioperative phases of care. A surgical patient is extremely vulnerable to handoff errors because the patient handoffs occur at different points and many times as the patient navigates through the three phases of perioperative care continuum, including pre-, intra-, and post-operative phases (AORN, 2007b; Christian et al., 2006). At each of these points, handoff that is not performed properly can result in adverse events (AORN, 2007d; Groah, 2006). Studies in the operating theatre (OT)

found that communication failure had the potential to produce effects on care progression including inefficient work flow, team tension, resource waste, work-around, increased workload, delay in care progression, patient inconvenience, and procedural error (Lingard et al., 2004).

Similar to all nurses, OT nurses have an obligation to provide safe and effective care that is based on standard practices. Although recommendations for handoff have been proposed, very few standardized handoffs in healthcare settings, particularly for perioperative nursing care, are currently available (Catchpole et al., 2007; Fenton, 2006). A lack of standardized handoff among OT nurses may result in missing essential information to determine appropriate and safe care which could further lead to a disruption in care continuity and increase the risk of harmful consequences for the patient. In contrast, having a standardized handoff for OT nurses could help them carry out handoff with confidence to ensure that accurate, current and sufficient information about the patient's condition, and recent or anticipated changes for continuing patient care as well as promoting patient safety will be communicated to the next caregiver. Then, the incoming caregiver can use this information to decide what appropriate care is needed according to the surgical patient's needs.

Although handoff is a subject attracting attention from many researchers in western countries, in Thailand only a small number of researchers pay attention to this nursing practice. A literature review found that there was only one case study of handoff describing the nursing handoff process in a medical ward. This study proposed facilitating factors, barriers and expectations of handoff according to the nurses' perceptions (Polprasit, Saejew, & Wungthanakorn, 2006).

With the lack of studies demonstrating or recommending standardized handoffs for OT nurses, Thai OT nurses carry out their handoff arbitrarily, with inconsistent information and strategies dependent on what information they think important and what strategies they think appropriate for transferring information to the incoming nurses resuming responsibility for patient care. Using this approach may not promote effective communication. Relevant information to patient care could be missed, not conveyed, or ignored by the incoming nurse, which leads the patient to be exposed to adverse events as have been found in the literature review. Even these adverse events have not been systematically reported or have been underestimated because of the inefficient system of adverse events reporting in Thailand. However, the researcher knows that adverse events resulting from an ineffective handoff are continuously occurring as in some western countries, known from hearsay by the researcher during working in the Thai OT community for more than sixteen years.

The situation of nurse shortages in Thailand, particularly in OT environment (Ketefian, Davidson, Daly, Chang, & Srisuphan, 2005), leads nurses carrying out their duty under heavy workload. Moreover, the attributes of the OT environment and the professional characteristics of the OT nursing care OT environment lead OT nurses to spend more of their time assisting with surgical procedures and performing very technical duties rather than having enough time to write the full details of patient information on documentation (Hyeoun-Ae, Hyun Jung, & Kesook, 2007). Therefore, the information during handoff is principally relied on by the nurses' memory. Even if they write down on the documentation, it would be poor writing or a hurried record which often is found to contain errors, especially for checklist documentation. The missing of complete, accurate, and

sufficient patient information provided for handoff could lead the nurse coming on to take responsibility for any patient misunderstanding and be unable to decide on the appropriate care for the patient.

In order to promote the continuity of care and patient safety, as encouraged by the Thailand Patient Safety Goal, communication improvement is an area that calls for attention from healthcare personnel. In responding to this promotion, Thai OT nurses are vigorously seeking ways to standardize their communicating process for eliminating missing information and promoting complete information during patient care transition with definitive goals to promote the continuity and safety of patient care. Since Thailand is a developing country, technology used to assist in handoff is quite limited as the nature and culture of the OT environment is unique. To adopt any handoff recommendations forming a standardized practice, its appropriateness and applicability to the Thai context should be taken into account. Having a proper evidence-based handoff for Thai OT nurses would allow Thai nurses across the country to conduct effective handoffs with a consistent process associated with the nature and culture of the Thai OT environment. By this approach, continuity and safe care for all Thai surgical patients undergoing surgeries can be ensured.

Objectives of the Study

1. To develop the evidence-based handoff for Thai OT nurses

2. To validate the applicability of the evidence-based handoff for Thai OT nurses

Research Questions

1. What information and strategies should be included in the evidence-based handoff for Thai OT nurses?

2. Are the contents of the evidence-based handoff for Thai OT nurses valid?

3. Is the evidence-based handoff for Thai OT nurses applicable to adopt by the Thai OT nurses?

Significance of the Study

The developed evidence-based handoff for Thai OT nurses can be utilized for effectively communicating accurate and sufficient information regarding the surgical patient's care, treatments, services, current condition, and any recent or anticipated changes among OT nurses or from an OT nurse to other caregivers in order to enable the next caregivers resuming responsibility for patient care to decide the appropriate care for Thai surgical patients. The ultimate goal of following the evidence-based handoff for Thai OT nurses is to ensure the continuity of care and patient safety of Thai surgical patients.

Theoretical Framework

The development of the evidence-based handoff for Thai OT nurses was conducted by using the basic communication model modified from the Shannon and Weaver model (1949) and the Osgood and Schramm circular model of communication to be the theoretical framework of the study (G. H. Moore, 2008).

Based on the modified communication model (Figure 3), handoff referred to an interaction communication process of exchanging information to share with another, as a code anticipated to be consumed by another with the same code. It is also a dynamic process of simultaneously sending and receiving information between the sender and receiver through several strategies, as mediums carrying information.

Handoff is a communication process consisting of 7 elements; sender, encoding, information, strategy, receiver, decoding, and noise. It is an interaction process of two caregivers for the transfer of patient information, as a message, by using several strategies, as a channel carrying the information, with the intention to control or minimize noise distorting or degrading information transferred. In this study, the sender is a nurse going to terminate or take a break from the responsibility for the surgical patient, and the receiver is a nurse going to resume the responsibility for the patient from the former. Encoding and decoding are individual, intrapersonal, and intellectual processes of the sender and receiver of information during handoff. These processes are complex, complicated, and difficult to manipulate, thus were excluded from being variables of this study.

In the OT, OT nurses provide nursing care to patients undergoing surgery throughout the three phases of perioperative care (Braaf, Manias, & Riley, 2011). The preoperative phase begins when the patient enters the OT and ends when he/she is transferred to the operating table. The intraoperative phase begins when the patient is located on the operating table until the operation is finished, and he/she is transferred to the recovery area. The postoperative phase begins when the patient is admitted to the recovery area and ends when he/she discharged from the

OT. Throughout the perioperative nursing care continuum, responsibility for the care of a surgical patient is transferred by using handoff usually at five points of patient care transfer (Christian et al., 2006). They are as following;

1. Handoff 1 (H1) refers to the handoff performed for care transfer from a ward nurse to a preoperative OT nurse, providing care to the patient while waiting for the operation in OT,

2. Handoff 2 (H2) refers to the handoff performed for care transfer from a preoperative OT nurse to an intraoperative OT nurse, providing care to the patient while the operation is being performed,

3. Handoff 3 (H3) refers to the handoff performed for care transfer between intra-operative OT nurses, in case of changing the OT nursing team.

4. Handoff 4 (H4) refers to the handoff performed for care transfer from an intraoperative OT nurse to a postoperative nurse, providing care to the patient after the end of the operation in the recovery area.

5. Handoff 5 (H5) refers to the handoff performed for care transfer from a postoperative OT nurse to a ward nurse, providing care to the patient for post operative recovery on the patient's ward.

Since patient handoff occurs at different points and many times in the OT, at each of these points, handoff which is not performed properly can result in adverse events.

Analysis of OT handoff situation by using the communication model revealed that it might be two major causes that lead to OT handoffs to be ineffective. First, the message or information itself was not accurate, relevant, and sufficient to the patient's care progression. Second, the strategies used to convey the

information were not appropriate to eliminate noise affecting the communication process, resulting in distorting or degrading the information transferred. Thus, having an evidence-based handoff for Thai OT nurses that could help them to communicate accurate, relevant, and sufficient information regarding patient's care to the next nurses assuming responsibility for the patient during patient care transition would result in effective OT handoffs. In responding to this, the evidence-based OT handoffs needed to consist of the required information for each point of OT handoffs throughout perioperative care continuum, as well as appropriate strategies carrying information for all OT handoffs to eliminate noise degrading the effectiveness of a handoff process. Moreover, this study initially applied SBAR mnemonic to structure information, in order to make it easy to remember and to be transferred in a logical sequence (Amato-Vealey, Barba, & Vealey, 2008; Clark, Squire, Heyme, Mickle, & Petrie, 2009). The SBAR stands for situation, background, assessment, and recommendation. Situation refers to what is going on with the patient. Background refers to what is the background of the patient. Assessment refers to the observations and evaluations of the patient's current state. Lastly, recommendation refers to making informed suggestions based on current information for the continued care of the patient. These attempts would ensure that required information will be correctly transferred and received in the same meaning in a timeframe. Then, the incoming nurse can use this information to decide appropriate care according to patient needs, nature and culture, in order to ensure continuity of care and patient safety. The theoretical framework of the development of the evidence-based handoff for Thai OT nurses can be drawn as in Figure 1.

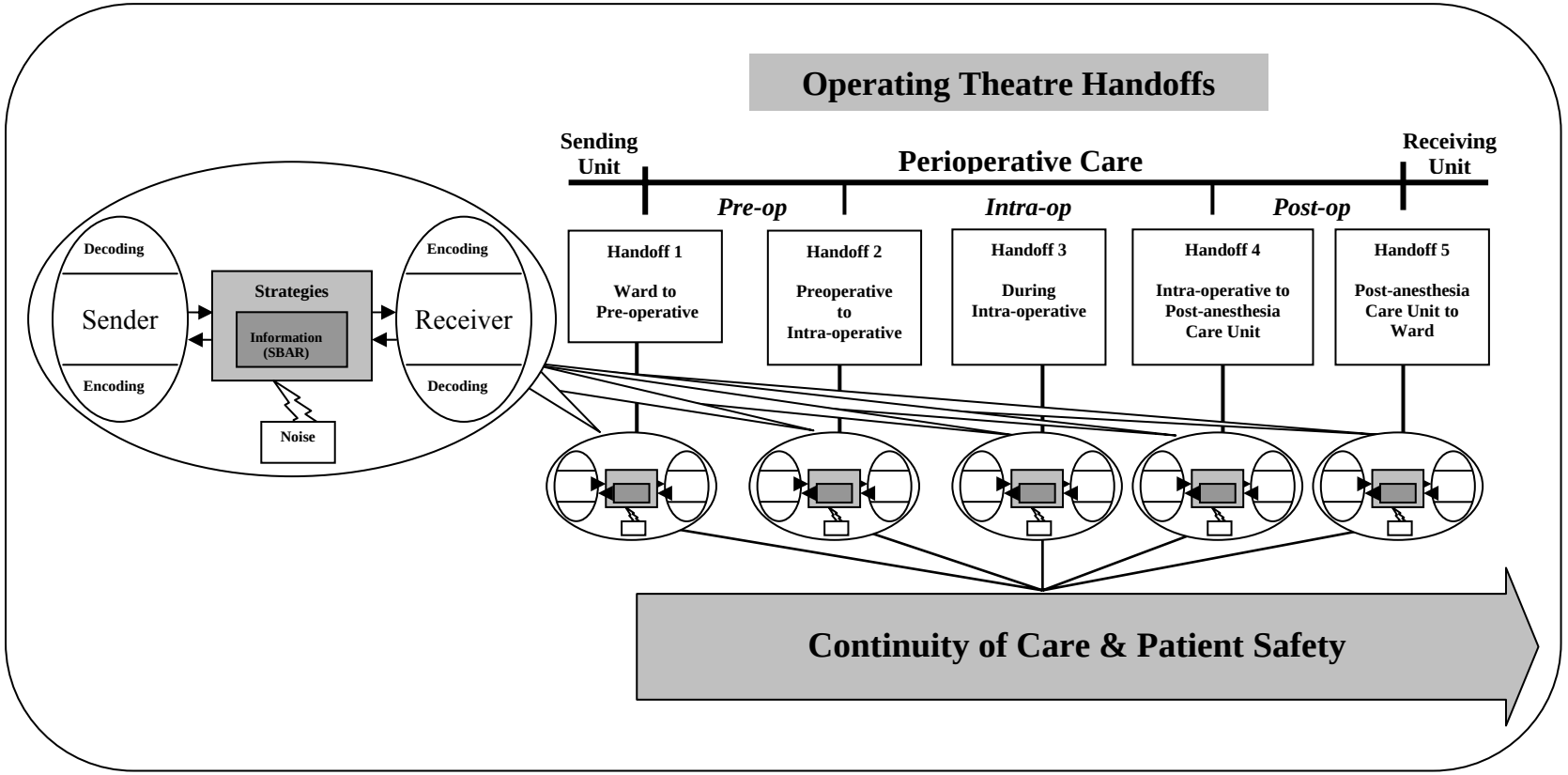


Figure 1

Theoretical Framework of the Development of the Evidence-based Handoff for Thai OT Nurses

Definition of Terms

OT handoff referred to a real-time communication process of passing specific information, as well as responsibility and authority, for a surgical patient's care between OT nurses, and between the OT nurse and ward nurse or anesthetist nurse for the purpose of ensuring the continuity of care and patient safety. It is composed of two components including information and strategy. The information and strategy of OT handoff are defined as the following;

1) Information referred to information regarding a surgical patient's care, treatment, and services, current condition and any recent or anticipated changes of the patient.

2) Strategy referred to strategies used to facilitate information transfer during OT handoffs.

Scope of the Study

This study was developed to examine content validity and applicability of the evidence-based handoff for Thai OT nurses. This evidence-based handoff is expected to be a well-developed OT handoff, which Thai OT nurses can use to promote quality of perioperative nursing care. Its content validity was assessed by 17 experts in the area of OT across Thailand, and its applicability was assessed by 148 OT nurses across Thailand. The study was conducted during June 2010 to December 2011.

CHAPTER 2

LITERATURE REVIEW

To study the development of the evidence-based handoff for Thai OT nurses, the researcher reviewed theoretical and empirical literature relating to the topic of study in order to gain greater understanding covering all aspects of handoff in the healthcare environment. The approach used for retrieving relevant literature on the topic of handoffs included using electronic databases (i.e. CINAHL, Cochrane Library, Google Scholar, OVID, PubMed, ScienceDirect, Springer Link, and Wiley Online Library); manual searching of theses, journal articles, and books related to handoff; and reviewing reference lists of all retrieved literature in both English and Thai. Topics for the literature review included the following:

1. Handoff in nursing service
2. Communication in nursing handoff
3. Handoff for operating theatre nurses
4. Practice guideline development

Handoff in Nursing Service

A 24-hour nursing context demands nurses to divide working times into many sections, and then rotate their duty of providing care to preserve working function. In order to change duty without disruption to patient care and working function, the transfer of essential information as well as responsibility for patient care from the nurses going off duty, called outgoing nurses, to the nurses resuming

the duty, called incoming nurses, plays a pivotal role (Bomba & Prakash, 2005; Kerr, 2002). This process is known as a handoff. Consequently, a handoff that promotes effective transferring of critical patient information is assumed to bring about ultimate goals of ensuring continuity and safety care (JCAHO, 2007).

Handoff definition

Various synonyms of the term 'handoff' have been used in healthcare. These include handover, sign-over, sign-off, sign-out, check-out round, change-of-shift, shift-change, change-over, shift report, and cross-coverage (AORN, 2007e; Friesen, White, & Byers, 2009). As early as 1969, handoff in terms of "handover" has been defined the nursing context as the "oral communication of pertinent information about patients". Since then, the description of handoff has been subjective to debate, but a primary role of communication medium to facilitate the continuity of patient care has remained as a essential part of the activity (Kerr, 2002).

Recently, the JCAHO (2007) referred "handoff" to a real-time communication process of passing patient specific information from one caregiver to another or from one team of caregivers to another for the purpose of ensuring the continuity and safety of the patient. The primary objective of a "handoff" is to provide accurate information about a patient's care, treatment, and services, current condition and any recent or anticipated changes (JCAHO, 2008b). Generally, events requiring handoff are patient care transitions including shift changes, and complete or temporary transfer of responsibility for the patient to the resuming caregiver

(JCAHO, 2008b). To conduct handoff effectively, nurses may need to understand the current situation of handoff in their healthcare environments.

General features of handoff

The features of handoff have been studied from various clinical settings. In nursing circumstances, Sexton et al. (2004) observed that nurses always performed handoff for shift change, by outgoing staff giving patient information to the staff coming on duty as a formalized communication process. This kind of handoff has been described an important ritual symbolizing the transference of patient responsibility of nurses (Brown & McCormack, 2006). Besides, Manias et al. (2005) further found that nursing handoff also occurred when nurses took break relief and when a patient was transferred to and from other wards. The length and nature of handoff could be different depending on the type of shift and occasion when it was performed (Alem, Joseph, Kethers, Steele, & Wilkinson., 2008; Sexton et al., 2004).

The process of handoff can be classified into three phases: pre-handoff, handoff session, and a post-handoff (Bruce & Suserud, 2005; Kerr, 2002), described as following.

1. Pre-handoff phase is the time when the outgoing staff prepares information for transferring to incoming staff. Kerr (2002) described this phase as the time when the outgoing nurses prepare information for transferring to incoming nurses by updating the official documents or by using audio-recorder recorded information about the patient they have been responsible for during their shift. Another study by Bruce and Suserud (2005) in an emergency setting referred this

phase to a stage of dialogue for planning to transfer a patient between the ambulance nurse and emergency nurse through phone calls in which information about the patient's condition is conveyed from the ambulance nurse to the emergency nurse in a brief and structured manner in a short period of time. Then, the emergency nurse would prepare the appropriate reception for the patient based on this information (Bruce & Suserud, 2005).

2. *Handoff session* is the time when the outgoing staff presents patient information to the incoming staff. Bruce & Suserud (2005) observed that handoff could be done by verbal report with or without written documentation, and either to the individual or the team who were taking charge of the patient. They indicated that the benefit of a team report was to ensure that everyone received the same information, and eliminated the risk for unanswered questions and the potential for misunderstanding. In addition, varied methods ranging from using only memory or written notes, to using information technology (IT) could be applied to remember patient information for handoff, however, some staff might use more than one method (Bomba & Prakash, 2005; Bruce & Suserud, 2005; Ye et al., 2007). Studies of Kerr (2002) and Polprasit et al. (2006) observed that during this phase the outgoing nurses verbally presented all relevant information about the patient's situation to the incoming nurses by using official documents or their notes as a guideline, or using a tape player to report what was recorded by outgoing staff. For the incoming nurses, they received information by listening to the report and/or taking notes. Alem et al. (2008) observed that interaction during a session centered on the outgoing staff presenting a brief summary of the patient and the incoming

staff asking questions to clarify their understanding of the patient and to identify potential unrecognized problems.

3. Post-handoff phase refers to the time when the outgoing staff finished reporting then the symbol of taking place by the incoming would be performed. Kerr (2002) described that when the outgoing nurses finished reporting, the incoming nurses then directly began to provide nursing care to the patient, or followed by the incoming nursing team walking around the ward to meet the patients and families that they will be taking responsibility from bed-to-bed.

In a healthcare circumstance, various methods have been used for handoff. Although, the main purpose for handoff is the same, different healthcare settings, different institutions, or even if different units within a hospital may apply the method for handoff differently depending on organizational policy or staff preference (Brown & McCormack, 2006; Horwitz, Krumholz, Green, & Huot, 2006; Kerr, 2002).

Handoff methods

Handoff can be given by using all forms of communication including verbal, non-verbal, and written (Philpin, 2006). The literature review found that various methods of handoff have been employed in nursing. However, the most common used methods were verbal, written, tape-recorded, and computerized. Whatever method is used, the intention of the process is to focus on delivering essential information to the next caregivers, for patient care transition, in order to

enable them to decide on care delivery appropriately related to patient needs (Fenton, 2006). The following illustrates the details of each handoff method.

1. Verbal handoff

Verbal conversation is the traditional form of clinical handoff (Bomba & Prakash, 2005). In a hospital context, two modes of verbal handoff have been used including office-based and bedside handoff.

1.1 Office-based handoff

Office-based handoff is a conventional and the most fashionable method used to exchange patient information (Currie, 2002). The specific characteristic of this method is that it is a face-to-face interaction carried out in a designated location away from patients, such as at the nurses' station or nurses' office, thus excluding patients participation and involvement in their care decision making (Hopkinson, 2002; Kassean & Jagoo, 2005).

1.2 Bedside handoff

Since traditional office-based handoff has had an important defect of lacking in patient center care, bedside handoff has been then implemented as an alternative method to minimize the traditional handoff faults. The common characteristic of this method is also a face-to-face interaction, but carried out at the patient's bedside by the team of caregivers sharing patient information with attention to encourage patients to participate in their care (Fenton, 2006). However, a study of Brown and McCormack (2006) observed that sometimes patients might not be included into bedside handoff process in a meaningful way rather than nurses reported the visible patient condition and asked them only to verify the nurses' discussion.

2. Written handoff

Despite the traditional verbal exchange of information among healthcare personnel, written documentation has usually been applied to support verbal conversations during handoff (Bruce & Suserud, 2005; Hopkinson, 2002). Literature indicated that the recommendation of writing a report beforehand to structure handoff has been proposed since 1981, followed by suggestions to write up a guidelines on the content for handoff (Kerr, 2002). In 1995, only written handoff, such as a care plan, was proposed to replace verbal reporting in nursing circumstances in the interest of saving time and costs (Hopkinson, 2002; Kerr, 2002; Sexton et al., 2004; Strople & Ottani, 2006).

Completing a written handoff report involves reviewing all relevant patient documentation (Fenton, 2006). Thus, various kinds of documentation can be brought into the written handoff including observation charts, notes taken on paper towels, nursing notes, medication charts, progress notes, and nursing care plans (Philpin, 2006; Sexton et al., 2004). For a nursing change shift, Philpin (2006) observed that written handoff usually consisted of the patient's biographical details, the nursing care plan which needed the nurse to revise every day to the identify patient's progression and care requirements, and a summarization of the shift events. Nurses in some studies perceived that documentation for written handoff could be used to declare what nursing interventions had been given to a patient as well as to be used as evidence to defend any possible claim in court (Bruce & Suserud, 2005; Philpin, 2006).

3. Tape-recorded handoff

Tape recorded handoff was prescribed in 1986 by a scholar claiming that this method allowed for a shorter, uninterrupted report (Kerr, 2002). To perform a tape-recorded handoff, instead of a real-time exchange of information, the data is pre-recorded by the outgoing caregiver and later listened to by the incoming caregiver (Strople & Ottani, 2006). Therefore, this kind of handoff is carried out as a one-way communication with no opportunity for immediate questions.

4. Computerized handoff

The advantages of the information technology (IT) have been applied to facilitate the process of handoff for over a decade (Cheah et al., 2005; Strople & Ottani, 2006; Van Eaton et al., 2005). A review of relevant literature found implications for the computerized shift report in 1994, but this reporting still required a manual transcript of the information, therefore it was not entirely technological based (Strople & Ottani, 2006). Until 1998, a computerized handoff was studied in relation to improving the continuity of inpatient care and to prevent adverse events (Friesen, White, & Byers, 2008).

Generally, the computerized handoff is designed to integrate all pertinent patient information into an electronic system bridging critical informational gaps and also preventing any information omission. Through the computerized system, all patient-centered data can be generated in a clear and concise format, and can also be accessed quickly (Strople & Ottani, 2006). Moreover, this handoff system is considered as a manner to overcome problems of

written communication such as illegibility or unclear handwriting and/or the written information not being up to date (Arora et al., 2005) .

Cheah et al. (2005) found that by using electronic medical handoffs patients' information can be simply accessed and the time spent to complete a documented handoff and the number of incomplete handoffs had decreased. Correspondingly, Van Eaton (2005) reported that a computerized system for resident handoff enhanced the effectiveness of care delivery and reduced the number of patients missed on ward round by half.

To develop a system of computerized handoff, Cheah et al. (2005) suggested that a set data and required functions for electronic handoff need to be discussed and created by the users, to be assured that the system would be desirable and used in the long term. The most important aspect is that it should be a real-time documentation. Updating of patient information should be considerately promoted in order to support the time-sensitive data collection and retrieval. This could lead to system maintenance by being utilized by all users. Moreover, other tools such as personal digital assistants (PDAs) or other wireless devices could be included to support the method in order to allow caregivers to record the patient information at the point of care. Thus, the information would then be immediately transmitted to a centralized patient database (Strople & Ottani, 2006; Ye et al., 2007).

5. Voicemail handoff

In 2007, the use of voicemail for handoff has been found in the survey of Benson et al. (2007). Voicemail was an electronic telephone system storing spoken messages that can be listened to later by the receivers (Oxford

Advanced Learner's dictionary of current English, 2005). It was utilized as a kind of verbal handoff but asynchronous, similar to tape-recorded, computerized, and written handoffs.

Although centered on transferring patient information among caregivers, each handoff method has strengths and weakness depending on its specific characteristics. Table 1 presents the strengths and weaknesses of each handoff method.

In a real circumstance, more than one method of handoff can be combined and used together, to improve the effectiveness and to eliminate the weaknesses of each handoff method. Philpin (2006) observed that verbal bedside handoff was usually performed by using written documents assisting a verbal report. She pointed out that written documents helped nurses to frame a description of a shift event and facilitated the method of description and explanation in handoff. Clemow (2006) implemented the use of a nursing care plan and associated documentation to assist bedside handoff, to overcome the problem of traditional office-based handoff. She found that the new handoff style could lead to increased nurse-patient contact time, improve the quality of documentation, and improve the level of nurse's satisfaction. In addition, Pothier et al. (2005) and Bhabra et al. (2007) conducted a quasi-experimental study to compare the effectiveness in information retention for three handoff styles. They showed that using purely verbal handoff resulted in omitting a large amount of information after passed few cycles of information exchange, whereas using handoff verbally with note-taking resulted in moderate information loss and using verbal handoff with a pre-prepared sheet resulted in the least amount of information loss.

Table1

The Strengths and Weaknesses of Handoff Methods

Handoff method	Strengths	Weaknesses
Verbal handoff		
1) Office-based handoff	- Allows face-to-face interaction (Friesen et al., 2008; Polprasit et al., 2006). - Allows staff to discuss situations (Friesen et al., 2008; Polprasit et al., 2006). - Allows staff to clarify information together (Friesen et al., 2008; Polprasit et al., 2006). - Promotes protection of confidentiality of patient information (Currie, 2002). - Promotes reduction of distractions (Currie, 2002; Kerr, 2002).	- There may discrepancies between patient report and actual patient status (Friesen et al., 2008). - May be difficult to access all relevant information for concise report (Friesen et al., 2008). - Lack of nursing contact with patients during the session (Currie, 2002; Polprasit et al., 2006). - There may be absence of patient documentation if it is used during the session (Currie, 2002). - May be poor retention of information by receiver if using verbal communication only (Pothier et al., 2005)
2) Bedside handoff	-Allows face-to-face interaction (Friesen et al., 2008). - Allows staff to assess patient together (Friesen et al., 2008). - Allows staff to clarify information together (Friesen et al., 2008).	- Confidentiality issues need to be addressed (Currie, 2002; Friesen et al., 2008; Jenkin et al., 2007). - There may be distraction and interruption (Currie, 2002; Friesen et al., 2008; Jenkin et al., 2007).

Table1 (continued)

Handoff method	Strengths	Weaknesses
	- Allow the remedy of errors (Friesen et al., 2008). - Promotes patient and family involvement and participation in patient care (Hopkinson, 2002). - Promotes building rapport between caregivers and patient (Hopkinson, 2002). - Promotes gathering visual information of caregiver (Currey, Browne, & Botti, 2006; Currie, 2002). - Promotes patient-cantered care environment (Currie, 2002) - Promotes increasing caregiver-patient contact time (Clemow, 2006).	- May be difficult to discuss in some subjects such as the patient's diagnosis and prognosis (Hopkinson, 2002). - Terms (jargon) used by caregivers in report may deviate patient concern for participation (Friesen et al., 2008; Philpin, 2006). - Not all patients desire to participate (Currie, 2002; Friesen et al., 2008). - Patients may not be included to participate in a meaningful way (Brown & McCormack, 2006; Philpin, 2006)
Written handoff	- Allows incoming caregivers to review patient information (Friesen et al., 2008; Hopkinson, 2002). - Promotes improvement in documentation (Friesen et al., 2008; Hopkinson, 2002). - Reduces the likelihood of errors resulting from caregivers have limited memory for a large volume of information (Sexton et al., 2004).	- Lack of opportunity of face-to-face interaction (Fenton, 2006). - Quality of documentation may vary depending on the type of documentation (Pothier et al., 2005). - May be missing or sub-optimally recording of essential information if not considerately documented (Friesen et al., 2008).

Table1 (continued)

Handoff method	Strengths	Weaknesses
	- Allows having formal evidence of care given by caregivers (Bruce & Suserud, 2005; Philpin, 2006).	- May be difficult to find out some information (Arora et al., 2005; Boockvar & Fridman, 2005; Jenkin et al., 2007). - May be illegible, unreadable and unclear (Arora et al., 2005; Boockvar & Fridman, 2005; Jenkin et al., 2007).
Tape-recorded handoff	- The outgoing caregivers can provide patient care while incoming caregivers are listening to recording (Friesen et al., 2008). - Tape can be repeated (Friesen et al., 2008; Kerr, 2002).	- Lack of opportunity of face-to-face interaction (Kerr, 2002). - Lack of opportunity to clarify information together (Kerr, 2002). - May be difficult to hear or understand (Friesen et al., 2008). - Needs access to equipment and demands good recorded sound quality (Friesen et al., 2008). - There may discrepancies between patient report and actual patient status (Friesen et al., 2008).

Table1 (continued)

Handoff method	Strengths	Weaknesses
		- Lack of current information after the time the report is taped (Friesen et al., 2008).
Computerized handoff	- Allows quick access to patient information (Cheah et al., 2005; Strople & Ottani, 2006; Van Eaton et al., 2005). - Allows quick transfer of patient information (Cheah et al., 2005; Strople & Ottani, 2006; Van Eaton et al., 2005). - Allows generating information in a clear and concise format (Strople & Ottani, 2006). - Allows incoming caregivers to review patient information (Van Eaton et al., 2005). - Promotes improvement in documentation (Arora et al., 2005). - Reduces the likelihood of errors resulting from caregivers have limited memory for a large volume of information (Arora et al., 2005). - Allows having formal evidence of care given by caregivers (Arora et al., 2005). - Promotes readable and clear letters (Arora et al., 2005).	- Needs a technological system (Strople & Ottani, 2006). - Lack of opportunity of face-to-face interaction (Arora et al., 2005). - May be missing or sub-optimally recording of essential information if not considerately recorded (Friesen et al., 2008).

Table1 (continued)

Handoff method	Strengths	Weaknesses
Voicemail handoff	- Allows quick access to information across time and space(Horwitz et al., 2009) - Information can be provided and received at the most convenient time for both parties (Horwitz et al., 2009) - Eliminates conflicts between communicators (Horwitz et al., 2009) - Information could be reviewed (Horwitz et al., 2009)	- Depends and relies on technical system (Horwitz et al., 2009) - Information could be outdated, delayed or never accessed (Horwitz et al., 2009) - Omits opportunity for information clarification and questioning (Horwitz et al., 2009) - Omits opportunity to customize information according to the need of receivers - Risks to patient confidentiality violation if accessibility to information is not controlled

In order to ensure the continuity of care and patient safety, institutes that are seeking methods for handoff improvement need to take the strengths and weaknesses of each method into account. A combination of handoff methods may offer greater benefit of the process not only to patients but also to caregivers. However, which type of handoff should be selected or be combined needs a consideration and agreement of the members in the setting that the handoff will be performed.

Functions of handoff

The clinical handoff is a multifaceted activity. The exchange of information is regarded as the main function of the handoff, allowing the incoming staff to assume patient accountability and responsibility for ensuring the continuity and safety of patient care (Alem et al., 2008; Broekhuis & Veldkamp, 2007; Bruce & Suserud, 2005; Currey et al., 2006; Hopkinson, 2002; Jenkin et al., 2007; Kerr, 2002; Makary et al., 2007; Meißner et al., 2007; Philpin, 2006; Polprasit et al., 2006; Taylor, 2002).Therefore, it was no wonder when studying the initial two-hour post-operative period of cardiac patients in a critical unit, that this function of handoff enabled nurses to make decisions and identify specific decision priorities for immediate patient management in the recovery period (Currey et al., 2006). For dying people, this function also helped nurses to prepare for caring for dying patients and their families (Hopkinson, 2002).

Depending on the style, the clinical handoff may also provide opportunities for social interaction, organizational management, education, and team cohesion (Hopkinson, 2002; Kerr, 2002; Patterson et al., 2004; Philpin, 2006).

The “social” function consists of social or emotional support, stress relief, joking and light-hearted episodes. Hopkinson (2002) found that in the context of caring for dying people, handoff gave an opportunity to express and share nurses’ thoughts and feelings among their colleagues, which helped nurses in this situation.

The “organizational” function refers to steering immediate plans for a shift and allocating nurses responsibility for patients. In regards to this, Philpin (2006) observed that a nursing change shift handoff was as a ritual and was a symbolic marker indicating that the incoming nurse to take responsibility for patient care had accepted the responsibility for the patient. Soon afterwards, the shift plan would be set up and allocated to all team members (Philpin, 2006).

The “educational” function occurs when a senior nurse provided explicit teaching to novice nurses through examples in the topic of clinical patient care and nursing practice or when nurses shared learning experience and the culture of the ward (Kerr, 2002).

Lastly, the “team cohesion” function represents sharing the essential values of a group of caregivers. Philpin (2006) found in a nursing group of an intensive therapy unit (ITU) that nurses performed the same actions of expressing the essence of care and concern for vulnerable patients.

It can be seen that handoff is a highly complex communication event, which contributes multiple functions. However, functions of handoffs are related to how handoff is conducted. In circumstances where handoff is interactive and involves various levels of staff and also patients and family, all of these functions then can be displayed. However, Sexton et al. (2004) found that

sometimes handoff in a nursing change shift appeared to promote confusion and often did not clarify issues regarding patient status, treatment or management.

Factors related to effective handoff

Success in performing effective handoff relates to many factors. Healthcare providers should comprehend these factors and take them into account when attempting to conduct an effective handoff. The following describes the factors related to promptness and time spent for handoff, and factors determining quality handoff.

In a medical ward, a qualitative study conducted by Polprasit et al. (2006) pointed out that factors relating to the promptness for nursing handoff were the time the nurses arrived in the ward, the readiness of documents and equipment, the number and severity of patients, the cooperation of team members, management skills, and the discussing of private matters. Factors associated with the time spent for handoff included the number and severity of patients, the type of shift, accuracy and relevancy of information, intention and concern for handoff, the relationship between participants, management and communication skills, and also discussing of private matters.

In an emergency environment, Ye et al. (2007) indicated that the amount of information exchanged in handoff did not indicate its quality. Moreover, Bruce and Suserud (2005) pointed out that effective handoff takes place when information exchange is patient focused and identifiable problems are clearly stated in order to enable the next caregivers to form a holistic picture of the patient, therefore, the subsequent care process is ‘easy’ and ‘simple’. For surgical handoff,

Horn et al. (2004) stated that relevant factors determining the appropriateness of surgical handoff were the seniority of participants in handoff, patient condition, and the nature of surgery.

In addition, Meißner et al. (2007) stated that the qualification and position of the participant, occupational seniority, type of shift, quality of leadership, and social support from colleagues were considered variables associated with dissatisfaction with nursing shift handoffs; and the most frequent two reasons that made nurses dissatisfied with shift handoffs were 'too many disturbances' and 'lack of time'.

Knowing that these factors influence effective handoff could help caregivers find out the way to strengthen their handoff process. Thus, when performing handoff, these factors should be taken into account with attention to introducing positive factors and minimizing negative factors relating to handoff in order to establish effective handoff procedures.

Problems of handoff

Although handoff between caregivers is considered as a vital process to ensure the continuity of care delivery, shortcomings are continuously experienced, especially in issues of communication breakdown which accounts for the majority of unanticipated adverse events in patients (Lingard et al., 2004).

According to the report of the Joint Commission on Accreditation of Healthcare Organizations, communication issues were the top contributing factor of sentinel events (over 60%) (Lingard et al., 2004). In addition, Christian et al. (2006) found that 86% of communication failure, including information lost or

degradation, had significant negative consequences for care progression. Greenberg et al. (2007) discovered that communication failure was a cause of approximately 23% of surgical malpractice claims that led to patient injury. They further found that the communication failures were commonly verbal in nature with 43% of failures occurring in handoff, the communication process of patient information for the transition of patient care between caregivers. Moreover, Gandhi et al. (2006) found that handoff was one of contributing factors that lead to the errors associated with patient harm and death.

Problems related to handoffs and contributing factors have been discovered across the board. Common problems are incomplete, inaccurate, disorganized, irrelevant, and untimely information regarding a patient's condition, treatment, plans, and management (Strople & Ottani, 2006; Ye et al., 2007). Riesenberg et al. (2010; 2009) found the following factors contributing to handoff problems: barriers related to communication, equipment, and environments; a lack of standardization, time, training, or education regarding handoff; the complexity or high number of patients; and other human-related factors.

Handoff breakdowns have been continuously experienced. The lack of adequate and accurate information details of the patient can make the transition of patient care vulnerable to errors, thus jeopardizing patient safety. For this reason, the quality and safety of the handoff has come under increasing scrutiny in many nations (Arora et al., 2005), in order to find the ways to improve handoffs.

Effects of ineffective handoff

Effective handoff between healthcare personnel is considered as a critical practice in ensuring the delivery of effective care and avoiding errors and adverse events. However, many studies from different healthcare sectors encountered with ineffective handoffs, which their effects involved both caregivers and patients.

1. Effects on caregivers

As mentioned earlier, handoff is designed to familiarize incoming caregivers with patients they will be responsible for (Arora et al., 2005; Kerr, 2002; Philpin, 2006), allows caregivers to change duty with minimal disruption to the continuity of patient care (Kerr, 2002). However, many studies found that ineffective handoff influences the caregivers' working process. Mostly, ineffective handoff appeared to decrease caregiver efficiency rather than lead to adverse events (Lingard et al., 2004; Manias et al., 2005; Ye et al., 2007). These effects included experiencing of barrier to provide safe practice; uncertainty to make further patient care decisions; doing unnecessary or repeated work and gathering information from other sources; delaying, omitting, wrongdoing, or overdoing treatment, management, and care; missing diagnosis; the inability to meet patient needs; team tension; workaround; resource waste, and a waste of time (Arora et al., 2005; Boockvar & Fridman, 2005; Jirapaet et al., 2006; Ye et al., 2007).

2. Effects on patients

Since ineffective handoff tends to impede caregivers' from carrying out their subsequent responsibilities for patients effectively, therefore, patients could be affected from inappropriate tasks of caregivers resulting from

ineffective handoff. In relation to the continuity of care, Ye et al. (2007) found that ineffective handoff could lead the patient to have delayed or missed investigations and therapy, and cause a delay in disposition and care. On the other hand, many studies found that ineffective handoff also introduced adverse effects to patient safety. These included patient inconvenience, threats to patient confidentiality, medication errors, resource waste, wrong-site surgery, waste of time, last-minute cancellation of surgery, patient injury, procedure error, and re-hospitalization (Christian et al., 2006; Jirapaet et al., 2006; Lingard et al., 2004; Makary et al., 2007; C. Moore et al., 2003; Ye et al., 2007).

Handoff is essential for the continuity and consistency of patient care. Thus, any failures in a handoff may result in negative consequences to not only the caregivers, but also the patients. To minimize adverse effects, the handoff must be the subject that needs high quality maintenance as in any other clinical process involving patient care. This is required in order to ensure system robustness during handoffs, and then enable caregivers to safely provide continuity of care.

Recommendations for standardizing handoffs

Reviewing literature indicated that the handoff in many settings needs improvement. As a professional, health caregivers need to take responsibility for strengthening this practice to ensure that the process applies appropriate methods to transfer sufficient information to the next caregivers. Then this information can influence and enable them to further deliver continuous and safe care to the patient.

Various recommendations for handoff improvement have emerged from reviewing literature. As information for handoff needs to be accurately and appropriately communicated to meet quality and safety goals (JCAHO, 2007; Patterson et al., 2004), this requirement calls for attention from many institutions to standardize the handoff process (JCAHO, 2008b). Several studies correspondingly suggested having a consistent guideline, framework, protocol and policy as a prerequisite to formularize an optimal handoff (Bomba & Prakash, 2005; Currie, 2002; Greenberg et al., 2007; Horn et al., 2004; Ye et al., 2007). The recommendations suggested by JCAHO (2008b) and other empirical studies to enhance quality handoffs include:

1. Interactive communication including an opportunity to ask clarifying questions and to receive answers in a timeframe. Additionally, questioning for gathering information should also be encouraged (JCAHO, 2008b; Patterson et al., 2004).

2. Providing up-to-date information regarding the patient's care, treatment and services, condition, and any recent or anticipated changes and/or care plan (Arora et al., 2005; JCAHO, 2008b; Patterson et al., 2004).

3. Including a process for the verification of the received information, such as repeat-back or read-back, as appropriate, to ensure that information is accurate and to eliminate errors, confusion, and misunderstanding, and that both parties agree on and comprehend the issues (Greenberg et al., 2007; JCAHO, 2008b; Patterson et al., 2004).

4. Opening opportunity for an incoming caregiver to update and review patient information before handoff update (Girard, 2007; JCAHO, 2008b).

5. Assessing the patient status together between incoming and outgoing caregivers to check patient status and congruency between the report and patient condition (Simpson, 2005).

6. Providing a written summary, or electronic record of critical information by the outgoing caregiver writing or recording the summary before handoff (Girard, 2007; Simpson, 2005).

7. Preparing for handoff to ensure that all relevant information including decisions made for patient care will be communicated (Manias et al., 2005).

8. Limiting interruptions during handoff to minimize the possibility that information would fail to be conveyed or would be forgotten (Patterson et al., 2004).

9. Limiting the initiation of operator actions during an update (JCAHO, 2008b; Patterson et al., 2004)

10. For critical patients, handoff can be divided into two phases, if necessary, immediately at the start with essential information, and afterwards when initial treatment had been undertaken giving further information (Jenkin et al., 2007).

11. During emergencies, remaining involved until there is assurance and evidence that each piece of critical information has been accurately transferred and received by all members of the accepting team (Patterson et al., 2004; Simpson, 2005).

12. For bedside handoff, conducted in a private setting, and assuring that patient confidentiality is protected. Furthermore, encouraging the patient to

participate, but recognizing that not all patients will want to or be able to participate and this needs to be respected (Brown & McCormack, 2006; Currie, 2002; Jenkin et al., 2007; Kassean & Jagoo, 2005).

13. Decreasing the number of transfers and the patient's caregiver accompanying the patient to the new setting by the patient's caregiver to decrease the risks associated with handoff error (Friesen et al., 2009).

14. Eliminating unnecessary information during handoff because the capacity of communication channels is limited (AORN, 2007e)

15. Allocating sufficient time for the process to allow both parties the opportunity to clarify all information (JCAHO, 2008b; Riesenberg et al., 2010).

16. Determining the level of staff participating in handoff to assure they have the knowledge and capability to participate in it (Crum Gregory, 2006; Currie, 2002; Finis & Porché, 2005; JCAHO, 2008a).

17. Designing handoff with the consideration of maintaining the ancillary function (social interaction, organizational management, education, and team cohesion) of handoff in order to obtain all benefits from it (Hopkinson, 2002; Kerr, 2002; Patterson et al., 2004).

18. Using handoff tools such as scripts, checklists, written documentation or computerized systems to support the verbal report as appropriate to eliminate the limitations of human ability to retain a large volume of complex information (Arora et al., 2005; Girard, 2007; Sexton et al., 2004).

19. Using clear terminology for handoff. The use of ambiguous language should be restricted, and medical jargon, confusing terms, and unacceptable abbreviations should be avoided (Girard, 2007).

20. Developing a list of abbreviations, acronyms, and symbols that are common and can be used in the organization, as well as determining what can not to be used (Beyea, 2006; JCAHO, 2007).

21. Updating information during handoff in the same order every time (Patterson et al., 2004)

22. Using a combination of verbal and written communication to open the opportunity for feedback and clarification of information which might result in greater consistency of information delivery and again less opportunity for error. However, if using handwriting, documentation should be legible (Arora et al., 2005; Crum Gregory, 2006; Girard, 2007; Jenkin et al., 2007).

23. Using electronic systems to support handoff to provide easily accessible data. However, the system should be utilized to its fullest capacity, and be accurate and up to date. In addition, to support real-time documentation, the point-of-care technologies such as PDAs or other wireless device should be included in the process (Jenkin et al., 2007; Strople & Ottani, 2006; Ye et al., 2007).

24. Using a team report for handoff as appropriate to ensure that everyone receives the same information, and to eliminate the risk of unanswered question and the potential for misunderstanding (Bruce & Suserud, 2005).

25. Educating and training all levels of staff to communicate effectively at the time of handoffs (Arora et al., 2005; Ye et al., 2007). Therefore, standard educational handoff programs should be developed.

26. Ensuring that the information of unambiguous responsibility for key tasks that may be left undone is transferred to those responsible persons, which

means that important tasks for patient care have to be identified a responsible person in charge (Patterson et al., 2004; Simpson, 2005).

27. Delaying the transfer of care responsibility when there is a concern about the status of the process or the ability of the incoming provider to safely handle the situation (Patterson et al., 2004; Simpson, 2005).

28. Regular reviewing and auditing of the handoff process to identify areas for improvement and ensure that standard practice is followed (Simpson, 2005)

29. Using a communication model such as the SBAR model (situation, background, assessment, and recommendation) (Arora et al., 2005; JCAHO, 2008a; Leonard, Graham, & Bonacum, 2004) or the CUBAN model (confidential, uninterrupted, brief, accurate, and named nurse) to formalize handoff (Currie, 2002).

30. Developing discipline specific concise forms, tools or checklist systems for each clinical situation (i.e., labor, postpartum, newborn care, and the operating room) to prevent content omissions and to ensure the exchange of relevant information among all team members to help reduce the amount of unproductive time spent in handoff, by ensuring that only essential information is 'passed on' (Arora et al., 2005; Simpson, 2005).

31. Performing the process with great attention to detail and listen in information transferred (Currie, 2002; Manias et al., 2005).

32. Constructing a culture of open and honest communications and dialogue and also implementing systems, policies, and procedures to minimize

communication breakdown and foster a rigor of communication regarding clinical processes that might lead to patient error (Finis & Porché, 2005).

All the above are recommendations for improving clinical handoff. Most of them tend to be anecdotal, and very few studies have systematically tested the feasibility, efficiency and effectiveness of these recommendations. Any recommendations for handoff strategies, methods, or models are specifically suggested for any environment. Therefore members in a setting have the responsibility to clarify and decide on set of these recommendations for applying to their workplace. The entire team must be committed to work collaboratively throughout the process of improvement.

Handoff is an area deserving further research. Standardizing handoff processes could help caregivers prevent omissions of essential information transferred to the next caregivers, then, ensuring the continuity of care and patient safety. Through a standardized handoff, only information relevant to patient care can be passed on in a time-efficient manner. Then, the next caregiver can use this information to decide on the appropriate care according to the individual patient's needs.

Communication in Nursing Handoff

As handoff is a communication process, understanding the concept of communication could help the researcher to understand how to carry out handoff effectively. The concept of communication has been studied for a long time and is regarded as a complex phenomenon. Many researchers have studied communication

looking at its aspects depending on their perspective. The following are some common aspects of communication in nursing handoff.

Definition of communication

Various definitions of communication have been proposed. As early as 1960, Berlo (1960) described and characterized communication as a process which is dynamic, on-going, ever-changing, and continuous. It does not have a beginning and an end, and each element within its process affects all of the others.

Bormann (1980) described in '*Communication Theory*' that some scholars defined communication as the production of symbolic content by an individual, according to a code with anticipated consumption by other(s), according to the same code. Communication is not a one-way transmission but a two-way dialogue. And, communication is not simply an act or even an interaction; it is the interpersonal approach of a transaction.

Rogers (2003) viewed communication as a process in which participants create and share information with one another in order to reach a mutual understanding, thus achieving certain effects.

In the Oxford Advanced Learner's Dictionary of Current English (2005), "communication" is defined in three ways: (a) 'the activity or process of expressing ideas and feeling or of giving information'; (b) 'methods of sending information, especially telephone, radio, computers, etc. or roads and railways'; and (c) 'a message, letter or telephone call'.

In addition, Dunne (2005) mentioned communication as a process by which information, meaning and feeling are shared by persons through the

exchange of verbal and non-verbal messages. Communication is not something that people do to one another, but rather it is a process in which they create a relationship by interacting with each other, simultaneously sending and receiving messages. People encode and send messages while they are receiving and decoding other messages.

For the overall definitions of communication, communication is an interaction process of expressing ideas, information, meaning and feeling to share with others through the exchange of symbolic content, verbal and non-verbal message, as a code anticipated to be understood by others with the same code. It is a process of simultaneously sending and receiving messages between the sender and receiver via channels. By communication, people can understand and make certain effects on others.

Communication model

Understanding the communications process could help communicators know how to communicate effectively as well as the barriers to effective communication. For figuring it out easily, a prominent feature of communication has been developed into models of communication. In 1949, Claude E. Shannon and Warren Weaver brought forward the first model to describe the entire process in which a signal transfers from one side to the other (Ling, 2007). The model was named *Shannon-Weaver Model* which is widely accepted as the best-known example of the 'informational' approach to communication (Chandler, 1995). Claude Shannon and Warren Weaver were engineers working for Bell Telephone Laboratories in the United States. They developed a model of

communication which was intended to discover how communication messages could be converted into electronic signals most efficiently, and how those signals could be transmitted with a minimum of error. Figure 2 illustrates the Shannon and Weaver model of communication (Shannon & Weaver, 1949).

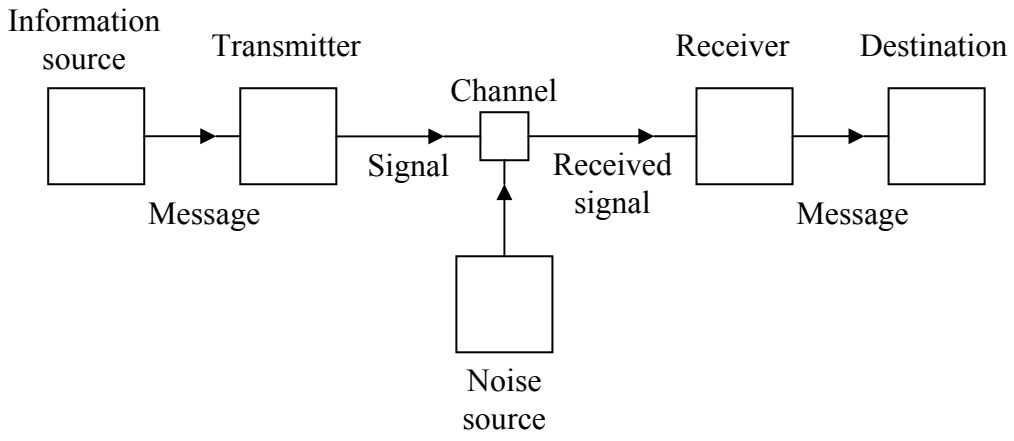


Figure 2

The Shannon and Weaver Model of Communication [From: Shannon & Weaver (1949)]

The communication model of Shannon and Weaver (1949) consists of six elements including:

1. *An information source* which produces a message or a sequence of the message to be communicated to the receiving terminal.

2. *A transmitter* which operates on the message in some way to produce a signal. Thus, it 'encodes' the message into a signal that is suitable for transmission over the channel.

3. *The channel* is the medium used to transmit the signal from the transmitter to the receiver.

4. *The receiver* ordinarily performs the inverse operation of that done by the transmitter. It 'decodes' or reconstructs the message from the signal.

5. *The destination* is the person (or thing) for whom the message is intended.

6. *Noise* is a dysfunctional element of communication. It is any interference with the message travelling along the channel which may lead to the signal received being different from that sent.

For Shannon and Weaver (1949), communication takes place when the *information source* selects a desired *message* out of a set of possible messages. The selected message may consist of the written or spoken word, or pictures, music, etc. Then, t*he transmitter* changes this *message* into a signal which is actually sent over the *communication channel* from the transmitter to the *receiver*. In oral speech, the information source is the brain and the transmitter is the voice mechanism producing the varying sound pressures (the signal) which is transmitted through the air (the channel). Finally, *the receiver*, as the inverse transmitter, changes the transmitted signal back into a message, and hands over this message to *the destination.*

In the process of signal transmitting, it is unfortunate that *noise* can make changes, which is not intended by the information source, in the transmitted signal. These unwanted changes may be distortions of sound (in telephony, for example) or static (in radio), or distortions in the shape or shading of pictures (television), or errors in transmission (telegraphy or facsimile), etc. Therefore, in

order to prevent distortion or degradation of a signal to the destination, the noise needs to be controlled or eliminates from the process of communication.

In the Shannon and Weaver model, communication is viewed as a one-way linear model of the transmission of a message. The speaker and a listener would strictly be the source and the destination of the message, respectively, rather than the transmitter and the receiver because the developers of the model were principally concerned with achieving maximum telephone line capacity with minimum distortion, and had never intended for their model of signal transmission to be used for anything but telephones. In this model, the information source transmitted the messages into a signal. Then, the transmitter fed the signal through a channel to the receiver, who changed the signal into understandable content under the disturbances of noise for the destination of the message. However in commonly humanized communication, the process is viewed as a two-way transmission of the message (Bormann, 1980). Thus, participants in the communication process would be called the sender and the receiver who encodes and decodes the message transmitted through the channel, under the interferences of noise.

As one-way transmission of a message was a defect of the Shannon and Weaver model, Osgood and Schramm developed a circular model with an attempt to remedy that deficiency. The developed model expanded the communication process to include a feedback system: an encoder sends a message to a decoder, who interprets the message and then encodes a message back to the sender; the sender decodes and interprets that message, resulting in a continuing process of interaction (G. H. Moore, 2008). In the Osgood and Schramm model, the participants of the communication process swap between the roles of

source/encoder and receiver/decoder, and receiving a message is not simply a matter of decoding, but also of interpreting the message. Thus, for communication to occur, both the sender and receiver must share similar experiences in order to achieve the interpretation of the message received to be the same meaning as the message sent. Figure 3 presents Osgood and Schramm circular model of communication.

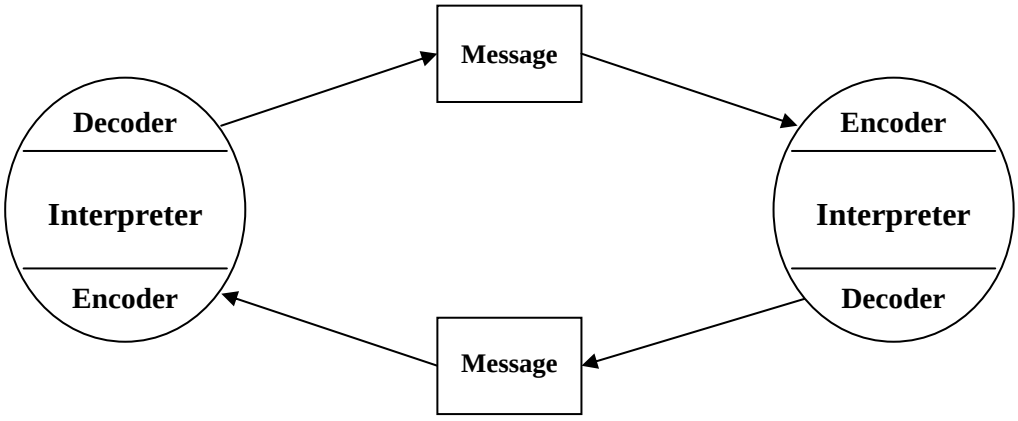


Figure 3

Osgood and Schramm Circular Model of Communication [From: Moore (2008)]

As handoff is a communication process, the researcher decided to combine and modify the Shannon and Weaver model and the Osgood and Schramm circular model of communication to be a theoretical framework to study the development of evidence-based handoff for Thai OT nurses. A handoff between two caregivers is an interaction process of transferring patient information, as a message, by using several strategies, as a channel carrying the information, with the intention to control or minimize distortion or the degradation of the information

introduced by noise. In this study, the sender is a nurse going to terminate or take a break from the responsibility of the surgical patient, and the receiver is a nurse going to resume the responsibility for the patient from the former. Encoding and decoding are individually intrapersonal processes of the sender and receiver of patient information during handoff. These pro0cess are complex, complicated, and difficult to manipulate, thus were excluded to be variables in this study. The communication model of handoff in this study is shown in Figure 4.

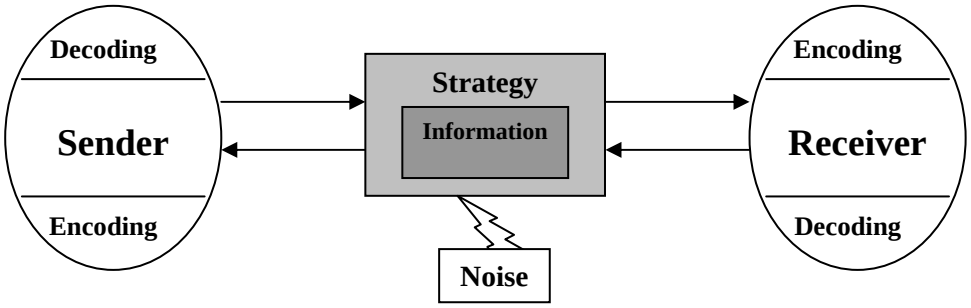


Figure 4

Communication Model for Handoff [Modified from Shannon and Weaver (1949) and Moore (2008)]

The modified communication model used for handoff consists of 7 elements; sender, encoding, message, strategy, receiver, decoding, and noise. The detail of each element is described as follows:

1. The sender

The sender is a source of communication. He/She is a caregiver who is going to terminate or take a break from the responsibility of the surgical patient; and he/she needs to communicate the information about the patient to the

next caregiver for the purpose of ensuring the continuity of patient care as well as patient safety (JCAHO, 2007).

2. The encoding

Encoding is the intrapersonal process of the sender to translate information into a code to be transmitted (Porritt, 1990). The encoding function is performed by the set of motor skills of the sender such as the vocal mechanisms (which produce the oral word, cries, musical notes, etc.), the muscle systems in the hand (which produce the written word, picture, etc.), and the muscle system elsewhere in the body (which produces gestures of the face or arm, posture, facial expressions, etc.) (Berlo, 1960). However, it could be observed that language is the most obvious code, but non-verbal codes such as body language are also included (Porritt, 1990).

3. The information

Information is the message produced from the encoding process. This information includes spoken words and non-verbal signs structured in a certain order according to the required code in the hope that the other person involved will be able to understand its meaning (Porritt, 1990).

4. The strategy

Strategy is a channel or medium used for carrying information to be transferred (Berlo, 1960). It is a fact that the information can effectively pass through only by *some* strategies; therefore the *choice* of strategies often is an important factor for establishing the effectiveness of communication. To ensure that communication will be successful, the sender should make certain that he/she is

using the appropriate strategies to avoid the distortion or omission of the information and to avoid unnecessary opportunity for interference by noises.

5. The decoding

The encoding is the intrapersonal process of the receiver to retranslate or decode the information and put it into a form that he/she can use (Berlo, 1960). This process requires the knowledge of the symbols and signs being used, and the receiver needs to be able to attach a meaning to the symbols of a similar nature to the code of the sender, which is not always the case. There is more likelihood for the communication to be decoded accurately if the sender has structured his/her information with the some thought as to the receiver's needs. If the information is sent considering only the sender's perspective, but no receiver's perspective, the chance of the information sent not being the information received increases (Porritt, 1990). As mentioned before, encoding can be done by using the motor skills of the sender for communication, thus in the same way, decoding can be performed by using the set of sensory skills of the receiver via the senses (Berlo, 1960).

6. The receiver

The receiver is a person who is the subject who will interpret the information (Berlo, 1960; Porritt, 1990). He/she is a caregiver consecutively going to resume the responsibility for the patient from the previous caregiver going off from duty. For communication to occur there must be somebody at the other end of the channel. When the sender talks, somebody must listen; and when he/she writes, somebody must read. And, if there is no receiver, no communication has taken place (Berlo, 1960).

7. The noise

Noise is anything distorting or preventing the information sent being the information received. From the communication model, it can be seen that the process affords for noise to contribute towards ineffective or dysfunctional communication. Noise may take several forms.

To communicate effectively for handoff, the functional elements of the process including the sender, encoding, information strategy, decoding, and receiver must be functioning properly, whereas noises should be eliminated. Accurate, relevant, and sufficient information is considered as the essential part for handoff, in order to achieve the goal of ensuring the continuity of care and patient safety. Therefore, making information accurate, relevant, and sufficient to the patient's condition as well as applying appropriate strategies carrying the information to be transferred with the intention to control and minimize noise is a being critical task for a caregiver to perform an effective handoff.

Communication problems in nursing context

According to Shannon and Weaver (1949) , there are three types of communication problems including technical problems, semantic problems, and effectiveness problems. In addition, Brunner (1981) indicated that message overload was another type of communication problems that can be found in the nursing context. The following describes each problem;

1. Technical problems

Technical problems address the issue of the accuracy of the message transferred. They occur when the sent message is not received accurately. In this case, it can be assumed that an intelligible message was sent. These problems may arise from the sending of incomplete or jargon-laden messages as well as the effects of interference on the communication process (Brunner, 1981). In nursing, technical communication problems can create a life-threatening situation such as when incomplete patient information is assumed to be complete.

In order to determine whether the message sent is the message received, the sender may request feedback. A receiver may also demand clarification, repetition, or further information. Requests for clarification of additional information (from the sender or receiver) can be utilized to test for message completeness or distortion. Requesting or obtaining feedback can be done simply by asking the receiver to interpret a specific point or summarize a prior discussion.

The basic communication model demonstrates that noises can disturb communication while messages are being sent. Thus, to ensure that the same message is received, it is necessary as much as possible to remove the noises prior to sending the message. For example, the environmental noise can be avoided only by leaving the area. Strategies carrying message selection can also affect communication success. Therefore, the senders should make certain that they are using the appropriate strategies. The right strategies must be selected to avoid the distortion or omission of the signal and to avoid unnecessary opportunity for interference with the message. Factors to be considered in selecting the appropriate

strategies include the knowledge of the receiver as an individual, the desired time of message receipt, and the need for immediate feedback.

2. Semantic problems

Semantic problems refer to the interpretation of a message by the receiver, whether the receiver clearly comprehends the message's information content or not. For this type of problems, the information content can be distorted by noises making the message sent very different from that which is received. Some messages are distorted because of the use of "buzz words," slang, or jargon. Sometimes, the real message is buried under emotional overtones or is hidden in body language. The receiver can be confused when the sender uses subtle hints and innuendos as a means of communicating. In a hospital setting, the use of abbreviations is one major semantic problem. To resolve the semantic problems, the sender must consider the vocabulary of the receiver. It is the sender's responsibility to use language that is understandable to the receiver. Senders also must rely on checkout to ascertain the receiver's comprehension of their messages. Similarly, the receivers have an obligation to give feedback to the sender regarding the clarity of the message.

3. Effectiveness problems

Effectiveness problems refer to the message's effects on the behavior of the receiver. Generally through communication, senders of messages can influence the behavior of others. However, it should not be assumed that the receiver of a message will act in the manner desired by the sender. With the aim of changing the receiver's behavior, the sender's knowledge of the communications process alone may not be adequate to change behavior. The sender may need to

appeal to the receiver's sense of motivation and desired outcomes in order to bring about a desired behavior change. Knowledge of these concepts provides cues as to how a message should be communicated. For example, behavioral change may be effected by non-verbal communication of the rewards. To know whether the transmitted message has any impact on the individual, the sender must obtain feedback. For effectiveness problems, observing the receiver's behavior may be the best means of obtaining feedback. When the desired behavior does not occur, senders should look for technical or semantic problems in the communication system before blaming the receiver for lack of cooperation.

4. Message overload problems

It is normal that people can absorb and process only a very limited amount of information at any one time. The message overload problem may develop when an esoteric or incomprehensible message is presented, or when receivers are given too much information. When an individual's limit has been reached, he/she will block out further messages. Some people respond to message overload by inattentiveness in a conversation, sleeping during a meeting, or talking with another person during a lecture

The treatment for message overload is quite simple; eliminate messages that are not relevant to the main topic. When the primary message is complex, the presentation should be very concise and to the point. If a small amount of messages are given over an extended period of time, the probability of accurate reception is greater.

There are other techniques for treating and/or preventing message overload. For example, frequently repeating the message or using special word

terms, numbers, or symbols as a coding procedure to represent further information. However, if a coding procedure is used, it is necessary to make sure that everyone involved understands the code. Another approach to message overload, particularly during a lengthy conversation, is for the sender to provide some thinking time for the receiver. Thinking time can be gained through a brief digression from the main topic, a question period, or a simple coffee break. The thinking time approach permits the receiver to consider and process the message received before being subjected to any additional message.

Understanding the basics of communication can help caregivers to have awareness and carefulness when conducting handoff to prevent communication breakdown. To avoid or eliminate communication problems, several strategies need to be utilized to make the information for handoff accurate, relevant, and sufficient to a patient's condition, and to eliminate noise distorting or degrading information when it being transferred. This is regarded as an important task of all caregivers to achieve the ultimate goal of handoff.

Handoffs for Operating Theatre Nurses

Operating Theatre (OT) is a specific area used to perform surgical interventions. A nurse providing care for surgical patients in OT is called an OT nurse or perioperative nurse. Generally, the OT nurse provides continuity of care throughout the three perioperative phases of care to the surgical patients. For care delivery, the OT nurses use scientific and behavioral practices with the eventual goal of meeting the individual needs of the patient undergoing surgical intervention

(Fairchild, 1996). Similar to all nurses, the perioperative nurse has traditionally bee seen as a provider of safety and comfort, a supporter, and a confidant to patients. The patient's safety and wellbeing are entrusted to the OT nurse from the moment of arrival on the OT until the departure and transfer of the responsibility for care to another professional healthcare provider (Atkinson & Fortunato, 1996).

The perioperative setting is a technologically complex patient care environment with a multidisciplinary team coordinating throughout the perioperative care. For individual surgical patient care, handoffs are performed many times at different points of patient care transition as the patient navigates through the perioperative continuum of care (AORN, 2007d), including when one caregiver completely transfers responsibility for the patient, or gives temporary transfer of responsibility for the patient such as break relief, or shift change. In addition, the OT handoff for each patient can occur when the responsibility for the patient is transferred from the pre-operative unit to the OT nurse in the admission area, then from the OT nurse in the admission area to the surgical team in the intervention room, from OT nurse to OT nurse during shift change or break relief during the operation, from OT nurses to anesthesiologists when transferring the patient to the recovery room, from anesthesiologists in the recovery room to the OT nurse in the patient's discharge area, and from the OT nurse in the patient's discharge area to another post-operative unit. As handoffs occur at different points and many times throughout the perioperative period, a surgical patient is extremely vulnerable to handoff errors. At each of these points, if handoffs are not performed properly they can result in adverse events for the patient (Groah, 2006).

Throughout perioperative care continuum, a surgical patient could be experience an average of 5 handoffs performed for his/her care transfer (Christian et al., 2006). At every phases of care, care delivered to patient is relied on and influenced by available patient's information transferred during handoffs. Some information would be needed for providing care at all phases of perioperative care, thus could be put in handoff sheet or automatically extracted from an electronic medical record system. The examples of this information are 1) pertinent past medical history and current clinical course, 2) code status ('do not resuscitate' orders), 3) allergies, 4) current medications, 5) to-do list, 6) demographic data, and 7) information regarding details of the surgical team (Kalkman, 2010). However, certain information would be required in order to provide specific care according to phase of care. A prospective observation study conducted by Christian et al. (2006) observed that there were some specific type of information used or requested by OT staff for delivering care to the patient at a specific phase of perioperative care. The examples of this information are presented in Table 2.

Communication failure is the most important problem during a handoff session. In the OT, Lingard et al. (2004) found that four categories of communication failure could occur throughout the perioperative period including occasion, content, purpose, and audience. "Occasion" includes failure related to time and space. "Content" refers to communicative exchanges that contained incomplete or inaccurate information. "Purpose" reflects situations in which questions were asked by one team member, but not responded to by the team, prompting repeated and increasingly urgent requests. And, "audience" consists of situations that communicative exchanges exclude a key person. They further

reported that the most to the least communication failures were occasion (45.7%), content (35.7%), purpose (24.0%), and audience (20.9%).

Table 2

Example of Specific Type of Information Used or Requested by OT Staff at Each Phase of Perioperative Care

Pre-operative	Intra-operative	Post-operative
Consent	Pathology correlations	Pre-operative information
Pre- operative preparation	Administrative documentation	Intra-operative events
Medical clearance	Plan for care	Post- operative plan of care
Pre- operative case resources preparation	Case status	Medical record
Operating surgeon	Special equipment needs	
Special equipment needs	Equipment use/operating instructions	
Medical record	Count status	
Plan of care	Laboratory results	
Laboratory results	Radiographic study	
Radiographic study	Blood bank information	
Procedure plan		
Case status		

Many studies in the OT context found that communication failure had potential effects on care progression. These include inefficiency of work flow, team tension, resource waste, work-around, increased workload, delay in care progression, patient inconvenience, procedural errors (Lingard et al., 2004), increased exposure to patient injury, last-minute cancellation of surgery, and wrong-site surgery (Christian et al., 2006; Lingard et al., 2004; Makary et al.,

2007). All of these are adverse events that OT nurses do not expect to occur to their patients.

The literature review found a study aimed to improve the safety and quality of handoff performance for transferring the post-operative patient from OT to intensive teams. In this study, Catchpole et al. (2007) developed a handoff protocol through detailed discussions with a Formula 1 racing team and aviation training captains. This protocol focuses on working among multi-professional staff as a unity to effectively perform a complex task under limited time with the least error. They found that the new handoff protocol was effective in decreasing information omissions and technical errors caused by staff. The authors claimed that this handoff protocol was simple to understand, easy for training healthcare staff, and can be established in a short period of time.

The AORN also has modeled handoff toolkits for use within the perioperative environment from the resource developed by the Department of Defense Patient Safety Program (DoD PSP) (AORN, 2007c). This resource provides samples of handoff communication tools to assist in standardizing the information exchanged during patient transitions throughout the perioperative continuum. The AORN stated that using these tools would make it possible to improve dramatically the transfer of information. However, each tool is unique and specific to meet the needs of the environment in which it is implemented. The examples of handoff models include(AORN, 2007a; Girard, 2007):

a) SBAR model (Situation, Background, Assessment, and Recommendation)

b) I-SBAR model (Introduction, Situation, Background, Assessment, and Recommendation)

c) I PASS the BATON model (Introduction, Patient, Assessment, Situation, Safety Concern, Background, Actions, Timing, Ownership, Next)

d) PACE model (Patient/Problem, Assessment/Actions, Continuing/[treatment] /Changes, Evaluation)

e) Five-Ps model (Patient, Plan, Purpose, Problem, Precaution, Physician [assigned to coordinate]).

Of the above handoff models the AORN, the SBAR mnemonic was found to be the most mnemonic that frequently cited in clinical handoff studies. This model was originated in the Navy, and later Michael Leonard, MD, from Kaiser Permanente (Denver) introduced it to healthcare as a collaborative communication tool to support patient safety (Arora et al., 2005; Beckett & Kipnis, 2009). The SBAR mnemonic has bee considered as an easy-to-remember structure for organizing and timely giving information in a clear and concise format, and also in a logical sequence, especially for critical information (Arora et al., 2005; Beckett & Kipnis, 2009; Clark et al., 2009). It has been found to improve both individual and team communications, facilitate teamwork, and fosters safety culture among healthcare personnel (Amato-Vealey et al., 2008; Velji et al., 2008; Wacogne & Diwakar, 2010). For these reason, this study initially applied SBAR mnemonic to structure information for OT handoff, although it was later modified to I-SBAR for appropriateness reasons.

Despite many studies exploring many aspects of handoff over several years, recommendations for an adjustment to the structure and implementation of the process to improve the accuracy and relevancy of the information for handoff in a perioperative setting have not been examined through a systematic process. Although Amato-Vealey et al. (2008) have proposed examples of handoff information at each phase of perioperative care, this proposal has also not been validated by a systematic study. Furthermore, there is a lack of research focusing on how to standardize handoff and also how to implement it in settings which requires much needed active interdisciplinary debate. Standardizing handoffs should increase the overall quality of care delivery, particularly on care continuity and patient safety. Taking action to strengthen the communication process during handoff is a crucial task of healthcare personnel to promote continuity of care and patient safety. For perioperative settings that provide care for surgical patients, OT nurses need to adopt, modify, or develop the standardized handoff that is appropriate for the nature, culture, and needs of this specific group of patients.

Thai Operating Theatre Handoffs

Although handoff is the subject that calls attention from many researchers in western countries, in Thailand very few researchers have paid attention to this issue. The Literature review found that there was only one case study describing the nursing handoff process in a medical ward. This study explored facilitating factors, barriers and the expectations of handoff according to nurses' perceptions (Polprasit et al., 2006). To the researcher's knowledge, there is no study

of nursing handoff in the area of OT, the area that the researcher has been working in for sixteen years.

The lack of standardized handoff for OT nurses has caused Thai OT nurses to carry out their handoff arbitrarily, with inconsistent information and strategies dependent on what information they think important and what strategies they think appropriate for transferring information to the incoming nurses resuming responsibility for patient care. Using this approach may not promote effective communication. Relevant information to patient care could be missed, not conveyed, or ignored by the incoming nurse, which leads the patient to be exposed to adverse events as have been found in the literature review. Although these adverse events have not been systematically reported or have been underestimated because of the inefficient system of adverse events reported in Thailand, the researcher however has known that adverse events resulting from ineffective handoff are continuously occurring as in some western countries, known from hearsay by the researcher during working in the Thai OT community for more than sixteen years.

During working experience, the researcher continuously found unexpected adverse events resulted from OT handoff, both in the researcher's unit and in other OT hospitals. The examples of these unexpected adverse events are patient inconvenience, wrong positioning of the patient, delay in drug administration, prolonged operation time, resource waste, delay of patient diagnosis, patient injury and increased risk to exposure of other complications, post operative bleeding, and long waiting times.

Patient inconvenience occurred when a post-operative patient was transferred to the wrong unit because the information that there needed to be a change in the patient's unit for appropriate care was not transferred to the next OT nurse who took responsibility to send the patient back to the original ward.

Wrong positioning of the patient occurred when a resident surgeon positioned the patient for surgery but was unclear about the surgical plan. Then when staff who certainly knew about the surgical plan came into the room, the patient needed to be re-positioned. This adverse event continuously exposes the patient to prolonged operation time, further exposing him/her to the risk of side effects from anesthetics.

Delay in drug administration occurred when information about drug administration needed for intervention was not conveyed, particularly prophylactic antibiotic drugs that needed to be administered before incising the patient to prevent surgical wound infection. Missing the drug at the appropriate time can expose the patient to the risk of wound infection.

Prolonging operation time usually happened because the information relating to the operative plan was not communicated to the surgical team, or when the responsibility for the surgical patient or intervention was transferred, for example at OT nurses' shift change. Then, some of the required instruments or equipment was not prepared and not available in rooms. After that, the operation time had to be extended to find those instruments or equipment when the surgeon requested them.

Resources waste took place when OT nurses had a shift change or break relief without transferring the information of what instruments, materials, or

drugs were in the field. Throwing away some ambiguous drugs is always done to avoid drug misuse. Sometimes, the duplicated opening of an expensive disposable instrument or material was found when the information of what were opened in the operative field was not conveyed which resulted in high operative costs due to the second unwanted opening which occasionally resulted in the resource having to be thrown away.

Delay of patient diagnosis occurred as a result of pathological specimens of the patient being collected improperly by an OT nurse. Specimen loss occurred when an OT nurse did not give information or did not clarify the location of each specimen in the field during a shift change or break relief. Then an incoming OT nurse did not know there were specimens, or which specimen was to be sent to the laboratory. Also, not explaining the specific technique to preserve unusual specimens could lead the incoming OT nurse to collect the specimen improperly, and then it could not be used for examination. This situation might cause the patient needing future investigations, thus delaying treatments and specific care could be the result.

Patient injury and increased risk of exposure to other complications occurred due to inappropriate instruments being chosen for an intervention when insufficient information for decision making was conveyed during the OT nurse shift change handoff.

Detection of post operative bleeding was delayed when there was no specific information conveyed indicating the need for intensive monitoring to the next caregiver, which could lead to a life threatening situation.

A long waiting time for patients was found as a result of miscommunication and misunderstanding between OT staff.

Besides introducing adverse outcomes to the patient, the researcher has observed that ineffective communication during handoff also provided negative effects to surgical team functioning such as tension, and loss of respect, trust and collaboration among team members.

It became apparent that many factors were the cause of OT handoff breakdown. The diversity in the team members' educational background and experience were a cause contributing to their inability to understand, gather and provide patient information when exchanging patient information with others.

The lack of a evidence-based OT handoff protocol or guidelines and the lack of formal training to perform OT handoff caused OT nurses to perform handoff by experience, by observing senior nurses or colleagues. It could be observed that, actually, senior nurses could perform handoff more effectively than junior nurses.

Sometimes, OT handoff was done by using only a written document, without verbal communication, therefore the next caregiver who was taking responsibility of the patient had no opportunity to re-check or clarify patient information. In some cases, OT documentation was not well kept, consisting of insufficient information which was not enough for the next caregivers to use to decide on appropriate care. Then, the caregiver needed to retrieve patient information from other sources. Therefore, the continuity of care was interrupted.

Occasionally, the OT handoff was not performed by OT nurses or other caregivers who assisted in the surgical intervention or who knew well about

the patient's recent condition; therefore, these persons could not know what essential information was needed to be transferred to the next caregiver who would take responsibility for the patient's care.

By looking at the examples of adverse events resulting from OT handoff, on the patient, through the lens of communication and handoff concepts, it could be observed that inaccurate or insufficient information about surgical patients can be obtained by OT nurses due to two main reasons. Firstly, the message for communication or information relating to patient care itself might not be completed; some information may be missed or inaccurate to patient care progression. Secondly, the strategies used to transfer the message or information might not be appropriate to enable the receiver to obtain or consume it with the same meaning as well as in a timely manner, even though the information content was completely transferred. If looking at the communication model (Bormann, 1980; Porritt, 1990) in Figure 2, it could be observed that the transferred message could be lost or degraded when the sender and receiver use different channels for sending and receiving the message, or when this message is affected by interferences including intrapersonal, interpersonal, and environmental interferences. The examples of OT adverse events might occur because, during OT handoffs, the transferred information relating to patient care itself was inaccurate or insufficient to be used for making appropriate decisions for ongoing care, or/and the strategies used to transfer this information were not appropriate to enable the next caregiver to obtain or consume the transferred information with the same sent meaning, particularly in a timely manner.

Considering each example of OT adverse events, these events could result from the problems of the information itself, and/or from the problems of the strategies applied to transfer the information. Table 3 presents the possible problems of the examples of OT adverse events.

Table 3

The Possible Problems of OT Adverse Events

Adverse events	**Information problems**	**Strategy problems**
Patient inconvenience due to being sent back to the wrong ward	- Information of changing the patient's ward was not conveyed to the one who took responsibility for sending the patient back. - Inaccurate information was conveyed.	- The sender and the receiver of the information use the different channels for sending and receiving the transferred information. The information might be written down somewhere but the person taking responsibility for sending the patient back did not read it. - The information was intended to be conveyed by spoken word, but the sender was inhibited by other tasks to be conveyed it in a timely manner.
Delay or miss in prophylactic antibiotic drug administration	- Information about the need of drug administration before surgery was not conveyed - Ambiguous information was conveyed	- There was no protocol to gather or verify the information about the need of drug administration for a surgical procedure before incising the patient. - Asking for prophylactic antibiotic drug administration verification was done, but at a late time. The patient had been

Table 3 (continued)

Adverse events	Information problems	Strategy problems
		incised already.
Wrong positioning of the patient	- The inaccurate information about patient position was transferred to the surgical team	- Information was obtained from unreliable resources such as the surgeon who was not certain knows about the surgical plan. - There was no protocol to verify the surgical site before surgery which could place the patient in wrong side position.
Prolonging operation time	- Information relating to ongoing operative plan was omitted, inaccurate, or insufficient to be communicated during OT nursing handoff to enable the incoming OT nurse to decide on appropriate preparation for ongoing care.	- There was no protocol helping to structure the information transferred, especially when the amount of information was large. - The strategies helping to correct the lack of competency of the OT nurses to obtain all transferred information correctly, such as feedback, checkout, or questioning, were not be applied.
Resource waste	-Information of what instruments, materials, or drugs were in the operative field was not transferred	- Information was conveyed but only to the scrub nurse rather than further conveyed to the circulating nurse. Therefore, the circulating nurse opened disposable instruments or material because she thought it was needed for ongoing surgical procedures, but she did not know that it had already been

Table 3 (continued)

Adverse events	Information problems	Strategy problems
		opened in the operative field. - Strategies for information sharing between the scrub nurse and the circulating nurse might not be used.
Delay of patient diagnosis due to pathological specimen loss	- Information of collecting pathological specimens of the patient was omitted, inaccurate, and insufficient	- The number of piece of patient's specimen was many and some specimens needed different-unfamiliar collection procedures for the incoming OT nurse to collect them, then the incoming OT nurse might not remember all information or might be confused about received information. - Strategies to assist retaining information, such as using written handoff to assist verbal handoff or repeating and verifying the information transferred by the outgoing OT nurses, might not be used for ensuring that information of collecting specimens was received and understood correctly by the incoming OT nurse.
Patient injury and increased risk of exposure to other complications	- Relevant information promoting patient safety was not transferred between OT nurses during handoff,	- There was no protocol for explicating the concern of the outgoing OT nurse for OT handoff.

Table 3 (continued)

Adverse events	Information problems	Strategy problems
	although it was of concern by the outgoing OT nurse	
Post operative bleeding	- Specific information indicating the need for intensively monitoring the patient was not conveyed.	- The information was conveyed, but the sender and the receiver of the message use the different channels for sending and receiving the transferred message. The information might be written down somewhere but the next caregiver did not read it. - The information was conveyed, but not in an emphasizing form. Then, it was not called to the attention of the incoming OT nurse.
Long waiting time	- Information relating to patient care and process was missed, inaccurate, or insufficient	- There was misunderstanding between OT staff to carry on patient care progression. Then, the process of care was interrupted, may be more than one time. - The strategies for ensuring that the next caregiver received and understood the transferred information were not applied.

The examples of adverse events mentioned in Table 3 could be prevented by effective OT handoff. If there are strategies to ensure that accurate, relevant and sufficient information about patient care will be communicated, and

this information will be timely received and correctly understand by the next caregiver, the risk of exposure to these adverse events should be managed and then minimized.

Patient safety is always crucial for every healthcare provider (Asavaroengchai, Sriratanaban, Hiransuthikul, & Supachutikul, 2009). Every year, the JCAHO updates and releases requirements for organizations to action in order to meet National Patient Safety Goals (NPSGs). This effort is aimed to reduce errors and improve both the quality and safety of health care (Beyea, 2008). In Thailand, the Institute of Hospital Quality Improvement and Accreditation (HA-Thailand) has recently applied the Patient Safety Goals (SIMPLE). Its content was applied from the WHO Global Patient Safety Challenges and Patient Safety Solutions, and was consistent with the requirements of the JCAHO NPSGs. The Thailand NPSGs: SIMPLE has been extensively used as a tool to facilitate and also monitor quality improvement of hospitals in the country (Asavaroengchai et al., 2009). If the hospitals could not respond to the NPSGs requirements, they would no been accredited by the HA-Thailand. Of these requirements, effective communication has always been an issue of concerns in Thailand NPSGs. (Supachutikul, 2011). In responding to this concern, the programs for quality improvement, including for communication, have then been sought (Thongpiyapoom et al., 2004).

The OT is one of the most complex nursing environments in health care. Its complexity influences health caregivers' performances and patient safety (Christian et al., 2006). Numerous safety risks could occur in this environment. In the US, about haft of adverse events were caused by surgery and anesthesia (Jha,

Prasopa-Plaizier, Larizgoitia, & Bates, 2010). Although only one-fifth of these adverse events was found in Thailand, it was noted that this number might be under-estimated due to the limitations of the reporting system (Asavaroengchai et al., 2009). However, a patient safety study indicated that 54% to 74% of surgical adverse events could be prevented by using evidence-based practices (Jha et al., 2010). Lacking of evidence-based guides for handoff has been considered as a cause leading Thai OT nurses carried out ineffective handoffs, thus resulted in several adverse events.

Having evidence-based OT handoff, indicating information required and appropriate strategies used for handoffs, can assist Thai OT nurse to perform handoff effectively. Thus, accurate, relevant and sufficient information relating to patient care could be timely obtained by the incoming OT nurse. Consequently, he/she can use this information to decide on appropriate care for the patient, and adverse events would then be minimized. For these reasons, Thai OT nurses are vigorously seeking the ways to standardize their handoff. However, since Thailand is a developing country, technology used to assist in handoff is quite limited as the nature and culture of the OT environment is unique. To adopt any handoff recommendations forming a standardized practice, its appropriateness and applicability to the Thai context should be taken into account. Having a proper evidence-based handoff for Thai OT nurses would allow Thai nurses across the country to conduct effective handoff with a consistent process associated with the nature and culture of the Thai OT environment. By this approach, continuity and safety care for all Thai surgical patients undergoing surgeries can be ensured.

Evidence-based Handoff Development

Nowadays, the need for decision aids among health caregivers is increasing considerably. These include the growing evidence of substantial unexplained and inappropriate variations in clinical practice patterns, concerns that further limitations in resources will reduce the possibilities to deliver high quality healthcare, and the difficulty caregivers have in integrating rapidly evolving scientific evidence into their practices (Browman et al., 1995). Practice guidelines have been being promoted as one strategy used for assisting clinical decision making to improve the quality and the appropriateness of care delivered, to improve cost-effectiveness, and also to serve as educational tools in healthcare service. Since the evidence-based handoff for Thai OT nurses is expected to be used as a guideline for those transferring essential information on surgical patients to the next caregiver for the purpose of ensuring quality of care and patient safety. Therefore in this study, the process of practice guideline development was applied for standardized handoff development.

Commonly, a practice guideline refers to a systematically developed statement to assist practitioner and patient decisions about appropriate healthcare for specific clinical circumstances. To adequately fulfill the objective of practice guidelines, a standard must be established for the quality of the guideline. Therefore, the guideline developers should carefully consider and adhere to the practice guideline development process in order to ensure that guideline scientific validity and clarity are met (Kish, 2001).

Currently, there are four general methods applied for developing practice guidelines including informal consensus development, formal consensus

development, evidence-based guideline development, and explicit guideline development. Informal consensus development is the oldest and most common approach, but guidelines produced in this manner are often of poor quality and lack adequate documentation of methods. Formal consensus development uses a systematic approach to assess expert opinion and to reach agreement on recommendations. For the formal consensus approach, three main approaches have been used in the healthcare; the Delphi method, the nominal group technique (NGT) and the consensus development conference. Evidence-based guideline development links recommendations directly to scientific evidence of effectiveness; rules of evidence are emphasized over expert opinion in making recommendations. Explicit guideline development clarifies the rationale by specifying the potential benefits, harms, and costs of available interventions; estimating the possibility of the outcomes; and comparing the desirability of the outcomes based on patient preferences (Woolf, Grol, Hutchinson, Eccles, & Grimshaw, 1999).

According to Browman et al. (1995), the development of practice guidelines is a cycle that consists of eight steps including: 1) select or frame the clinical problem, 2) generate evidence-based recommendation (EBR), 3) ratify EBR, 4) formulate a practice guideline, 5) independent review, 6) negotiate practice policies, 7) adopt guideline, policies, and 8) scheduled review.

Practice guidelines development cycle

Practice guidelines can encourage a more explicit appreciation of the determinants of clinical decision-making. However, the selection of any guideline to follow needs consideration regarding its credibility and legitimacy. Thus,

recognizing the explicit nature of the guideline development process allows potential users to critically appraise the validity of the guidelines and make an informed judgment about whether to adopt them in their clinical practice (Eccles et al., 1996). Browman et al. (1995) demonstrated the practice guidelines development as a cycle consists of eight steps. The practice guideline development cycle and the designated key tasks of each step can be drawn as Figure in 5. The description of each step is as follows:

Step 1: Select and frame the practice guideline problem

There are several concerns that should be considered in prioritizing and selecting topics for practice guidelines development. In the healthcare context, guideline topics should be chosen for the likelihood of influencing change in clinical practice. The topics of the guidelines should come from an area of interest that has a high volume of cases, high cost, issues related to risk management, or significant variation in practice patterns. Moreover it should have sufficient evidence available for review to justify the development of a guideline. The scope of the guideline topic should be narrow enough to be thoroughly explored with the time and resources available (Kish, 2001). After the topic of a practice guideline is selected, the specifications for the guideline development such as the purposes, the target population, and the desired outcomes should be indicated prior to the next steps with the intention to help guideline developers to avoid subsequent confusion in guidelines development (Browman et al., 1995).

Step 2: Generate preliminary evidence-based Recommendation

Once the problem has been framed, the next step is to identify and assess the evidence which is best done by performing a systematic review. The purpose of a systematic review is to collect all available evidence, assess its potential applicability to address the clinical problem that has been framed, inspect the evidence for susceptibility to bias, and extract and summarize the findings (Shekelle, Woolf, Eccles, & Grimshaw, 1999). In this step, explicit written instructions for literature review should be used to ensure the consistency of reviewing (Eccles et al., 1996). From a systemic review, if the guideline developers find a guideline that already exists which could be applied to solve clinical problems, this guideline can be updated with the evidence from the literature review. It is then passed through the remaining steps of the cycle. If there is no existing guideline that meet certain methodological standards, is not up to date, or does not address the problem of interest, then the data from the relevant studies on the benefits and the harms of the interventions or recommendations are extracted. In addition, where applicable, the costs of the interventions should be considered (Shekelle et al., 1999). The evidence is then summarized and used to originate the preliminary evidence-based recommendation (EBR) which can usually be presented in a form that allows the designs and results of studies to be compared (Browman et al., 1995; Shekelle et al., 1999).

Step 3: Reconcile interpretations of evidence to ratify the final EBR

In this step, relevant evidence is interpreted and evaluated to grade the category of evidence and the strength of the recommendation by consistently

using criteria such as those previously published (Shekelle et al., 1999) (Table 4). The purpose of summarizing evidence into category and strength is to reflect its susceptibility to bias. This is a shorthand method of conveying specific aspects of the evidence to a reader of the guideline (Shekelle et al., 1999). However, the guideline developers should consider that grading the quality of studies using a reliable method may mitigate the biases of the reviewers somewhat, but may not eliminate them (Murphy et al., 1998). The next task in this step is that the guideline developers attempt to reconcile differences in interpretation within the practicing society and, if necessary, to document important minority opinions and the reasons for them. Consensus-building among practitioners engaged in clinical practice relevant to the topic is an important part of this step. The guideline developers then consider the product of this task as a final EBR and proceed to the next step in the cycle.

Step 4: Apply clinical modulating factors to formulate guidelines

This step is designed to meet the requirements of clinical flexibility and credibility through participation and consensus-building. Clinical modulating factors are in essence consensus variables that are based on clinical experience and common sense. In this step, practitioners are invited to comment on the credibility of the EBR and its applicability to clinical practice. This process will produce a guideline that either corresponds with the EBR or differs from it because sufficient weight was placed on the modulating factors to modify the recommendation. In general, the guideline is intended to mirror the EBR, and any discordance between them must be documented explicitly in the guideline report, together with the

reasons for discordance. In addition, if there are major differences between the EBR or a developed guideline and previously published guidelines or recommendations from major consensus conferences, then this should be considered in the consensus-building process and the reasons for the differences stated.

Table 4

The Category of Evidence and the Strength of Recommendation

Category of evidence:	
Ia	evidence for meta-analysis of randomized controlled trials
Ib	evidence from at least one randomised controlled trial
IIa	evidence from at least one controlled study without randomisation
IIb	evidence from at least one other type of quasi-experimental study
III	evidence from non-experimental descriptive studies, such as comparative studies, correlation studies, and case-control studies
IV	evidence from expert committee reports or opinions or clinical experience of respected authorities, or both
Strength of recommendation:	
A	directly based on category I evidence
B	directly based on category II evidence or extrapolated recommendation from category I evidence
C	directly based on category III evidence or extrapolated recommendation from category I or II evidence
D	directly based on category IV evidence or extrapolated recommendation from category I, II or III evidence

[From: Shekelle, et al (1999)]

Once the difference has emerged, an algorithm should be provided to help the guideline developers balance the strength of evidence for a guideline against the desirability of maintaining a conventional or standard practice. In general, conventional practices are retained when the evidence in support of an alternative practice is weak. Strong evidence in support of an alternative practice will ordinarily result in a guideline that overturns the conventional practice. In the absence of a conventional practice, the preferred practice recommended in the guideline will be the one supported by the best evidence available, consensus based on biologic rationale, and clinical experience extrapolation from other similar situations; and it may include cost considerations.

Step 5: Independent review of guidelines and EBR

The credibility and legitimacy of the guideline, including the appropriateness of integrating particular modulating factors, could be enhanced by an independent review conducted by discipline-specific content and methodological experts familiarized with the healthcare system, but outside the formal guideline development process. Guideline developers should respond explicitly to any recommendations of the independent experts, and should be prepared to modify the guideline if this seems warranted by the independent review. A change to the guideline in response to external review should be documented. The practice guideline report should state explicitly the evidence and modulating factors used in formulating the guideline. The final guideline is then submitted to the Practice Guidelines Committee for approval.

Murphy et al. (1998) mentioned some points that should be put into account in this step. Firstly, the number of experts is likely to have little impact on the decision of a group for guidelines. However, to enhance the credibility and widespread acceptance of the guidelines, the experts should reflect the full range of key characteristics of the population that it is intended to influence and expert selection should be seen to be unbiased. To define common ground and maximize areas of agreement, a panel of experts should be homogeneous; to identify and explore areas of uncertainty, a heterogeneous group is appropriate.

Secondly, at an early stage, a review of EBR should be provided to all experts. Experts should be encouraged to bring the review and any personal notes to share in the group. They also should be empowered to give their opinions, most usefully in the first round, about which interventions or recommendations are important. In addition, efforts should be made to mitigate the effects of the status of the experts which can affect their contribution to and influence within the group. Doing this may help maintain experts' participation and help them justify their judgments.

Thirdly, in judgments of clinical appropriateness, the most influential background factor is the particular clinical specialty. Specialists tend to favor the interventions with which they are most familiar with. Consensus-based guidelines should therefore be interpreted in the context of the specialty composition of the group.

Finally, when interpreting the response of an external review, the guideline developers should consider that differential weighting of individual experts' views produces unreliable results unless there is a clear empirical basis for

calculating the weights. Moreover, the exclusion of individuals with extreme views or outliers can have a marked effect on the content of the guidelines. Therefore, the reports of expert consensus exercises should include an indication of the distribution or dispersal of participants' judgments, not just the measure of central tendency. In general, the median and the inter-quartile range are more robust than the mean and standard deviation.

Step 6: Negotiate practice policies

There will be circumstances related to clinical, practical, and administrative constraints that make an approved guideline difficult to implement. Obvious systemic constraints may include limited access to certain equipment or technologies. While practice guidelines are expected to be adopted as practice policies, this step makes explicit the difference between recommendations (guidelines) for which clinicians are prepared to accept responsibility, and recommendations (policies) that may be shaped by nonclinical circumstances such as feasibility and affordability, for which practitioners will not accept responsibility, but with which they will cooperate. This separation of responsibilities is designed to place the burden for effecting change on the appropriate party so that policies may, over time, become more congruent with guidelines and the guidelines may become more congruent with evidence. This step is also intended to address practitioners' concerns about the motivations for guidelines development, and issues of guidelines credibility. Publications of cost-effectiveness (not just local costs) can play an important role at this administrative level of the cycle.

Step 7: Adoption of guideline(s) and policies

The developed guidelines and negotiated policies must be adopted formally by the sponsoring organization before they are given official status. This is an administrative step which provides the center its final opportunity to consider administrative modulating variables, and ensures mutual accountability on the part of practitioners and the organization for their contributions to the development of the practice policies.

Step 8: Schedule guideline review and update

Guidelines should receive an external review to ensure content validity, clarity, and applicability in light of advances in knowledge, new technological developments, changes in the financial situation of the organization, and/or other changes in the modulating factors (Browman et al., 1995; Shekelle et al., 1999). The guideline can be updated as soon as each piece of relevant new evidence is published, but it is better to specify a date for updating the systematic review that underpins the guideline (Eccles et al., 1996). However, Eccles et al. (1996) suggested that the guidelines should be reviewed for their content and evidence base no later than three years after completion. Occasionally, the clinical problem of guidelines may need to be reframed; thereby the review and update need to be restarted from step 1.

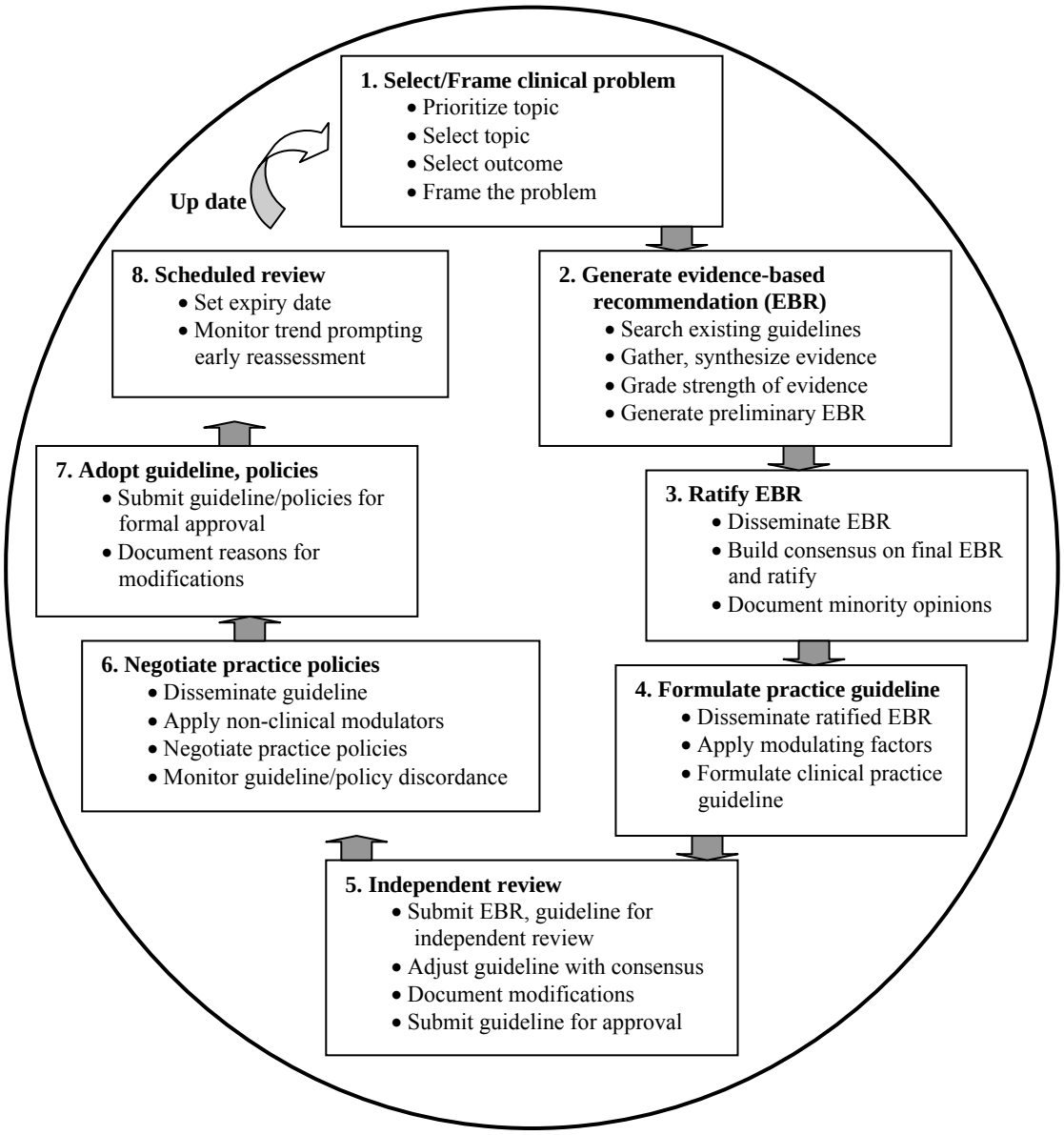


Figure 5

The Practice Guidelines Development Cycle [Modified from: Browman, et al. (1995)]

In this study, a practice guideline development proposed by Browman et al. (1995) was applied to guide the development of the evidence-based handoff for Thai OT nurses. It was expected to be used for strengthening the communication process of Thai OT nurses when transferring patient information for

the transition of patient care. In addition, although many recommendations have been proposed for standardizing the handoff process, the literature review indicated that there has been lacking of a standardized handoff guideline for OT nurses. Most of these recommendations were anecdotal records, without systematic evaluation. Therefore, in spite of the absence of a rigorously controlled study for standardizing handoff for OT nurses, a formal consensus approach such as the Delphi technique was considered an appropriate method that the researcher could use to develop a standard practice for quality assurance.

The development of the evidence-based handoff for Thai OT nurses was conducted by following the practice guidelines development modified from the practice guideline development cycle of Browman et al. (1995). However, in this study, the process of the evidence-based handoff for Thai OT nurses development included, and then modified, only 5 steps of the practice guideline development cycle of Browman et al. (1995) from step 1, select and frame the practice guideline problem, to step 5, independent review of the guideline and EBR.

In this study, the steps for the development of the evidence-based handoff for Thai OT nurses was carried out in 4 steps under the topic of the study with aims to develop the evidence-based handoff for Thai OT nurses with a valid content and applicability. These four steps included; 1) literature review to gather the existing evidence and recommendations for standardized handoff, 2) generation of the evidence-based handoff for Thai OT nurses Version I concerning Thai OT nursing, 3) content validation of the evidence-based handoff for Thai OT nurses Version I and Version II by a panel of experts using the Delphi technique, and 4) large scale applicability validation by Thai OT nurses.

To compare the process of practice guidelines development with the process of standardized handoff development in this study, step 1 select and frame the practice guideline problem, was already done since the researcher decided to develop the evidence-based handoff for Thai OT nurses according to the lack of available standardized handoff guideline for the OT environment which might lead the patient to adverse events. Step 2, generate a preliminary evidence-based recommendation was conducted in the step of the literature review and in the earlier stage of the step generation of the evidence-based OT handoff Version I in this study. Step 3, reconcile interpretations of evidence to ratify the final EBR, was performed in the step of the generation of the evidence-based OT handoff Version I in this study. In this step, the researcher rated for the category of evidence and the strength of the recommendation for each statement of the draft of the evidence-based OT handoff Version I; then a focus group of senior OT nurses was formed to future obtain input from them. Step 4, apply clinical modulating factors to formulate the guideline, and step 5, an independent review of the guideline and EBR, were switched in this study because the researcher needed the evidence-based OT handoff consisting of the content to cover all necessary requirements prior to verifying its applicability. Therefore, step 5 of the practice guidelines development was conducted in the step of content validation of the evidence-based OT handoff Version I and Version II by a panel of experts in this study. Then, step 4 of the practice guidelines development was performed in the step of large scale applicability validation of the developed handoff by Thai OT nurses in this study.

For content validation of the evidence-based handoff for Thai OT nurses, the Delphi technique was applied to obtain the consensus opinion of a panel

of experts on its content. The Delphi technique was chosen because it is a survey method that is useful for collecting and combining comprehensive opinions of a wide variety of experts to obtain a group consensus through an iterative process. This method is also considered as a time and cost saving method when the experts are in various scattered geographical locations and it would be inconvenient to adjust a busy schedule to attend a formal meeting. After the content validation of the evidence-based handoff for Thai OT nurses is verified by experts, Thai OT nurses were then invited to verify the applicability of the evidence-based handoff for Thai OT nurses that resulted from the Delphi technique by a panel of experts.

The Delphi technique

According to Williams and Webb (1994), the Delphi technique is a method designed for the systemic collection and aggregation of informed judgments from a group of experts on a specific topic of interest. Then the most reliable consensus of opinion of the experts can be obtained by a series of intensive questionnaires distributed with a controlled feedback-response loop (McKenna, 1994).

Essentially, the Delphi technique consists of several rounds of questioning by a panel of experts on specific questions or issues. Each round is conducted based on the previous round's result. To carry out the Delphi technique, the following steps will be employed (McKenna, 1994; Polit & Beck, 2008; Williams & Webb, 1994):

1. A panel of experts on the topic of interest is identified. The selection of this panel of experts proceeds with care and concern that a variety of

personalities, interests, perceptions, demographics, and the like are represented by those chosen to participate in order to avoid biases as a result of panel membership. Although Murphy et al. (1998) stated that the number of experts is likely to have little impact on the decision of a group for guidelines, however including the experts that reflect the full range of key characteristics of the population could enhance the credibility and widespread acceptance of the content of the guidelines. However, Macmillan (1971) presented in the meeting of the California Junior Colleges Association in 1971 that using more than seventeen experts for the Delphi technique could minimize the size of response error. Most researches applying the Delphi technique, therefore, utilized 17 experts or more. However, using less than this number is also possible, but the size of error will be greater (Srisatidnarakul, 2002), as presented in Table 5.

2. Each expert who agrees to participate is then asked to complete several rounds of questionnaires designed to elicit opinions, estimates, or predictions regarding the topic of interest without the necessity of attending a formal meeting with others. Therefore, this procedure is anonymous and confidential. The questionnaire is usually, but not always, a structured, formal format constructed by the investigator, participants, or both, that may be administered by mail, in a personal interview, or at an interactive on-line computer console. It is accompanied by a set of instructions, guidelines, and ground rules, and contains a series of items using quantitative or qualitative scales concerned with the study objectives. Generally, questionnaires include open-ended requests for experts' opinions and recommendations.

Table 5

Number of Experts Used for the Delphi Technique, and Range and Rate of Response Error

Number of experts	Range of error	Reducing error rate
1-5	1.20-0.70	0.50
5-9	0.70-0.58	0.12
9-13	0.58-0.54	0.04
13-17	0.54-0.50	0.02
17-21	0.50-0.48	0.02
21-25	0.48-0.45	0.02
25-29	0.45-0.44	0.02

[From: Srisatidnarakul (2002)]

3. For each round of the Delphi technique, the individual responses of the panel are scrutinized and collated by the researcher, who next tabulates and summarizes a listing result from the questionnaire for re-submission to the panel. Statistical feedback usually includes a measure of central tendency, a measure of dispersion, and in some instances, the complete frequency distribution of responses for each item. It has been suggested that the data resulting from each round should be summarized and presented in a form that allows the readers to easily compare and assimilate the study results such as a table or diagram (Browman et al., 1995; Murphy et al., 1998; Shekelle et al., 1999). Then, in consecutive rounds, the experts will be asked to reconsider the list and respond by mail again, indicating their agreement or disagreement with the content of the questionnaire. Although the

anonymity of individuals' responses is preserved, however the investigator may have a list of the experts' names and addresses as part of the study. It means that the experts are known by the investigator, or may be known to other experts, but their judgments and opinions remain strictly anonymous (McKenna, 1994). Therefore in some cases, the experts providing extreme responses or outliers may be asked by the investigator to provide written justification for their responses.

4. The replies are collated again and again, and the process is repeated until the resulting data analyzed by the researcher reflects a consensus of opinions, predictions, or beliefs among all the experts on the panel. Murphy et al. (1998) have suggested that two or more rating rounds are likely to result in some convergence of individual judgments, although it is unclear whether this increases the accuracy of the group decision. Kenward et al. (2007), instead of using several rounds, applied two rounds of the Delphi technique to develop a strategy for emergency nursing in the defense nursing services.

By following the steps of the Delphi technique, four key characteristics distinguishing this technique from other group decision-making processes can be identified. These include expert input, anonymity, interaction with feedback, and statistical group response (McKenna, 1994; Waltz, Strickland, & Lenz, 2005):

a) Expert input: the Delphi technique uses a panel of experts for obtaining data.

b) Anonymity: the Delphi technique does not require participants to meet in face-to-face discussion. Therefore, it guarantees anonymity for subjects'

responses. However, for some instances, 'quasi-anonymity' could be applied. If so, it means that the participant may be known to the others, but their opinion and judgments remain strictly confidential.

c) Interaction with feedback: the Delphi technique uses a series of questionnaires and/or interviews of two or more rounds to obtain expert opinions. For each round, a summary of the results of the previous round is communicated to and evaluated by panel members.

d) Statistical group response: the Delphi technique uses frequency distributions of experts' opinions to identify patterns of agreement. Then, concurrence of judgment/opinion is systemically emerged.

Strengths of the Delphi technique

The Delphi technique lends itself to an area of research where the aim is to identify opinions and ideological positions, and to reach agreement regarding the topic of interest. Currently, because of its advantages, it appears that the Delphi technique is gaining popularity as a research approach used by nursing researchers for their enquiry. Several advantages encompass the Delphi technique including:

1. The Delphi technique is a relatively efficient and effective method to obtain the opinions of a wide variety of experts (Polit & Beck, 2008). The technique itself affords an opportunity to gain input from diverse experts, who are usually busy and are located in various and scattered geographical locations, without the difficulties inherent in gaining personal access to such a population. By this method, experts do not need to adjust their busy schedules to attend a meeting. In addition, because successive results of each round of the Delphi technique can

reach individual experts, a variety of views of experts can be retracted, altered or added with the benefit of considered thought (Williams & Webb, 1994).

2. The Delphi technique encourages honest opinion which is free from peer group pressure (Williams & Webb, 1994), that results from an anonymous and confidential process. Throughout the process of the Delphi technique, experts are not required to be brought together for a formal meeting, thus the influence or inhibition of persuasive or prestigious experts on the opinions expressed by others, as could happen in a face-to-face situation, can be eliminated (Polit & Beck, 2008). Hence, the biases in the result can be minimized.

3. Using the Delphi technique, in which the component skills of professional effectiveness by experts are an objective of research questions, relatively improves the validity of the study. This results from two aspects. First, the skills of the experts are identified as having high face validity. Second, when consensus is achieved, it can be argued that there is evidence of concurrent validity, in that the experts themselves have both identified and agreed upon, the requisite skills (Williams & Webb, 1994).

4. Participants in the Delphi technique can be highly motivated by the experience of the feed-beck mechanism of the process when relevant material from each round is returned to the panel members. This approach can be a novel and interesting exercise for all experts concerned (McKenna, 1994).

5. The results of the Delphi technique find a greater acceptance on the part of organizational members than are decision arrived at by other ‘more direct methods’ because it has active ‘grassroots’ involvement (McKenna, 1994).

6. The Delphi technique is considered a relatively cheap method representing a significant methodological tool for solving problems, planning and forecasting because it does not require meeting or discussion among experts. It also canvasses expert opinions usually by post (Williams & Webb, 1994).

Limitations of the Delphi technique

Although, the Delphi technique is chosen for research enquiry because of its several advantages, there are some limitations to the technique the researchers need to put into account when deciding to apply this technique. The limitations of the Delphi technique are the following:

1. The complete anonymity of the Delphi technique process can lead to a lack of accountability for the view expressed by the experts. However, according to Hugh (1994), this flaw can be minimized by recruiting individuals who have knowledge of a particular topic and who are consequently willing to engage in discussion upon it. In addition, in an attempt to avoid this problem, the participants may be allowed to known who are the other experts recruited into the study, but their judgment and opinions remain strictly anonymous. Knowing who the other participants are would have the effect of motivating the panelists to participate (McKenna, 1994).

2. The recruitment of 'illusory experts' could arise when using the Delphi technique, especially in areas that lack expertise, which will affect the validity of the study result (McKenna, 1994). Therefore, to ensure that the result comes from opinions of many and varied experts on a topic, the specific criteria for expert selection should be clarified prior to the enquiry. The experts are singled out

for selection rather than fulfilling any specific standards (Williams & Webb, 1994). Moreover, it should be taken into consideration that when used to specify the component skills of the professional effectiveness of the experts, the results will have high face and concurrent validity.

3. The results representing the opinions of the experts may not be consistent with reality (McKenna, 1994). Sometimes, agreement is reached on what is the ideal, but is impractical and inapplicable in reality.

4. The 'scientific credibility' of the Delphi technique is a subject of some criticism (McKenna, 1994) because there is no evidence that it is reliable (Williams & Webb, 1994). For instance, even if exactly the same information was given to two or more panels who had been carefully selected using the same criteria; the same results may not be achieved (Williams & Webb, 1994). As a research approach, the Delphi technique is proposed as more of an art than a science. It provides for particular types of research questions for which a more scientific instrument may not be suitable. And as a substitute to the qualitative approach, the Delphi technique looks thoroughly scientific as an alternative to the Likert scale which does not. The results of the Delphi technique may be more in the nature of a 'structure brainstorming session', as opposed to a rigid positivistic exercise (McKenna, 1994).

5. The validity of the result of the Delphi technique may be subject to response bias because there is no agreement regarding the size of the panel, nor any recommendations concerning sampling techniques. Thus, the range of the panel size seems to vary arbitrarily according to the researcher. Moreover, the low response rate and high attrition rate in subsequent rounds of the Delphi technique

can introduce bias by changing the composition of the initial sample and also altering the range of opinion from round to round (Williams & Webb, 1994), therefore be of a threat to the internal validity of a study (Polit & Beck, 2008). To minimize the threats to the validity of a study, the criteria for the election of the panel should be specified prior to the study and the attrition rates over successive rounds should be monitored in order to ensure that the range of expert opinion is adequately represented. In addition, to obtain an adequate response rate, it has been recommended that using face-to-face interviews in the first round of the Delphi technique significantly increases the return rates of postal questionnaires in subsequent rounds which may result because participants know the researcher from a previous interview, and appreciated the 'personal touch' (McKenna, 1994).

6. As the results of the Delphi technique rely on the interpretation of researcher, thus there may be bias introduced by the researcher in the interpretation of the findings. Indeed, one analysis of the method indicated that it was open to distortion due to the manipulation of opinions (Williams & Webb, 1994).

7. The Delphi technique is time-consuming for the researcher in that it needs multiple data collections, analyses, summaries, and processing that is to a large extent dependent upon a speedy response by the experts. Thus, prior to using the Delphi technique, it is wise to ascertain if the benefits to be gained from effort outweigh the actual cost (McKenna, 1994; Polit & Beck, 2008; Williams & Webb, 1994).

Understanding a guideline development process and other elements related to the process could help researchers carry out the study in the right

direction with confidence that the guidelines will be valid and applicable for the target population. Users who are seeking a guideline for their practice can also appraise the guideline to see whether it develops with a valid or reliable process, and is then qualified for acceptance.

Conclusion

In healthcare, handoff is a communication process of passing essential information related to patient care between caregivers. It is used as a means for transferring the responsibility for the patient to the next caregivers coming on to resume the duty. Then, the incoming caregivers can use this information to decide on appropriate care for the patients according to their needs. Because the delivery of quality care such as the continuity and safety of care relies on current information that is being passed between caregivers, particularly during handoff, therefore communication during handoff needs to be effective, and consisting of accurate, relevant, and sufficient information. Moreover, using appropriate strategies to carry information to minimize distortions or degradations of transferred information is also another important part for effective handoff.

Although handoff is considered as a vital process to ensure the continuity of care delivery, the problems of handoff breakdown have continuously been found. These result in unanticipated adverse events affecting both the caregivers and patients. For a surgical patient in an OT setting, handoff is conducted many times at different points as the patient navigates throughout the three phases of perioperative care including the pre-, intra-, and post-operative phases. At each

handoff point, the handoff that is not performed properly can lead the patient to be exposed to adverse events.

Since ineffective handoff introduces serious impacts on the quality of care, especially disrupting the continuation of care and jeopardizing patient safety, many studies and also the JCAHO recommend healthcare institutions implement a standardized approach to handoff. Many recommendations for handoff have been proposed. However, most of them tend to be anecdotal, and very few studies have systematically tested the feasibility, efficiency and effectiveness of these recommendations. Moreover, there have been very few standardized handoffs in healthcare settings currently available, particularly in the perioperative setting. Lack of a standardized handoff among OT nurses has resulted in missing essential information to determine appropriate and safe care for surgical patients.

In Thailand, the occurrence of OT handoff breakdowns and their adverse consequences have been similar to those described in the relevant literature, even though there is no systemic evidence reported due to the Thai reporting system not functioning well. The lack of standardized handoff for OT nurses and the unique nature and culture of the Thai OT context calls attention from the researcher to develop a evidence-based handoff for Thai OT nurses with the ultimate goal of improving the quality of Thai OT nursing, particularly in the aspects of continuity of care and patient safety.

In this study, the guideline development process was modified and applied to develop the evidence-based handoff. By following the guideline development processes and using a formal consensus approach as the Delphi technique, the evidence-based handoff for Thai OT nurses is expected to be well-

developed with its content validity and applicability considered acceptable among the Thai OT nursing society. It is also expected to be a tool that Thai OT nurses can use to transfer essential information related to surgical patient care between OT nurses and other caregivers with the ultimate goal of ensuring the continuity of care and also patient safety.

CHAPTER 3

RESEARCH METHODOLOGY

The evidence-based handoff for Thai OT nurses was developed through the following steps: 1) literature review to gather the existing evidence and recommendations for standardized handoff, 2) generation of the evidence-based handoff for Thai OT nurses Version I concerning the Thai OT nursing context, 3) content validation of the evidence-based handoff for Thai OT nurses by a panel of experts using the Delphi technique, and 4) large scale applicability validation by Thai OT nurses. The following sections describe the details of each step.

Step 1: Literature Review

This step aimed to gather the existing evidence and recommendations for constructing the evidence-based handoff for Thai OT nurses. In doing so, the researcher conducted a comprehensive literature review to identify two major components of the evidence-based handoff for Thai OT nurses; 1) information that would be required for Thai OT nursing handoffs, and 2) strategies that would be required for Thai OT nursing handoffs. During this step, articles relating to clinical handoffs were drawn from electronic databases, including CINAHL, Cochrane Library, Google Scholar, OVID, PubMed, ScienceDirect, Springer Link, and Wiley Online Library. Search terms used were handoff, handover, sign-out, shift report, shift change, operating room/theatre, and perioperative care. Additional manual searching of thesis, articles listed on the reference of drawn articles, and journal articles related to clinical handoff were also

conducted. Articles published in the English and Thai languages during 2002-2010 were included in the review.

Numerous numbers articles were identified form the literature review. These included: prospective, retrospective, experimental, randomized, observational, descriptive, pilot, and qualitative studies; investigation reports; experts' opinions; and related guidelines. After the statements of information and strategies required for OT handoffs were sufficiently identified, they were then categorized and graded by using a classification scheme previously published by Shekelle et al. (1999), as presented in Table 4. The highest level of the category of evidence and the strength of recommendation was cited for each statement. The following sections describe each component of the evidence-based handoff for Thai OT nurses.

Information required for Thai OT nursing handoffs

Peioperative nursing care consists of three phases of care (Braaf et al., 2011). Throughout the peioperative nursing care continuum, OT handoff is usually conducted at five points of patient care transfer. At each point of a surgical patient care transfer, information required would be different depending on the patient care needed in the following phase of care (Christian et al., 2006). Actually, information transferred needs to be essential and relevant to be used for progressive care. During the literatures review, the researcher considered identifying information that would be required at each of the five points of OT nursing care transfer, mentioned earlier.

At each OT handoff, information required for handoff would consist of some similar and different information to other handoffs. These depend on what needs to be informed to the following nurses taking care of the patient in order to assist them in the delivery of safety, continuity, and quality of care. In addition to identifying information required for each OT handoff, the information identified was organized into the SBAR structure. SBAR stands for situation, background, assessment, and recommendation. In this study, situation refers to the information regarding general patient status. Background refers to the information regarding the history and present illness and other general information of the patient. Assessment refers to the information regarding patient assessment performed by nurses or healthcare personnel. Recommendation refers to the information regarding suggestions or concerns for patient care. SBAR was applied to this study because it was frequently used in healthcare (Riesenberg, Leitzsch, & Little, 2009). Moreover, it has been considered as an easy-to-remember structure for giving information in a logical sequence, and has been recommended for perioperative nursing handoffs (Amato-Vealey et al., 2008; Clark et al., 2009).

Strategies required for Thai OT nursing handoffs

Strategies employed to convey information is another essential component for effective handoff. In this study, the strategies for information transfer was considered as a channel used for carrying a message to the intended receiver in the Shannon and Weaver model of communication (Shannon & Weaver, 1949). During the literature review, the researcher identified the strategies that

could prevent distortion or degradation of information transferred, and also could also improve the quality of OT handoffs.

Step 2: Generation of the Evidence-based OT Handoff Version I

This step aimed to generate the evidence-based handoff for Thai OT nurses Version I. In this step, all identified information and strategies from the literature review required for the evidence-based handoff for Thai OT nurses were constructed into the evidence-based OT handoff Version I. In addition, the researcher added, dropped and modified some information and strategies in the draft the evidence-based handoff for Thai OT nurses of version I, resulted from the literature review. This was done based on her experience and knowledge gleaned from working in Thai OT for 16 years.

To ensure that the evidence-based handoff for Thai OT nurses Version I sufficiently contains the statements of the information and strategies that need to be included, the researcher conducted a focus group discussion with OT nurses to obtain additional input from them. The participants in the focus group discussion were five senior OT nurses from three hospitals who have had experience working in OT for more than five years, and were currently participating in OT handoff. About one week prior to the focus group discussion, the researcher provided the evidence-based handoff for Thai OT nurses Version I resulting from the previous step to all participants for their examination. Then, in a focus group session, the researcher requested all participants to discuss whether the evidence-based handoff for Thai OT nurses Version I needed more information and strategies to be added, what information and strategies should be added, whether the

statement of each information and strategy should be modified, and how the modified statement should be. Finally, all opinions from the focus group discussion were applied to develop the evidence-based handoff for Thai OT nurses Version I.

After the evidence-based OT handoff Version I was established, a questionnaire for a panel of experts, to verify whether they agree that each identified statement is required for the evidence-based handoff for Thai OT nurses, was further developed. Furthermore, in the questionnaire, the strength of recommendations and the quality of evidence for each information and strategy were included.

Step 3: Content Validation of the Evidence-based Handoff for Thai OT Nurses

This step aimed to obtain expert consensus on content validation for the evidence-based handoff for Thai OT nurses. After the evidence-based OT handoff Version I was generated, two rounds of the Delphi technique were employed to obtain agreement by the panel of experts for the statements of the evidence-based OT handoff Version I (Kenward et al., 2007; Murphy et al., 1998).

Participants

Participants were seventeen experts purposively recruited from multiple sectors. This number of experts was applied according to the presentation of Macmillan (1971), illustrating that seventeen experts or more for the Delphi technique could minimize the size of response error. The recruited experts were the well-informed persons consisted of:

a) 3 committee members of the Thai Perioperative Nurses

b) 2 committee members of the Thailand Nursing Council

c) 2 nursing directors responsible for OT service

d) 2 head nurses of Thai OT

e) 2 senior OT nurses who are currently participating in OT handoff

f) 2 senior nurses form surgical wards who are currently participating in OT handoff

g) 2 senior anesthetist nurses who are currently participating in OT handoff

h) 1 surgeon, and

i) 1 anesthesiologist

As composition of experts could affect credibility of results obtained from Delphi technique (Keeney, Hasson, & McKenna, 2001), the researcher then established criteria to recruit appropriate experts in this study. Thus, criteria used for Delphi expert selection mentioned by Hsu & Sandford (2007) were applied. They described that individuals are considered eligible to be experts in Delphi study if they have somewhat related backgrounds and experiences concerning the target issue, are capable of contributing helpful inputs, and are willing to reconsider judgments provided for each Delphi round for the purpose of reaching or attaining consensus. This study, therefore, used the snowball technique and expert criteria mentioned above to identify experts. The experts were recruited if they had all of the following qualifications:

a) Having experience in working, teaching, or researching in the area related to Thai perioperative nursing care for more than 10 years

b) Being a well-known person either in the OT nurse community or in their organization, and

c) Willing to participate in the study

Instruments

The instruments used in each round in this step consisted of

1) For the first round, the instruments used in this round were:

a) The demographic data form for experts requesting information on gender, age, religion, marital status, education level, position, and duration of work experience in the area of OT,

b) The questionnaire of the evidence-based handoff for Thai OT nurses Version I.

2) For the second round, the questionnaire of the evidence-based handoff for Thai OT nurses version II, modified based on the experts' agreement and opinions on the evidence-based OT handoff Version I from the first round was used.

The questionnaire for each round consisted of a group of information and strategy statements. The questionnaire of the first round mainly consisted of close-ended questions asking respondents to express levels of agreement for each statement on three terms of content validity by using a 7-point Likert scale from 'very strongly disagree' (0) to 'very strongly agree'(6). The three terms of content validity included relevancy, sufficiency, and clarity (Waltz et al., 2005). Moreover, there were spaces for open-ended responses inviting the respondents to modify the statements, provide opinions and suggestions, or add new

statements together with the rationale. In the second round, the experts were asked to confirm their agreement on each presented statement. The question ‘whether they agree or disagree to retain each statement?’ was used. If they answered ‘disagree’, they needed to specify whether they suggested to modify or to drop the statement together with the rationale. Similar to the first round, spaces for open-ended responses were also provided.

Data collection and analysis

In this step, two rounds of the Delphi technique were conducted among a panel of experts in order to examine the content of the evidence-based handoff for Thai OT nurses by responding to the questionnaire.

In the first round, the evidence-based OT handoff Version I generated from the previous step, was sent to a panel of experts. The experts were asked to independently rate their agreement with each statement on three terms of content validity, as well as to modify the statements, provide opinions and suggestions, or add new information and strategies together with the rationale, for the evidence-based handoff. The completed questionnaire was then requested to be returned to the researcher. Subsequently, the researcher took all experts’ opinions into account to determine consensus opinion.

To develop the consensus, the percentage of agreement from the experts for each statement was calculated. It was then used to guide decision making whether the statement should be retained, modified, or discarded. The mean, median, standard deviation (SD), and inter-quartile range (IQR) of the agreement score for each statement were subsequently taken into consideration. The

following criteria were used to determine to decision on each statement (Crutzen et al., 2008; Polit & Beck, 2008):

1) Retained: if ≥ 80% of experts scored the statement ≥ 5 and IQR ≤ 1.00 in all relevancy, sufficiency, and clarity.

2) Modified: if ≤ 80% of experts scored the statement ≥ 5 and/or IQR ≥ 1.00 in at least one of relevancy, sufficiency, and clarity.

3) Dropped: if the statement failed to meet either one of the above criteria.

In addition to determine the decision on each statement by considering the percentage of agreement from the experts and inter-quartile range (IQR) of the agreement score, the theoretical rationales and qualitative responses from the experts were also included for decision making. Finally, a summary of the results in the first round was tabulated and the evidence-based handoff for Thai OT nurses version II was developed for further investigation in the second round.

For the second round, the evidence-based handoff for Thai OT nurses version II was resubmitted to the same group of experts, along with a summary of the results and their score provided for each statement of the previous round. The experts were asked to confirm their agreement for the retaining statements. Moreover, they were invited to modify all the statements, provide opinions and suggestions, or again added new information and strategies together with the rationale. After the experts sent the completed questionnaire back to the researcher, the researcher took all experts' opinions into account to develop the

evidence-based handoff for Thai OT nurses version III. The retention of each statement was determined by the percent of expert's agreement and qualitative responses. The consensus criteria for the statement in this round was 80% of expert's agreement (Polit & Beck, 2008). Consequently, the agreement with the content validity of the evidence-based handoff for Thai OT nurses Version II was finally calculated and then reported, and the results of the second round Delphi were used to further establish the evidence-based handoff for Thai OT nurses Version III.

Step 4: Large Scale Applicability Validation by Thai OT Nurses

This step aimed to verify the applicability of the evidence-based handoff for Thai OT nurses. In this step, the evidence-based handoff Version III was mailed to Thai OT nurses across Thailand to ask for their agreement for its applicability.

Participants

Participants were Thai OT nurses randomly selected from the member name list through the Thai Perioperative Nurses' Association website. Before the selection, all names of Thai OT nurses from the association list were classified based on the level of hospital they work for including primary, secondary, and tertiary care. The member names of the OT nurses working for primary care hospitals were excluded from the selection because these hospitals currently do not perform major surgery, thus they perform only simple handoff if at all.

At the time of this study, the Thai Perioperative Nurses' Association consists of 7,118 members. Of these, 1815 and 1494 nurses were identified as licensed OT nurses working in secondary and tertiary care hospitals, respectively. The researcher then recruited 10% of them into the study by using proportionate stratified random sampling from secondary and tertiary care hospitals (Singchungchai, Kampalikit, & Nasae, 1996). Additionally, 10% of the recruited number was added and then rounded up to an integer for the compensation of a low response rate. As a result, participants in this step were 400 OT nurses. They were 180 and 220 OT nurses working in secondary and tertiary care hospitals, respectively.

Instruments

The instruments used in this step consist of

1) The demographic data form for Thai OT nurses requesting information on education level, position, duration of work experience in the area of OT, and the level of care provided by their hospital.

2) The questionnaire of the evidence-based handoff for Thai OT nurses version III modified from the second round of the Delphi technique.

The questionnaire mainly consists of close-ended questions asking Thai OT nurses for their agreement with the applicability of each statement in the standardized handoff version III. The level of agreement for each statement was expressed by using a 7-point Likert scale from 'very strongly disagree'(0) to 'very strongly agree'(6). In addition, throughout the questionnaire, open-ended

responses were provided for the respondents to give their opinions, comments, rationales and suggestions.

Data collection and analysis

The questionnaire asking for the agreement with the applicability of each statement of the evidence-based handoff version III was sent to all eligible participants. In the questionnaire, the researcher encouraged all participants to provide their opinions, comments, rationales and suggestions on the evidence-based handoff for Thai OT nurses Version III. Then, they were requested to send back the completed questionnaire, in a pre-paid envelope, to the researcher. After considering all returned questionnaires, the researcher developed the evidence-based handoff for Thai OT nurses Final Version.

To develop the consensus in this stage, the process and criteria used to develop the consensus for each statement in the first round Delphi were employed. At the end of this step, the evidence-based handoff for Thai OT nurses Final Version was proposed. Opinions, comments, rationales and suggestions from the participants were analyzed, summarized, and reported, then put into discussion.

In summary, the development of evidence-based handoff for Thai OT nurses development consisted of four steps including: 1) literature review, 2) generation of the evidence-based OT handoff Version I, 3) content validation of the evidence-based OT handoff Version I and Version II by a panel of experts, and 4) large scale applicability validation of the evidence-based handoff Version II by Thai OT nurses. The process of the evidence-based handoff development can be drawn

as shown in Figure 6. Each step, the persons involved, and the output of each step are shown in Table 6.

Ethical Considerations

Prior to commencing the study, the research proposal was submitted for review and approved by the Faculty of Nursing Research Ethics Committee (Appendix A). Prior to and along the process of data collection, all potential participants were informed about all aspects of the study. Permission for data collection was asked from them by voluntary signing in written informed consent. However, if the participants felt it was inconvenient to sign a written consent form, but still participated in the study, this would indicate their willing participation. Throughout the study, the protection of participants' rights were assured by providing (1) the title of the study, (2) the purpose of the study, (3) the methodology of the study, (4) the assurance of the subject's anonymity, (5) the assurance of the subject's impartiality protection, (6) the assurance of voluntary participation and possible withdrawal from the study at any time, (7) the assurance that all the data from the questionnaire will be presented in a holistic perspective and will be destroyed upon completion of the study, and (8) the name and address of the researcher (Appendix B).

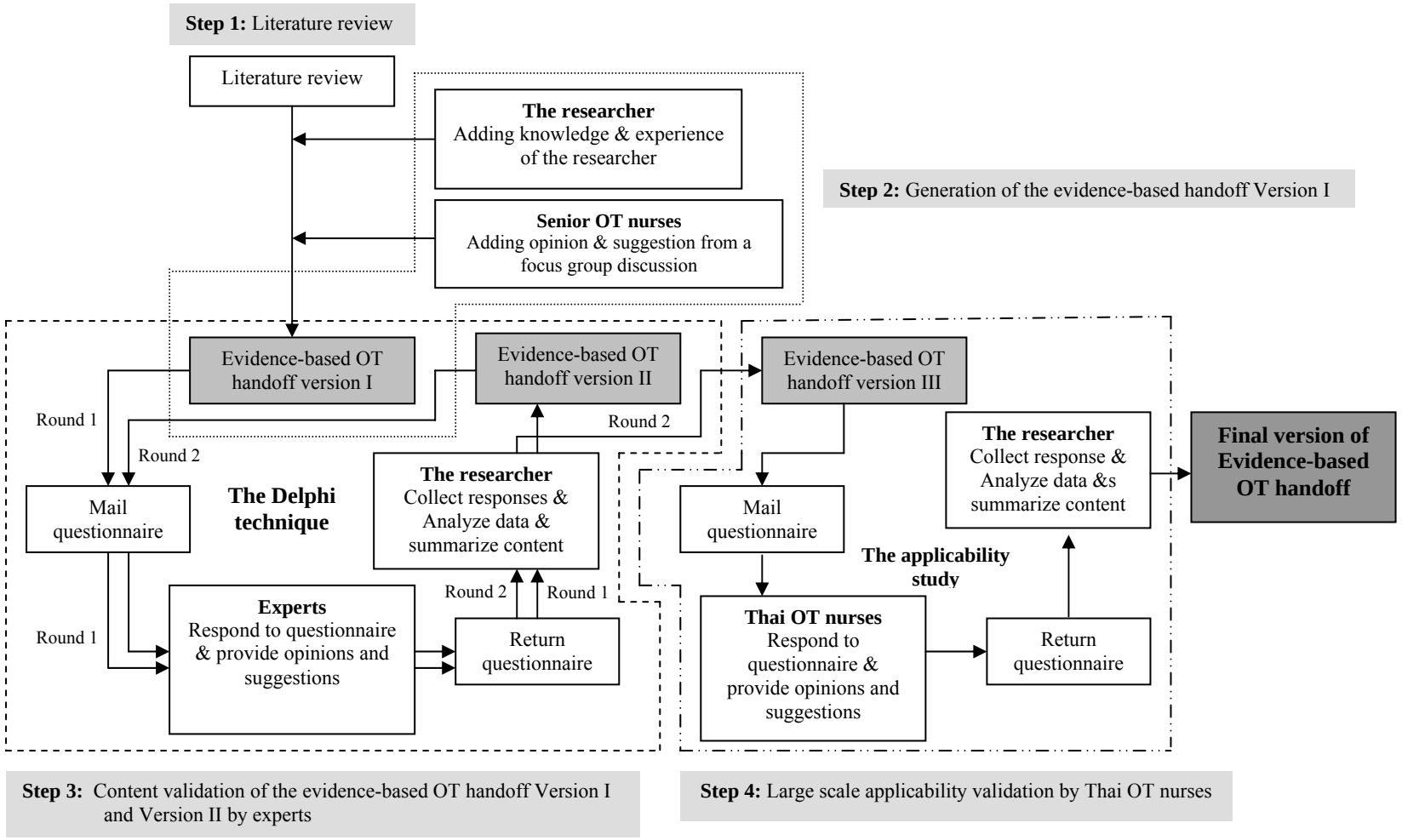


Figure 6
The Development Process of the Evidence-based Handoff for Thai OT Nurses

Table 6

Persons Involved and Output of Each Step in the Development of the Evidence-based Handoff for Thai OT Nurses

Step	Activity	Person involved	Output
1	Literature review	The researcher	Draft of Version I
2	Generation statements	5 seniors OT nurses & the researcher	Version I
3	Content validation		
	3.1 Delphi round 1	17 experts	Version II
	3.2 Delphi round 2	15 experts	Version III
4	Applicability validation	148 OT nurses	Final version

Expected Outcome

The study produces a standardized handoff that is suitable for Thai OT nurses, as well as promotes the continuity of patient care and patient safety for Thai surgical patients.

CHAPTER 4

RESULTS AND DISCUSSION

This study aimed to develop evidence-based handoff for Thai OT nurses. This newly developed evidence-based handoff is expected to be a well-developed eveidence-based practice that is applicable to be utilized in Thai perioperative nursing environment. The developmental process consisted of 4 steps: 1) literature review to gather the existing evidence and recommendations for standardized OT nursing handoff, 2) generation of the evidence-based handoff for Thai OT nurses Version I, 3) content validation of the developed evidence-based handoff for Thai OT nurses by a panel of experts using the Delphi technique, and 4) large scale applicability validation by Thai OT nurses. The following sections present results and discussions on each step.

Step 1: Literature Review

This step aimed to gather the existing evidence and recommendations for constructing the evidence-based handoff for Thai OT nurses. In doing so, the researcher conducted a comprehensive literature review to identify two major components of the evidence-based handoff for Thai OT nurses, information and strategies required for Thai OT nursing handoffs. For the information required for Thai OT nursing handoffs, the SBAR mnemonic was applied to structure the information statements and they were divided into 5 sets of OT handoff usually performed throughout perioperative nursing care.

After the information and strategy statements were sufficiently identified, they were then categorized and graded by using a classification schemes previously published by Shekelle et al. (1999) (Table 4). The highest level of category of evidence and the strength of recommendation were cited for each statement.

Through this process, a total of 281 statements related to OT handoff were constructed. Of these, 252 statements were information required for all 5 sets of OT handoffs and 29 statements were strategies that would be required for all OT handoffs. For the 252 information statements, there were some repetitions of similar information statements as they were considered as a requirement for many OT handoffs, whereas some statements were included in only a particular OT handoff. The category of evidence, the strength of recommendation, and number of each component is presented in Table 7

Table 7 revealed that nearly half of identified statements (135 statements) were drawn form evidence recommended by expert committee reports or opinions or clinical experience (IV, D) followed by the statements (124 statements) that were extracted evidence recommended by non-experimental or descriptive studies (III, C). Only a few numbers of statements (20 statements) were taken from quasi-experimental studies (IIb, C). There was one statement drawn from a quasi-experimental study (IIb, b), carried out by Pothier et al. (2005). This statement was a strategy statement advocating the use of a combination of verbal report and a pre-prepared sheet for handoff. In Pothier et al.'s study, they displayed that verbal handoff using pre-prepared sheet resulted in less information loss than

Table 7

The Category of Evidence and the Strength of Recommendation, and Number of Statements Identified from Literature Review in Each Component and Category of the Evidence-based Handoff for Thai OT Nurses

Statement	Category & Strength					Total statements (N)
	Ib, A (N)	IIb, B (N)	IIb, C (N)	III, C (N)	IV,D (N)	
Information required						
Handoff 1	0	0	5	21	20	46
Handoff 2	0	0	8	21	20	49
Handoff 3	0	0	5	18	27	50
Handoff 4	0	0	1	21	31	53
Handoff 5	0	0	1	27	26	54
Strategy required	1	1	0	16	11	29
Total statements	1	1	20	124	135	281

Ib = Evidence from at least one randomised controlled trial
IIb = Evidence from at least one other type of quasi-experimental study,
III = Evidence from non-experimental descriptive studies,
IV = Evidence from expert committee reports or opinions or clinical experience of respected authorities, or both,
A = Directly based on category I evidence
B = Directly based on category II evidence or extrapolated recommendation from category I evidence
C = Directly based on category III evidence or extrapolated recommendation from category I or II evidence
D = Directly based on category IV evidence or extrapolated recommendation from category I, II or III evidence

purely verbal handoff and verbal handoff using note taking. In addition, the only one strategy statement was derived from two randomized controlled studies by Van Eaton et al. (2005). This study demonstrated that an implementation of a computerized handoff system brought about quality and continuity of patient care. The list of example statements identified from literature review is presented in Appendix H, Table 25.

Step 2: Generation of the Evidence-based Handoff for Thai OT Nurses Version I

In this step, the statements identified from the previous step were brought to generate the evidence-based handoff for Thai OT nurses Version I. In

this step, the researcher added, dropped and modified some statements of the draft of the Version I. This was established based on the researcher's experience and knowledge gained by working in Thai OT over 16 years.

Remarkably, the researcher decided to drop the strategy statement that was derived from a randomized controlled study with the intention to develop a low-technological evidence-based OT handoff, which would be suitable for Thai healthcare context (Van Eaton et al., 2005). The statement "*Implement a computerized handoff system to facilitate handoff when is possible*" was considered not appropriate because only a few number of Thai hospitals currently utilized electronic patient records. Thus, it would finally be inapplicable to apply by Thai OT nurses in many hospitals.

To ensure that the draft of the evidence-based handoff for Thai OT nurses Version I sufficiently consisted of the statements that would be needed for OT handoffs, the researcher subsequently conducted a focus group discussion with five senior OT nurses to obtain their opinions. All of them were female and Buddhist; median age was 46 years. There were more nurses (n=4) working at the secondary care hospitals (Table 8).

It was found that many statements in the draft Version I should be modified whereas few statements should be dropped. Some statements should be combined. In addition, some statements in information component were not logically arranged. Thus, they were relocated in the same SBAR structure for logical reason and more appropriateness.

Table 8

Demographic Characteristics of Senior OT Nurses Participating in Focus Group Discussion (n=5)

Demographic characteristics	Median	Min	Max	n
Age (years)	46	28	48	
Marital status				
Single				4
Married				1
Education level				
Bachelor degree				3
Master degree				2
Level of hospital				
Secondary care				4
Tertiary care				1
Duration of work experience in the area of OT (years)	22	6	25	

The examples of information statements being modified or dropped were;

a) Information statement that was specified for Handoff 1 throughout Handoff 5;

"Patient's weight and height"

For this statement, the senior OT nurses discussed that:

"We need only to roughly know patient weight and height in order to appropriately prepare instruments for the operation." [Senior nurse 1: SN 1]

"For instrument preparation, weight would be necessary but height seems not be necessary. For examples, if the patient undergoing caesarian section or appendectomy weighs nearly 100 kilograms, we need to prepare more or special instruments or assistants than other patients." (SN 2)

"I am uncertain about this information, whether it should be conveyed during handoff. In some cases, like five-year patients, one would weigh 10 kilograms, while another may weigh much more than that. Knowing this is good for

appropriate instrument preparation. However, I confess that I usually never ask patient's weight, except when the patient is a child that would need special instruments or equipments for specific operation. It is anesthetists that may need to know patient weight and height for drug dose calculation for drug administration."(SN 5)

As a result, this statement was modified to:

"In case that the patient is a child or an adult that has usual physical appearance, indicate patient's weight and height, or physical appearance that differs from a usual case"

Same as earlier, this was put into Handoff 1 to Handoff 5

b) Information statement that was specified into Handoff 1, Handoff 2, Handoff 4, and Handoff 5;

"Patient's level of pain"

For this statement, the senior OT nurses discussed that:

"Knowing patient's level of pain is sometimes necessary and sometimes not. To me, we should know the level of pain. This could help us to care comfort our patients before they receive anesthesia…only this. However, in my hospital, we usually do not ask for this. But, I think it's necessary to know so that we can compare pre- and post- operative pain in some cases." (SN 2)

"I had experience with orthopedic patients who had fracture. Some patients have low pain threshold, but some high. The high may not tell us about their pain, if we don't ask. When we move them to the table or when the anesthetist prepares them for spinal block. Knowing that the patient has pain could lead us to move them more smoothly, prepare supports for moving, or ask for more assistants." (SN 5)

"Yeah, we should know. Although we could not reduce their pain, we can induce more pain, like when we move them. (SN 3)

"If so, then you should put in the bracket that if the patient previously has pain….. If the patient do not have pain, it's unnecessary to ask the patient before the surgery." (SN 1)

As a result, the words “In case that the patient has pain” were added in to this statement and it was modified to:

“In case that the patient has had pain prior to arriving to the operating theatre, indicate patient’s level of pain lastly assessed and pain management given to the patient. If the patient was given pain relief drug, indicate drug name, time, dose, and route of administration, and its effects.”

The modified statement was put into Handoff 1, Handoff 2, and Handoff 5. This statement was dropped form Handoff 4 for the reason that during intra-operative phase and post-operative recovery phase taking care for patient’s pain is under responsibility of anesthetists, and they usually convey this information among them.

c) Information statement that was specified for Handoff 1 throughout Handoff 5;

“Patient’s wish for cardiopulmonary resuscitation (CPR) in case of emergency”

For this statement, the senior OT nurses discussed that;

“For Thai society, there are many classes of people. OK, like us. We understand what could happen during the surgery. But for lay persons, if we ask them whether they wanted us to perform CPR in case of emergency situation, they would not understand why we ask. It is not our culture or tradition for asking this.” (SN 1)

Presently, Thai people with less education or at the grassroots level would not accept for this kind of question. …It likes we curse them. Right? ... If they just came to the hospital for an uncomplicated surgery. They would certainly expect to survive. If we ask for this, we may make them more anxious? … If the patient could walk in to the hospital, but he or she finally died, it could lead to accusation.” (SN 2)

"Even though we explain about complications that could happen during the operation, they seem to react like we will make them truly happen. They would not understand that unanticipated events could happen. They always think they will be saved under our care. (SN 4)

For making decision regarding this information statement, the Thai Living Will Act declared in 2007 was considered (Boonchalermwipas & Limsatid, 2010). Although the Act was declared and has been active for 5 years, it seems uncommon for Thai patients being hospitalized to express their living will. This may be because in Thailand an understanding of end-of-life decisions is limited (Manasurakarn, Chaowalit, Suttharangsee, Isaramalai, & Geden, 2008). A study conducted in northern part of Thailand described attitudes toward the preference for CPR of the terminally ill patients. They found that it was inappropriate to ask patient about CPR in a single interview. They then expanded time for interview to have several sessions instead (Sittisombut, Love, & Sitthi-amorn, 2005). The reason may be that rushing them to answer about issue related to death may make them stressful. The researcher in consultation with 5 sinnor OT nurses during focus group discussion justified to drop this statement from the evidence-based handoff for Thai OT nurses Version I.

Regarding the strategy statements, very little discussion was given to these statements. All senior OT nurses agreed to put all of the proposed strategy statements into the evidence-based handoff for Thai OT nurses Version I. However, some statements were modified to be precise and more understandable. The examples of these statements were:

1) Statement:

"*Sender of patient's information has to be knowledgeable and understands patient's information well. And, receiver of patient's information should be a person who will directly take the responsibility for the patient care.*"

This statement was modified to:

"*Sender of patient's information has to be a nurse who is knowledgeable and understand patient's information well, while receiver of patient's information must be a nurse who will directly take the responsibility for the patient care from the sender of patient's information*"

2) Statement:

"*Sender of patient's information should prepare his/her self to be ready for handoff prior to the beginning of handoff, in order to ensure that significant and relevant information related to patient related to patient care will be transferred to the nurse who is coming to take responsibility for patient care.*"

This statement was modified to:

"*Sender of information should prepare his/her self to be ready for handoff prior to the beginning of handoff, in order to ensure that significant and relevant information related to patient care will be transferred to the nurse coming to take responsibility for patient care.*"

The output of this step resulted in the evidence-based handoff for Thai OT nurses Version I. It consisted of 242 statements. Of these, there were 214 information statements for all five sets of OT handoffs and 28 strategy statements. Noticeably among 214 information statements, there were some similar information statements overlapping across each set of OT handoffs as they were considered as requirements. Table 9 shows number of statements in each component, category and sub-category of the evidence-based handoff for Thai OT nurses Version I.

Table 9

Number of Statements in Each Component, Category and Sub-category of the Evidence-based Handoff for Thai OT Nurses Version I

Statement	Mnemonic				Total (N)
	S (N)	B (N)	A (N)	R (N)	
Information required for OT handoff *					
Handoff 1	6	7	17	6	36
Handoff 2	6	13	14	6	39
Handoff 3	10	16	14	10	50
Handoff 4	9	13	13	9	44
Handoff 5	10	14	12	9	45
Strategy required for OT handoff	-	-	-	-	28
Total statements					242

SBAR stands for Situation, Background, Assessment, and Recommendation
* Comprise similar statements

Step 3: Content Validation of the Evidence-based Handoff for Thai OT Nurses

In this step, a two-round Delphi technique was employed to obtain agreement of a panel of experts on each statement. Seventeen experts were invited to validate the contents of the evidence-based handoff for Thai OT nurses Version I with responding to relevancy, sufficiency, and clarity of each proposed statement. All of them were female and Buddhist. About haft of them (n=9) were master prepared and worked at a university hospital (n=8), with a median duration of work of 25 years (Table 10).

Table 10

Demographic Characteristics of Experts (n=17)

Demographic Characteristics	Median	Min	Max	n
Age (years)	49	37	61	
Marital status				
Single				6
Married				11
Education level				
Bachelor degree				5
Master degree				9
Doctoral degree				3
Work place				
Educational institute				4
University hospital				8
Regional hospital				4
Private hospital				1
Position and affiliation				
Committee member of the Thai Perioperative Nurses Association				3
Committee member of the Thailand Nursing Council				2
Nursing director responsible for OT service				2
Head nurses of Thai OT				2
OT nurse				2
Surgical ward nurse				2
Anesthetist nurse				2
Surgeon				1
Anesthesiologist				1
Duration of work experience in the area of OT (years)	25	13	39	

The result of the first round Delphi yielded more than 80 % agreement on most statements with the overall of 90.06 % agreement; indicating satisfactory level of content validity. Table 11 presents percent of agreement of experts on content validity of the Version I.

Table 11

Percent of Agreement of Experts on Content Validity of the Evidence-based Handoff for Thai OT Nurses Version I (n=17)

Content validity	Number of statement	Range of percent of agreement	Percent of agreement
Information required for OT handoff			
Relevancy	214	64.71 - 100.00	89.96
Sufficiency	214	58.82 - 100.00	90.38
Clarity	214	58.82 - 100.00	90.43
Overall	214	60.78 - 100.00	90.25
Strategy required for OT handoff			
Relevancy	28	64.71 - 100.00	88.68
Sufficiency	28	70.59 - 100.00	88.68
Clarity	28	70.59 - 100.00	88.46
Overall	28	70.59 - 100.00	88.61
Overall Version I	242	60.78 - 100.00	90.06

For information statements, there were some similar statements that obtained agreement of experts less than 80% in some OT handoffs, but 80 % or higher in other OT handoffs. The examples of these statements are shown in Table 12. List of example statements and results of the first-round Delphi on content validation of the evidence-based handoff for Thai OT nurses Version I is shown in detail in Appendix H, Table 26.

Table 12

List of Example Similar Statements in the Evidence-based Handoff for Thai OT Nurses Version I and Their Percent of Agreement on Relevancy Aspect

Statement	Percent of agreement on relevance aspect				
	H2	H2	H3	H4	H5
1. Ward that the patient has been admitted prior to coming for the operation	76.47	70.59	76.47	82.35	-
2. Name of surgeon who is responsible for patient's operation	94.12	100.00	70.59	82.35	82.35
3. Means that can be used to contact with patient's relatives in case that it is needed by healthcare members.	76.47	100.00	100.00	94.12	70.59

Although the content validity of the evidence-based handoff for Thai OT nurses Version I was considered acceptable, the results of the first round Delphi illustrated a room for further improvement to the evidence-based handoff for Thai OT nurses Version I. According to expert's responses, there were some similar statements that were agreed to be included to some OT handoffs but not others. The researcher then considered that if these statements were needed in some OT handoffs, but were deleted from the earlier OT handoffs as unacceptable statements, they may be omitted. For example, one information statement was agreed to be included in Handoff 1, Handoff 2, Handoff 3, and Handoff 5, but was not acceptable for Handoff 4. It was omitted in Handoff 4. Consequently, this information would also likely be omitted in Handoff 5. Moreover, consisting of a large number of statements could lead the evidence-based OT handoff to be cumbersome to users. Many experts gave high concern on this issue. For this reason, the Version II was no longer explicitly separating Handoff 1 to Handoff 5,

but researcher decided to combine the similar statements that previously were arranged in different OT handoffs into one statement.

After collapsing the information statements into one set of information statements across cover all five OT handoffs, the researcher observed that there were three statements that were attributed to introductory information and it would not be appropriate to put them under any parts of the SBAR structure. These three statements were:

1) *"The name of staff sending and receiving patient information"*

2) *"Patient's identification, including patient's hospital number (HN), name, surname, age, and gender"*

3) "*Ward that the patient has been admitted prior to coming for the operation"*

The researcher then decided to modify the structure of information statements of the evidence-based OT handoff Version II. Since all three above statements were considered having attribution of introduction that are necessary at the beginning of each handoff, the acronym "I" which stands for 'Introduction' was then added in front of SBAR, resulting in the new structure, namely I-SBAR. The I-SBAR was another handoff structure that has been recommended by the AORN (Girard, 2007). The reason to modify the evidence-based OT handoff structure was to make it to be more appropriate and easier to remember. The I-SBAR was considered acceptable because it was used to as a structure tool to improve communication during handoffs between OT and other units (Forsythe, Persaud, Swanson, & Stierman, 2008). Recently, a study teaching I-SBAR as a

communication tool found that it improved content and clarity of the delivered information during telephone referral in a simulated clinical setting (Marshall, Harrison, & Flanagan, 2009).

Additionally, there was a similar statement proposed in Handoff 1 and Handoff 2 that received agreement for experts less than 80 percent in all aspects. This statement was:

"In case that the patient is able to urinate normally, indicate the time of the last urination."

In Handoff 1, this statement obtained agreement at 64.71 % with IQR 3.00 on relevancy, 70.59 % with IQR 2.50 on sufficiency, and 70.59 % with IQR 2.50 on clarity. In Handoff 2, it obtained agreement at 76.47 % with IQR 1.50 on relevancy, 64.71 % with IQR 2.50 on sufficiency, and 70.59 % with IQR 2.50 on clarity. This statement was deleted. For other statements, the decision to retain or modify some example statements is shown in Appendix H, Table 26. The above efforts in the step 3 resulting in the evidence-based handoff for Thai OT nurses Version II. The Version II maintained the two components: information statements and strategy statements, with I-SBAR structure of the information statements. The number of statements in category and sub- category of the evidence-based handoff for Thai OT nurses Version II is presented in Table 13 and its example statements is presented in Table 14.

Table 13

Number of Statements in Each Category and Sub- category in the Evidence-based Handoff for Thai OT Nurses Version II

Statement	Version II (N)
Information required for OT handoff	
Introduction	3
Situation	
Situation Part 1 (all Handoffs)	3
Situation Part 2 (Handoff 3 to Handoff 5)	4
Background	7
Assessment	
Assessment Part 1 (all Handoffs if under OT nurse's responsibility)	3
Assessment Part 2 (Handoff 1 and Handoff 2)	7
Assessment Part 3(Handoff 3)	8
Assessment Part 4 (Handoff and Handoff 5)	6
Assessment Part 5 (all Handoffs)	5
Recommendation	4
Strategy required for OT handoff	24
Total statements	74

Table 14

List of Example Statements in Each Category and Sub- category of the Evidence-based Handoff for Thai OT Nurse Version II

	Statement
Information required for OT handoff	
Introduction	
I1	The name and position of the sender and receiver of patient's information
I2	Patient's identification including hospital number (HN), name, surname, age, and gender

Table 14 (continued)

Statement	
Situation	
Situation Part I: Indicate all following patient's situations in this part for all handoffs (All Handoffs)	
SA1	Patient's current diagnosis for this operation
SA2	Patient's current operation as planned by the surgeon, including site and side of body organ for the operation
Situation Part II: Indicate all following patient's situations in this part from intra-operative handoff to post-operative handoff (Handoff 3 - Handoff 5)	
SB2	Name of anesthesiologist or anesthetic nurse who is responsible for patient's operation.
SB3	Patient's position for the operation
Background	
Note: Information in this part may not be required to transfer by verbal report if the patient is sent back to the same nurse who took care of the patient or to the patient's previous ward prior to coming for this operation	
B4	In case that the patient wears jewelry, precious accessories, denture, prostheses that can not be removed or life support devices such as pace maker or intra-aortic-balloon pump, indicate these items if any.
B6	In case that the patient is infected by communicable disease that need special infection control and precaution, indicate infectious status of the patient. The examples of these diseases include tuberculosis (TB), human immunodeficiency virus (HIV), acquired immunodeficiency syndrome (AIDS), hepatitis, chicken pox, or skin diseases.
Assessment	
Assessment Part I: Indicate patient's assessment and patient's needs for all handoffs when the following assessment are under the responsibility of operating theatre nurses	
AA1	Patient's level of consciousness
AA3	In case that the patient has had pain, indicate patient's level of pain at the last assessment comparing with the recent assessment as well as pain management given to the patient. If the patient was given pain relief drug, indicate drug name, time, dose, and route of drug administration, and its effects.

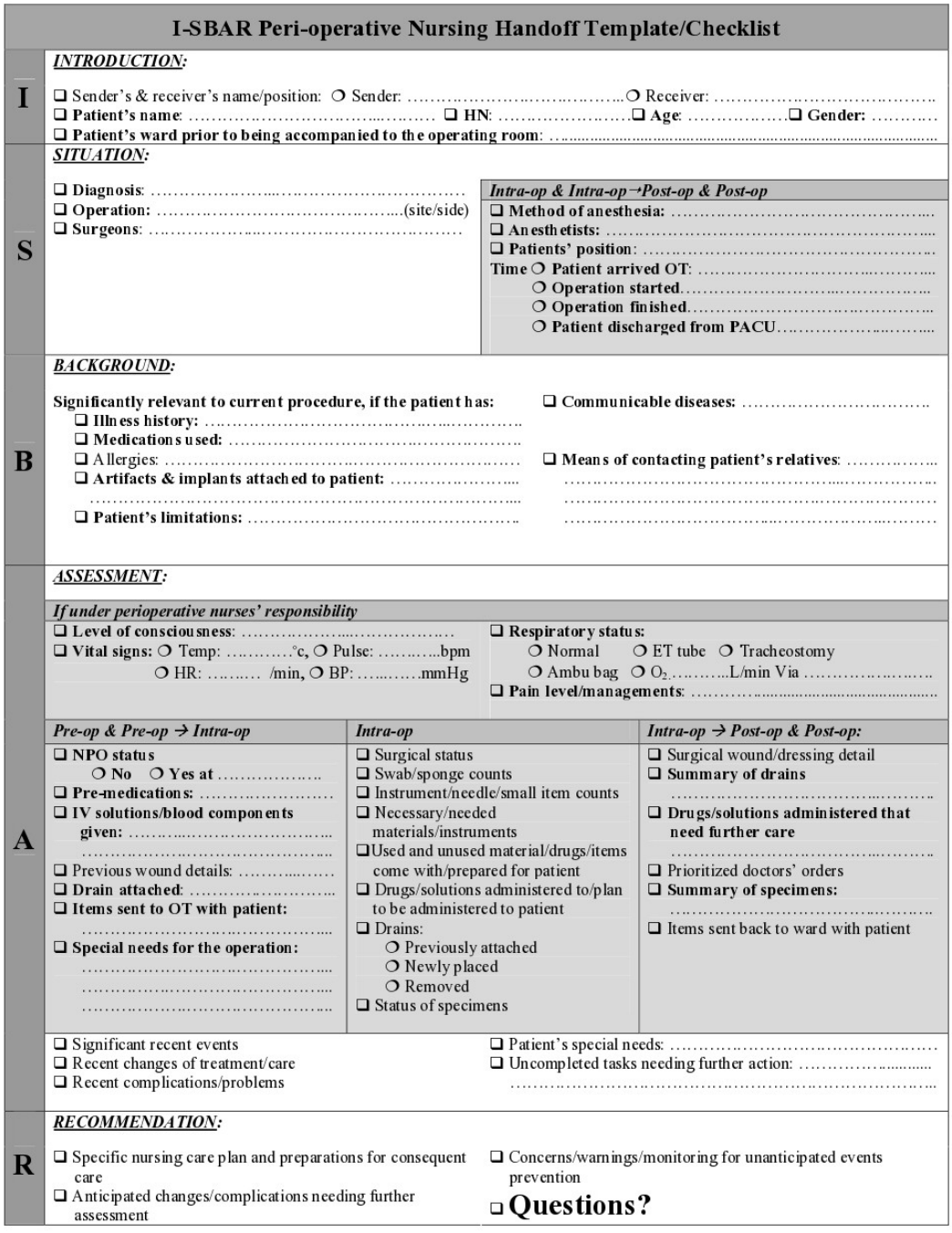
Table 14 (continued)

	Statement
	Assessment Part II: Indicate all following patient's assessment and patient's needs in this part for pre-operative handoff and handoff from pre-operative nurse to intra-operative nurse (Handoff 1 – Handoff 2)
AB4	In case that the patient has previous wound in the region of the surgical site or the patient is going for re-operation, describe the characteristics and location of the patient's previous wound.
AB7	In case that the surgeon indicates special needs for the operation, indicate them and the rationales (if any was indicated by the surgeon).
	Assessment Part III: Indicate all following patient's assessment and patient's needs only for handoff preformed between intra-operative operating theatre nurses (Handoff 3)
AC1	Current status of patient's operation, what has been performed and what is planned for the rest of the operation.
AC2	Check for a completion of swab count by detailing type, number, and location of swabs used during the operation.
	Assessment Part IV: Indicate all following patient's assessment and patient's needs in this part for handoff performed from intra-operative nurse to post- operative nurse and for post-operative handoff (Handoff 4 – Handoff 5)
AD2	In case that the patient has retained catheters or drains after the operation, indicate a summary of type, number, and sites of body retained catheters or drains. In case that the patient previously had retained catheters or drains before the operation and they were removed, or the new ones have been placed on him/her during the operation, indicate type and number of catheters or drains, and sites of body involved. If the drainage from the catheters or drains is abnormal, indicate the abnormalities.
AD4	Doctor's orders that need to be performed as priorities or significant doctor's orders after the operation. Which have been carried on after the operation?
	Assessment Part V: Indicate all following patient's assessment and patient's needs in this part for all operating theatre handoffs
AE1	Significant events occurred to the patient in this operation during the past period of time.

Table 14 (continued)

	Statement
AE4	Recent changes of operation's plan, treatments, and care occurring to the patient that are under the responsibility of the operating theatre nurses and that need further care or processing.
Recommendation	
R3	Considerations or precautions for patient care including suggestions for prevention risks and adverse events to the patient.
R4	Open opportunity to patent's caregivers for asking questions related to patient care
Strategy required for OT handoff	
ST5	Sufficient time needs to be allocated for appropriate and efficient and handoff. The length of the allocated time has to be long enough to allow the sender of information to completely transfer information related to patient care and to allow the receiver of patient's information to ask question and verify information.
ST6	Use interactive communication for handoff in order to allow sender and receiver of patient's information to instantly ask questions and receive response. Doing so is to facilitate the sender of information ensures that information sent is timely received and to open opportunity for information questioning and verification between the sender and the receiver of patient's information. The received information could be used for continuum of care in the following phase of care.

In order to assist the user in using the evidence-based OT handoff version II, the researcher also developed an OT handoff checklist, namely "*I-SBAR Peri-operative Nursing Handoff Checklist*." This checklist can be corporately used with the evidence-based OT handoff version II to structure and verify content of information transferred during each OT handoff. Figure 7 displays the "*I-SBAR Peri-operative Nursing Handoff Checklist*."



I-SBAR Peri-operative Nursing Handoff Template/Checklist

I

INTRODUCTION:

❑ Sender's & receiver's name/position: ❍ Sender: ……..❍ Receiver: ……..
❑ **Patient's name**: …… ❑ **HN**: ……❑ **Age**: ……❑ **Gender:** ……
❑ **Patient's ward prior to being accompanied to the operating room**: ……

S

SITUATION:

❑ **Diagnosis**: ……
❑ **Operation:** ……..(site/side)
❑ **Surgeons**: ……

Intra-op & Intra-op→Post-op & Post-op

❑ **Method of anesthesia:** ……
❑ **Anesthetists:** ……
❑ **Patients' position**: ……
Time ❍ **Patient arrived OT**: ……
❍ **Operation started**……
❍ **Operation finished**……
❍ **Patient discharged from PACU**……

B

BACKGROUND:

Significantly relevant to current procedure, if the patient has:
❑ **Illness history:** ……
❑ **Medications used:** ……
❑ Allergies: ……
❑ **Artifacts & implants attached to patient:** ……
❑ **Patient's limitations:** ……

❑ **Communicable diseases:** ……

❑ **Means of contacting patient's relatives**: ……

A

ASSESSMENT:

If under perioperative nurses' responsibility

❑ **Level of consciousness**: ……
❑ **Vital signs:** ❍ Temp: ……°c, ❍ Pulse: ……bpm
❍ HR: …… /min, ❍ BP: ……mmHg

❑ **Respiratory status:**
❍ Normal ❍ ET tube ❍ Tracheostomy
❍ Ambu bag ❍ O_2……L/min Via ……

❑ **Pain level/managements**: ……

Pre-op & Pre-op → Intra-op	*Intra-op*	*Intra-op → Post-op & Post-op:*
❑ **NPO status** ❍ **No** ❍ **Yes at** ……	❑ Surgical status	❑ Surgical wound/dressing detail
❑ **Pre-medications:** ……	❑ Swab/sponge counts	❑ **Summary of drains** ……
❑ **IV solutions/blood components given:** ……	❑ Instrument/needle/small item counts	❑ **Drugs/solutions administered that need further care** ……
❑ Previous wound details: ……	❑ Necessary/needed materials/instruments	❑ Prioritized doctors' orders
❑ **Drain attached**: ……	❑Used and unused material/drugs/items come with/prepared for patient	❑ **Summary of specimens:** ……
❑ **Items sent to OT with patient:** ……	❑ Drugs/solutions administered to/plan to be administered to patient	❑ Items sent back to ward with patient
❑ **Special needs for the operation:** ……	❑ Drains: ❍ Previously attached ❍ Newly placed ❍ Removed	
	❑ Status of specimens	

❑ Significant recent events
❑ Recent changes of treatment/care
❑ Recent complications/problems

❑ Patient's special needs: ……
❑ Uncompleted tasks needing further action: ……

R

RECOMMENDATION:

❑ Specific nursing care plan and preparations for consequent care
❑ Anticipated changes/complications needing further assessment

❑ Concerns/warnings/monitoring for unanticipated events prevention
❑ **Questions?**

Remark: Information in bold-upright letters is recommended to be included in patient record, and could be transferred by written handoff; ***BACKGROUND*** **(B)** is not required to be provided if the patient is transferred to the previous caregivers or ward

Figure 7

The I-SBAR Peri-operative Nursing Handoff Checklist Used in Cooperation with the Evidence-based Handoff for Thai OT Nurses Version II

In the second round Delphi, the same group of experts was invited to confirm their agreement on the evidence-based OT handoff version II. Two experts withdrew from the study because they were abundantly busy with their regular work and unable to return the questionnaire on the given timeframe. Although the number of experts decreased to 15, the remaining number of experts did not increase size of error of using the Delphi technique (Srisatidnarakul, 2002).

All 74 statements in the evidence-based OT handoff version II obtained 80 percent or higher agreement from experts. Table 15 presents percent of agreement of experts on content validity of the evidence-based handoff for Thai OT nurses Version II. List of example statements and results of the second-round Delphi is presented in Appendix H, Table 27. However, modifications were suggested to some information in order to make them precise and more concise. As a result, all statements were retained. However, few modifications were given to some statements according to the expert's suggestions. The examples of these statements were:

1) Information statement:

"*The name and position of the sender and receiver of patient's information*"

This statement was modified to:

"*The name and position of the sender and receiver of patient's information, if any of both parties do not know the name and position of another part clearly.*"

2) Strategy statement:

"*For each OT handoff, a combination of verbal and written handoff report have to cover all information required for handoff at that point of patient care transfer.*"

This statement was modified to:

"For each handoff of OT nurses, a combination of verbal and written report for handoff has to be composed of all information required according to the evidence-based handoff for operating theater nurses in each handoff point."

Consequently, the evidence-based handoff for Thai OT nurses Version III was then established.

Table 15

Percent of Agreement of Experts on Content Validity of the Evidence-based Handoff for Thai OT Nurses Version II (n =15)

Content validity	Number of statement	Range of percent of agreement	Percent of agreement
Information statements	50	80.00 - 100.00	94.66
Strategies statements	24	85.71 - 100.00	95.24
Overall Version II	74	80.00 - 100.00	94.85

Step 4: Large Scale Applicability Validation

This step aimed to verify the applicability of the evidence-based handoff among Thai OT nurses. In this step, the questionnaires asking for the applicability validity of the evidence-based handoff Version III was mailed to 400 Thai OT nurses across Thailand. These included 180 nurses who were working in secondary care hospitals and 220 nurses who were working in tertiary care hospitals. They were asked to rate their agreement on the applicability of evidence-based handoff version III. One hundred and forty eight questionnaires were completed and returned to the researcher(the response rate was 37 percent) Table 16 presents the demographic characteristics of the OT nurses participating in this step.

Table 16

Demographic Characteristics of Thai OT Nurses (n=148)

Demographic characteristics	M	SD	Min	Max	n	%
Gender						
Female					144	97.30
Male					4	2.70
Age (years)	44.39	8.11	25.00	60.00		
Religion						
Buddhist					147	99.32
Muslim					1	0.68
Education level						
Diploma					1	0.68
Bachelor degree					123	84.25
Master degree					21	14.38
Doctoral degree					1	0.68
Specialty						
More than one specialty					70	52.63
General surgery					11	8.27
Eye					8	6.02
Endoscopy					2	1.50
Orthopedics					15	11.28
Obstetrics & Gynecology					15	11.28
Cardio Vascular Thoracic					5	3.76
Neurology					2	1.50
Eye Nose Throat					3	2.26
Plastic surgery					2	1.50
Number of provinces (of 77 provinces)					55	
Region						
North					27	18.37
North-East					27	18.37
Central					63	42.86
East					6	4.08
West					10	6.80
South					14	9.52
Level of hospital						
Secondary care					71	47.97
Tertiary care					77	52.03
Hospital accreditation approval						
No					32	21.62
Yes					116	78.38
Duration of work experience in OT (years)	19.08	8.93	2.00	38.00		

Of 74 statements of the Version III, more than half of the statements (42 statements, 56.76%) obtained the agreement on their applicability from OT nurses less than 80%. Of these statements, they were 25 information statements and 17 strategy statements. On the other hand, there were 32 statements (43.24%) obtained the agreement on their applicability from OT nurses 80% or higher. Of these statements, they were 25 information statements and 7 strategy statements (Table 17).

The list of 3 information statements and 3 strategy statements that obtained the least agreement from OT nurses is presented in Table 17. Number and percent of statements, obtained the Thai OT nurse's agreement at different levels, of the evidence-based handoff for Thai OT nurses Version III is presented in Table 18. Percent of agreement of the Thai OT nurses on applicability validity of the evidence-based handoff for Thai OT Nurses Version III is presented in Table 19. List of example statements and results of the applicability validation of the evidence-based handoff for Thai OT nurses version III by Thai OT nurses is presented in Appendix H, Table 28.

Table 17

List of 3 Information Statements and 3 Strategy Statements that Obtained the Least Agreement from Thai OT Nurses on Applicability Validity of the Evidence-based Handoff for Thai OT Nurses Version III (n=148)

	Statement	Percent of agreement
Information		
B7	Telephone number or means that can be used to contact with patient's relatives in case that it is needed by healthcare members.	50.70
AB3	In case that the patient is being given intravascular (IV) drug, fluid, blood, or blood components, indicate name of given substances, number of IV lines, and given body area of the patient.	54.42
AA3	In case that the patient has had pain, indicate patient's level of pain at the last assessment comparing with the recent assessment as well as pain management given to the patient. If the patient was given pain relief drug, indicate drug name, time, dose, and route of drug administration, and its effects.	62.76
Strategies		
ST7	During handoff, potential distractions and unnecessary activities of the sender and receiver of patient's information have to be minimized in order to prevent omission or inaccuracy of information transferred. The example of distractions includes light, noise, smell, and temperature.	56.08
ST21	After the handoff, sender of information should participate in patient care with the receiver of information for a while until it is clear that the receiver receives essential information related to patient care accurately and completely. In case that the sender of information could not participate in patient care after the handoff, he/she has to inform the receiver of information regarding the approach to promptly contact him/her in case that the receiver of information needs to verify the received information or needs additional information.	63.01
ST5	Sufficient time needs to be allocated for appropriate and efficient and handoff. The length of the allocated time has to be long enough to allow the sender of information to completely transfer information related to patient care and to allow the receiver of patient's information to ask question and verify information.	65.31

Table 18

Number and Percent of Statements, Obtained the Thai OT Nurse's Agreement at Different Levels, of the Evidence-based Handoff for Thai OT Nurses Version III (n=148)

Statement	Total statements	N of statements (%)	
		Percent of agreement < 80%	Percent of agreement ≥ 80%
Information statements	50	25 (50.00)	25 (50.00)
Strategy statements	24	17 (70.83)	7 (29.17)
Overall Version III	74	42 (56.76)	32 (43.24)

Table 19

Percent of Agreement of the Thai OT Nurses on Applicability Validity of the Evidence-based Handoff for Thai OT Nurses Version III (n=148)

Applicability validity	Number of statement	Range of percent of agreement	Percent of agreement
Information statements	50	50.70 - 95.86	79.40
Strategy statements	24	56.08 - 89.04	75.52
Overall Version III	74	50.70 - 95.86	78.14

The result of large scale applicability validation by Thai OT nurses showed that the percentage of agreement of the applicability validity of the evidence-based handoff for Thai OT nurses Version III in the parts of information, strategy, and overall statements were 79.40, 75.52, and 78.14 %, respectively. These findings were less than expected. In order to improve the evidence-based

handoff for Thai OT nurses Version III, the researcher decided to delete 9 statements. The deletion included 5 information and 4 strategy statements. Table 20 shows the statements that were deleted from the evidence-based handoff for Thai OT nurses Version III.

Table 20

List of Statements Deleted from the Evidence-based Handoff for Thai OT Nurses Version III

	Statement	Percent of agreement
Information		
SB4	Duration of operative time and/or duration of recovery time from anesthesia of the patient	68.28
B7	Telephone number or means that can be used to contact with patient's relatives in case that it is needed by healthcare members.	50.70
AB2	In case that the anesthesiologist gave the patient a prescription for premedication taken prior to being accompanied to the operating theatre, indicate drug name, time, dose, and route of drug administration.	69.39
AB3	In case that the patient is being given intravascular (IV) drug, fluid, blood, or blood components, indicate name of given substances, number of IV lines, and given body area of the patient.	54.42
AB7	In case that the surgeon indicates special needs for the operation, indicate them and the rationales (if any was indicated by the surgeon).	70.00
Strategy		
ST7	During handoff, potential distractions and unnecessary activities of the sender and receiver of patient's information have to be minimized in order to prevent omission or inaccuracy of information transferred. The examples of distractions include light, noise, smell, and temperature.	56.08

Table 20 (continued)

	Statement	Percent of agreement
ST7	Prior to the beginning of the verbal report handoff, the receiver of patient's information should briefly read patient's information from patient documentation and written handoff report. Doing so allows the receiver of patient's information to review and verify the completeness of the recorded information. It also opens opportunity to him/her to ask or verify the completeness and accuracy of information with the sender of information during verbal handoff report.	65.75
ST20	For critically ill patients, handoff should be devised into two phases. The first handoff is performed immediately at the beginning of patient transfer, by providing only essential information used for patient's resuscitation. After the initial treatment had been undertaken, the second handoff can be performed by giving further information related to the following patient care.	70.55
ST21	After the handoff, sender of information should participate in patient care with the receiver of information for a while until it is clear that the receiver receives essential information related to patient care accurately and completely. In case that the sender of information could not participate in patient care after the handoff, he/she has to inform the receiver of information regarding the approach to promptly contact him/her in case that the receiver of information needs to verify the received information or needs additional information.	63.01

The decision of this step resulted in the evidence-based handoff for Thai OT nurses Final Version. It consisted of 65 statements: 40 information and 20 strategy statements. The researcher then recalculated the agreement index. Table 21 shows number of statements and percent of agreement on applicability validity of the evidence-based handoff for Thai OT nurses Final Version. Eighty percent of OT nurse's agreement was obtained.

Table 21

Number of Statements, Percent of Agreement on Applicability Validity of the Evidence-based Handoff for Thai OT Nurses Final Version (n=148)

Statement	Number/ Total statements	Percent of agreement
Information	45/65	81.27
Strategy	20/65	77.85
Overall statement	65/65	80.22

It could be observed that although the overall applicability validity of the evidence-based handoff for Thai OT nurses Final Version increased to 80.22% which was considered acceptable, its applicability validity in the strategy component remained lower (77.85%) than the acceptable level (80%). However, for the newly developed tool, level of agreement higher than 70% is considered acceptably adequate (Polit & Beck, 2008). Although the criteria seems plausible (agreement >70%), it must be considered together with theoretical and practical matter. With this reason, one statement (ST 5) obtaining 65.31% of agreement was kept in the Final Version. In other words, the decision to keep or delete statements in this step was not only depending on the statistical value (percent of agreement), but also on theoretical and practical reason. Table 22 shows list of example statements obtaining OT nurse's agreement less than 80% that were kept in the Final Version. The detail of the reasons for retaining is presented below.

Table 22

List of Examples of Strategy Statements Obtained Agreement of OT Nurses Less Than 80 % in the Evidence-based Handoff for Thai OT Nurses Final Version

	Statement	Percent of agreement
ST5	Sufficient time needs to be allocated for appropriate and efficient and handoff. The length of the allocated time has to be long enough to allow the sender of information to completely transfer information related to patient care and to allow the receiver of patient's information to ask question and verify information.	65.31
ST6	Use interactive communication for handoff in order to allow sender and receiver of patient's information to instantly ask questions and receive response. Doing so is to facilitate the sender of information to ensure that information sent is timely received and to open opportunity for information questioning and verification between the sender and the receiver of patient's information. The received information could be used for continuum of care in the following phase of care.	72.30
ST8	Selectively perform handoff in a private location that can protect the disclosure of information to whom are not involved in providing patient care and/or to those who the patient does not allow to get the information. Doing so is to advocate confidentiality of patient's information.	74.32
ST9	During handoff, open an opportunity to patient and their family to involve verifying information, as appropriate, particularly during pre-operative phase of care. The examples of these verifications are those patient's identification or site and side of body organ for the operation. Doing so is to ensure that information transferred is accurate and met the patient's and the family's needs.	74.66
ST1	Sender and receiver of patient's information have to be a person who is competent to know, understand, and communicate patient's information well. They also should be a person who directly takes responsibility for patient care.	75.68

From Table 22 the statements were considered to be retained based on the following reasons:

1. Statement:

"*Sufficient time needs to be allocated for appropriate and efficient and handoff. The length of the allocated time has to be long enough to allow the sender of information to completely transfer information related to patient care and to allow the receiver of patient's information to ask question and verify information.*"

This strategy was included based on the study of Meißner and colleagues (2007). This study found that lack of time leading nurses dissatisfy with handoffs. Moreover, 2009 National Patient safety Goals implemented by JCAHO has requested organizations to standardize method for handoff that allow time for asking and responding to question (Beyea, 2008). Shortage of Thai OT nurses, leading to high workload, might cause OT nurses disagree with this statement. However as this evidence-based handoff for Thai OT nurses is considered to be best practice, the best strategies should be performed in order to establish the best care quality.

2. Statement:

"*Use interactive communication for handoff in order to allow sender and receiver of patient's information to instantly ask questions and receive response. Doing so is to facilitate the sender of information to ensure that information sent is timely received and to open opportunity for information questioning and verification between the sender and the receiver of patient's information. The received information could be used for continuum of care in the following phase of care.*"

This strategy was recommended from Patterson et al.'s observational study (Patterson et al., 2004). They observed four high-reliability organizations, including space shuttle mission control, nuclear power, railroad dispatching, and ambulance dispatching, and found the face-to-face verbal interactive

communication was always employed during their staff handoffs. Handoff breakdowns could potentially lead these settings to high consequence for system failures, which is very similar to healthcare settings. The JCAHO National Patient Safety Goals have agreed with this recommendation and requested healthcare organizations to implement it into the setting (Kalkman, 2010). Moreover, the AORN (Girard, 2007) and studies (Arora et al., 2005; Arora et al., 2009; Kalkman, 2010; Nagpal et al., 2010) emphasized the benefit of this strategy. Based on the reasons mentioned, the researcher decided to retain this handoff strategy.

3. Statement:

"Selectively perform handoff in a private location that can protect the disclosure of information to whom are not involved in providing patient care and/or to those who the patient does not allow to get the information. Doing so is to advocate confidentiality of patient's information."

This strategy was taken from the literature review of Solet et al. (2005). They pointed out that physical setting where handoff takes place is very crucial for patient confidentiality protection. In the emergency department, a study of Jenkin et al. (2007) displayed concern regarding patient confidentiality when handoff is performed in a corridor where ancillary staff, other patients, relatives and people can overhear patient information, particularly, sensitive information. To the researcher's knowledge, many operating theatres do not have specific area for locating the patient waiting for the operation during pre-operative phase. The patients usually are located along the corridor during their waiting time, while ancillary staff usually are closer to the patients. Conducting handoff in this circumstance could violate patient confidentiality. It is a serious issue that all

healthcare personnel should always pay attention to this issue and it is unreasonable for OT nurses to do so.

4. Statement:

"During handoff, open an opportunity to patient and their family to involve verifying information, as appropriate, particularly during pre-operative phase of care. The examples of these verifications are those patient's identification or site and side of body organ for the operation. Doing so is to ensure that information transferred is accurate and met the patient's and the family's needs."

This strategy was brought for the suggestion from Amato-Vealey et al. (2008). This strategy does not force the OT nurses to always perform it, but whenever appropriate. Including patient and his/her family involvement in patient care and patient identifications has been promoted by the JCAHO National Patient Safety Goals (Baker, 2010). Moreover, it could make rapport between patient and healthcare providers leading to care collaboration (Philpin, 2006). It was found to reduce miscommunication-related adverse events and improve the consistency as well as continuity of patients care (Kassean & Jagoo, 2005; McMurray, Chaboyer, Wallis, & Fetherston, 2010). This strategy was retained in the evidence-based handoff for Thai OT nurses Final Version for these reasons.

5. Statement:

"Sender and receiver of patient's information have to be a person who is competent to know, understand, and communicate patient's information well. They also should be a person who directly takes responsibility for patient care."

This strategy was drawn from the discussion of Crum Gregory (2006) on influence of human factor on handoff standardization. She mentioned that experience and knowledge of a healthcare provider influences his/her communication patterns and also decision about critical information. Ability of sender and receiver of information to gather, understand, and communicate information influences quality and reliability of information transferred and received. In The Shannon and Weaver's communication model (Shannon & Weaver, 1949), sender is a source and receiver is a target of information. If information is defective from the source, any strategies could not regain its quality. On the other hand, if perfect information sent could not be comprehended by the receiver, it would not be understood or interpreted as it is intended to be. In addition, a person directly taking responsibility for patient care was recommended to involve in patient handoff with the purpose of minimizing information degradation at each information transfer time (Horwitz et al., 2006).

In conclusion, four versions of the evidence-based handoff for Thai OT nurses were constructed, modified, and established. The Version I resulted from the comprehensive literature review and the generation of the draft of the evidence-based OT handoffs. Its content validity was assessed by 17 experts. The Version II was developed by using the results from the first round Delphi. During the second round, content validity of the evidence-based handoff for Thai OT nurses Version II was examined by 15 experts. The results from this round were utilized to establish the evidence-based handoff for Thai OT nurses Version III. After the Version III was sent for its applicability validation by 148 OT nurses, the researcher then used

the results from this step to determine the evidence-based handoff for Thai OT nurses Final Version. Table 23 compares number of statements in each component, category and sub-category in the evidence-based handoff for Thai OT Nurses Version I, Version II, Version III, and Final Version. Table 24 presents list of example statements consisted in the evidence-based handoff for Thai OT Nurses Final Version.

In addition, when the evidence-based handoff for Thai OT nurses Version II was established, the researcher also developed the I-SBAR Peri-operative Nursing Handoff Checklist for using in cooperation with the evidence-based OT handoff Version II. This resulted from the researcher's concern to assist the users of the evidence-based handoff for Thai OT nurses Version II to easily convey the information comprised in it. However after the evidence-based handoff for Thai OT nurses Final Version was achieved, this OT handoff checklist was also modified according to the content of the Final Version. Figure 8 demonstrated the "*I-SBAR Peri-operative Nursing Handoff Checklist*" used in cooperation with the evidence-based OT handoff Final Version.

Table 23

Number of Statements in Each Component, Category and Sub-category in the Evidence-based Handoff for Thai OT Nurses Version I, Version II, Version III and Final Version

Statement	Version I (N)	Version II (N)	Version III (N)	Final version (N)
Information required for OT handoff				
Introduction	0	3	3	3
Situation	41			
Situation Part 1 (all Handoffs)		3	3	3
Situation Part 2 (Handoff 3 to Handoff 5)		4	4	3
Background	63	7	7	6
Assessment	70			
Assessment Part 1 (all Handoffs if under OT nurse's responsibility)		3	3	3
Assessment Part 2 (Handoff 1 and Handoff 2)		7	7	4
Assessment Part 3(Handoff 3)		8	8	8
Assessment Part 4 (Handoff 4 and Handoff 5)		6	6	6
Assessment Part 5 (all Handoffs)		5	5	5
Recommendation	40	4	4	4
Strategy required for OT handoff	28	24	24	20
Total statements	242	74	74	65

Table 24

List of Example Statements in the Evidence-based Handoff for Thai OT Nurses Final Version

	Statement
Information required for OT handoff	
Introduction	
I1	The name and position of the sender and receiver of patient's information, if any of both parties do not know the name and position of another part clearly.
I2	Patient's identification, including patient's hospital number (HN), name, surname, age, and gender
Situation	
Situation Part I: Indicate all following patient's situations in this part for all handoffs	
SA1	Patient's current diagnosis for this operation
SA2	Patient's current operation as planned by the surgeon, including site and side of body organ for the operation.
Situation Part II: Indicate all following patient's situations in this part from intra-operative handoff to post-operative handoff (Handoff 3 - Handoff 5)	
SB1	Method of anesthesia for the patient
SB2	Name of anesthesiologist or anesthetic nurse who is responsible for patient's operation.

Table 24 (continued)

	Statement
Background	
<u>Note</u>: Information in this part may not be required to transfer by verbal report if the patient is sent back to the same nurse who took care of the patient or to the patient's previous ward prior to coming for this operation	
B1	Patient's history of illness that is significantly relevant to the present operation such as chronic obstructive pulmonary disease (COPD), hypertension (HT), or diabetes mellitus (DM)
B2	Patient's history of taken medication that is significantly relevant to the present operation such as anticoagulant drugs, fibrinolytic/thrombolytic drugs, or antihypertensive drugs
Assessment	
Assessment Part I: Indicate patient's assessment and patient's needs for all handoffs when the following assessment are under the responsibility of operating theatre nurses	
AA1	Patient's level of consciousness
AA2	Patient's vital signs at the recent and the last assessment. In case of respiratory problem, describe respiratory status and also indicate whether the patient can breathe independently or is depending on respirator.
Assessment Part II: Indicate all following patient's assessment and patient's needs in this part for pre-operative handoff and handoff from pre-operative nurse to intra-operative nurse (Handoff 1 – Handoff 2)	
AB1	In case that the doctor gave the order of nothings per oral (NPO) for the patient in preparation for anesthesia, indicate the time that the patient has started taking NPO and whether the patient completely complies with the order.

Table 24 (continued)

	Statement
AB4	In case that the patient has previous wound in the region of the surgical site or the patient is going for re-operation, describe the characteristics and location of the patient's previous wound.
	Assessment Part III: Indicate all following patient's assessment and patient's needs only for handoff preformed between intra-operative operating theatre nurses (Handoff 3)
AC1	Current status of patient's operation, what has been performed and what is planned for the rest of the operation.
AC2	Check for a completion of swab count by detailing type, number, and location of swabs used during the operation.
	Assessment Part IV: Indicate all following patient's assessment and patient's needs in this part for handoff performed from intra-operative nurse to post- operative nurse and for post-operative handoff (Handoff 4 – Handoff 5)
AD1	Characteristics of the surgical wound after the operation, i.e. wound dressing, retaining of catheters or drains, or retaining of swabs or instruments as a medical treatment.
AD2	In case that the patient has retained catheters or drains after the operation, indicate a summary of type, number, and sites of body retained catheters or drains. In case that the patient previously had retained catheters or drains before the operation and they were removed or the new ones have been placed on him/her during the operation, indicate type and number of catheters or drains, and sites of body involved. If the drainage from the catheters or drains is abnormal, indicate the abnormalities.

Table 24 (continued)

	Statement
Assessment Part V: Indicate all following patient's assessment and patient's needs in this part for all operating theatre handoffs	
AE1	Significant events occurred to the patient in this operation during the past period of time.
AE2	Recent changes of operation's plan, treatments, and cares occurring to the patient that are under the responsibility of the operating theatre nurses that need further care or processing.
Recommendation	
R1	Specific nursing care plan and special preparations for providing care to the patient in the next phase of care.
R2	Anticipated changes of patient's conditions, treatments, cares, and complication that would recently happen to the patient in the next phase of care that need further assessment and care.
Strategies required for OT handoff	
ST1	Sender and receiver of patient's information have to be a person who is competent to know, understand, and communicate patient's information well. They also should be a person who directly takes responsibility for patient care.
ST2	For every handoff, sender and receiver of patient's information have to verify patient's identification according to the guideline of hospital. Doing so is to ensure that the information being transferred belongs to the right patient.
ST3	Sender of patient's information has to prepare himself/herself and information to be ready for handoff prior to the beginning of handoff. The information transferred includes those intended to be transferred by writing and by words. Doing so is to ensure that essential and relevant information related to patient care will be accurately and completely transferred to the receiver of patient's information.

I-SBAR Peri-operative Nursing Handoff Template/Checklist

I — ***INTRODUCTION:***

- ❑ Sender's & receiver's name/position: ❍ Sender: ……………………………………❍ Receiver: ……………………………………
- ❑ **Patient's name**: ……………………………………… ❑ **HN**: ……………………❑ **Age**: ………………❑ **Gender:** …………
- ❑ **Patient's ward prior to being accompanied to the operating room**: ……………………………………………………

S — ***SITUATION:***

- ❑ **Diagnosis**: ……………………………………………………
- ❑ **Operation:** ………………………………………….(site/side)
- ❑ **Surgeons**: ……………………………………………………

Intra-op & Intra-op→Post-op & Post-op

- ❑ **Method of anesthesia:** ……………………………………………
- ❑ **Anesthetists:** ……………………………………………………
- ❑ **Patients' position**: ……………………………………………

B — ***BACKGROUND:***

Significantly relevant to current procedure, if the patient has:

- ❑ **Illness history:** ……………………………………………
- ❑ **Medications used:** ……………………………………………
  ……………………………………………………………
- ❑ Allergies: ……………………………………………………
- ❑ **Artifacts & implants attached to patient:**
  ……………………………………………………………
- ❑ **Patient's limitations:** ……………………………………
- ❑ **Communicable diseases:** ……………………………………

A — ***ASSESSMENT:***

If under perioperative nurses' responsibility

- ❑ **Level of consciousness**: ……………………………………
- ❑ **Vital signs:** ❍ Temp: …………°c, ❍ Pulse: ………bpm
  ❍ HR: ……… /min, ❍ BP: ………mmHg
- ❑ **Respiratory status:**
  ❍ Normal ❍ ET tube ❍ Tracheostomy
  ❍ Ambu bag ❍ O_2………L/min Via ……………………
- ❑ **Pain level/managements**: ……………………………………

Pre-op & Pre-op → Intra-op	*Intra-op*	*Intra-op → Post-op & Post-op:*
❑ **NPO status** ❍ **No** ❍ **Yes at** ……………… ❑ Previous wound details: ……………… ❑ **Drain attached**: ……………………… ❑ **Items sent to OT with patient:** ……………………………………	❑ Surgical status ❑ Swab/sponge counts ❑ Instrument/needle/small item counts ❑ Necessary/needed materials/instruments ❑ Used and unused material/drugs/items come with/prepared for patient ❑ Drugs/solutions administered to/plan to be administered to patient ❑ Drains: ❍ Previously attached ❍ Newly placed ❍ Removed ❑ Status of specimens	❑ Surgical wound/dressing detail ❑ **Summary of drains** …………………………………… ❑ **Drugs/solutions administered that need further care** …………………………………… ❑ Prioritized doctors' orders ❑ **Summary of specimens:** …………………………………… ❑ Items sent back to ward with patient

- ❑ Significant recent events
- ❑ Recent changes of treatment/care
- ❑ Recent complications/problems
- ❑ Patient's special needs: ……………………………………………
- ❑ Uncompleted tasks needing further action: ……………………
  ……………………………………………………………………

R — ***RECOMMENDATION:***

- ❑ Specific nursing care plan and preparations for consequent care
- ❑ Anticipated changes/complications needing further assessment
- ❑ Concerns/warnings/monitoring for unanticipated events prevention
- ❑ **Questions?**

__Remark__: Information in bold-upright letters is recommended to be included in patient record, and could be transferred by written handoff; ***BACKGROUND*** **(B)** is not required to be provided if the patient is transferred to the previous caregivers or ward

Figure 8

The "I-SBAR Peri-operative Nursing Handoff Checklist" Used in Cooperation with the Evidence-based Handoff for Thai OT Nurses Final Version.

Discussion

The finding of this study highlights three areas for discussion: 1) the developmental process, 2) content and applicability of the evidence-based handoff for Thai OT nurses, and 3) areas for Thai OT nursing handoff improvement. The following illustrates each area.

The Developmental Process

In order to make the evidence-based handoff for Thai OT nurses valid to Thai OT context, the researcher employed 4 steps of development: 1) comprehensive literature review to gather the existing evidence and recommendations for standardizing OT handoff, 2) generation of the evidence-based handoff for Thai OT nurses Version I, 3) content validation of the evidence-based handoff for Thai OT nurses Version I and Version II by a panel of experts using a two-round Delphi technique, and 4) the large scale applicability validation by Thai OT nurses.

Step 1: Literature review

A total of 281 statements, including 252 information and 29 strategy statements, were identified from a comprehensive literature review. Of 252 information statements, there was some similar information that was allocated into different sets of OT handoffs. There was one strategy statement derived from a quasi-experimental study (Pothier et al., 2005) and another from a randomized controlled trail (Van Eaton et al., 2005). Specifically, for handoffs related to

perioperative setting, very few evidence-based handoffs have been systematically developed and examined (Catchpole et al., 2007; Fenton, 2006; Kalkman, 2010). Amato-Vealey and colleauges (2008) has proposed the examples of handoffs for some point of patient care transfer in perioperative nursing. However, they were anecdotal thus needed further systemic evaluation. The lack of empirical handoff recommendations found in this study was consistent with the result of a literature review regarding hospital handoff (Arora et al., 2009; Cohen & Hilligoss, 2010). With this such circumstance, using the experts' opinions was considered appropriate (Kish, 2001). In this present study, nearly half of statements (135 of 281 statements) were drawn from expert committee reports, and opinions or clinical experience.

Although, expert committee opinions are tacit knowledge, that is ranked the lowest strength in scientific literature, they are accepted by practitioners. Generally, they are from practitioners' knowledge, experience, judgment, and their ability to judiciously apply evidence in individual situations. This kind of knowledge is considered as first-hand sources of knowledge that can be used to guide practice. In the situation of lacking empirical research evidence, best available evidence from knowledge and experiences of practitioners in the area of interest has been encouraged to be integrated with propositional knowledge, to guide decisions and practices of practitioners in their own clinical context. However, it requires further validation to ensure that the employed knowledge is relevant to the practitioners' own context (Ferguson & Day, 2005; French, 1999). In

this study, the validation of this best available evidence to the context of Thai OT nursing was further carried out in the following phase.

Step 2: Generation of the Evidence-based Handoff for Thai OT Nurses Version I

In this step, the Draft Version I was further modified. Two sources of information, the researcher's personal experience and experience of five OT nurses through a focus group discussion, were employed. The effort of doing this was to bring about tacit knowledge of these individuals from their experience working in OT for many years into consideration (16 years, and a median of 22 years for the researcher and five senior OT nurses, respectively). It was assumed that these senior OT nurses could provide information with high consideration of local Thai OT context. According to Benner (1984), these senior OT nurses were considered as the "experts." Their extensive working experience have helped them be able to internalize situations without taking time for thinking when they encounter difficult situations. Rather they are able to perform difficult tasks proficiently. With this regard, it is most likely that their contribution to the refinement of the Draft Version I was brought about better contextually bound handoff practices.

The focus group discussion was used in this step to allow a collective discussion among expert OT nurses. During the discussion, everyone provided her ideas and collectively discussed in deeper understanding of the topic under investigation, which is "OT handoff" in this present study. Willgerodt (2003)

had analyzed several advantages of focus group. These include (1) allowing and appreciating variation of personal experiences, (2) providing reasonable assurance that a "developed" measure would be culturally or contextually bound, (3) stimulating all members to elaborate their ideas that might be missed initially. Willgerdt also applied a focus group technique in her study aimed to develop a tool to assess intergenerational conflict (IC) in Chinese immigrant families. Another study used it to develop a role functioning item bank and to pilot test sample items from the bank in order to assess role functioning across the lifespan (Anatchkova & Bjorner, 2010).

The results from focus group discussion facilitated the researcher to modify and combine many statements and to drop a statement. The dropped statement was an information statement: "Patient's wish for cardiopulmonary resuscitation (CPR) in case of emergency." The reason for dropping it came from the discussion that it would be perceived as a sensitive question for asking Thai patients to obtain this information. Furthermore, asking this information could introduce anxiety to patient. In some cases, it could lead to a prosecution when unexpected adverse event happens and the patient thinks it may be caused by staff cursing him/her. Although in western countries, this information is a requirement for handoffs (Amato-Vealey et al., 2008; Arora et al., 2005; Haig, Sutton, & Whittington, 2006; Kalkman, 2010), it is considered not appropriate to gather this information in the Thai OT context.

Moreover, the SBAR mnemonic applied in this step helped the researcher to frame information statements to allow users easily to remember, thus

they can transfer information in a logical sequence (Amato-Vealey et al., 2008; Clark et al., 2009). This structure has been recommended for information transfer for perioperative nursing handoffs (Amato-Vealey et al., 2008; Clark et al., 2009).

As a result of this step, the evidence-based handoff for Thai OT nurses Version I became more concise and compatible with Thai OT context. A total number of statements were reduced from 281 to 242. Of these, all the dropped statements were information statements.

Step 3: Content Validation of the Evidence-based Handoff for Thai OT Nurses by a Panel of Experts

In this step, a two-round Delphi was employed to obtain experts' consensus on content validity of the evidence-based handoff for Thai OT nurses Version I and II. The use of two rounds was considered adequate to obtain consensus on the opinions of experts (Cantrill, Sibbald, & Buetow, 1998; Keeney, Hasson, & McKenna, 2006). Initially, seventeen experts were invited to participate in this step. This number of experts was considered enough to minimize the size of response error for Delphi technique (Srisatidnarakul, 2002). Particular concern put in this step was extended to the expert selection because their participations would directly affect the validity of content of the evidence-based handoff for Thai OT nurses. This present study thus developed criteria for expert inclusion, including individual expertise in the area of OT and willing participation. Moreover, different groups of experts were appointed in this study. This was undertaken to ensure that the entire spectrum of opinion would be obtained (Keeney et al., 2001).

In this study, the criteria used for consensus interpretation was established prior to carrying out the Delphi process. This could minimize the biases of the researcher to the results of the study. The qualification of each statement of the evidence-based handoff for Thai OT nurses was determined by using percentage of expert's agreement, median score and IQR. Consensus was reached when the statement obtained more than 80% of experts rating score of 5 or higher (on a 7-point Likert scale ranging from 0 to 6), because this level of agreement is generally considered to have a good validity (Polit & Beck, 2008). This criterion was used for consensus interpretation in both Delphi's rounds.

However, in order to develop the flowing version of the evidence-based handoff for Thai OT nurses, the median score and IQR were also included for consensus interpretation. The statement obtained median score $t \geq 5$ and IQR ≤ 1.00 was able to obtain good consensus (Crutzen et al., 2008). Additionally, expert's suggestions and comments, and the researcher's rationales and experiences were complemented to determine whether the statements should be retained, modified, combined, and dropped. These criteria were applied in the first rounds of the Delphi process.

The Delphi technique used in this study not only helped the researcher to solidify, but also prevented omission and included erroneous of statements in the evidence-based handoff for Thai OT nurses. By using the results from the first round Delphi, the researcher dropped, modified, and combined many statements. Then, a total number of statements were reduced from 242 to 74. However when reconsidering that some information statements proposed on the

evidence-based handoff for Thai OT nurses Version I had attributed to introduction, the researcher then modified the structure of the information statements to I-SBAR for making it more appropriateness in the Version II. The additional "I" refers to "Introduction." It helps emphasizing the users of the evidence-based handoff for Thai OT nurses of which information should be conveyed at the beginning of each handoff. The I-SBAR is another handoff structure that has been recommended for handoff by the AORN (Girard, 2007). A study used I-SBAR as a communication tool found better content and clarity of the delivered information (Marshall et al., 2009).

Besides, the "*I-SBAR Peri-operative Nursing Handoff Checklist*" was developed to incorporate the use of the evidence-based handoff for Thai OT nurses Version II. It was intended to prompt the users transferring patient information. The checklist has been regarded as a tool to improve consistency of information transferred and prevent omission of information caused by limitation of human memory, thus it ensures that the information communicated is complete (McMurray et al., 2010; Sullivan, 2007). Previous studies presented that using checklist framing information during handoffs or briefing resulted in reduction of lost information and communication failure (Lingard et al., 2008; Stahl et al., 2009).

In the second round Delphi, two experts withdrew form the study because they were abundantly busy with their regular works; hence they were not available to return the questionnaire on time. Given a number of 15 experts participating in this round did not affect the size of response error in the Delphi process. It was still enough to minimize the size of response error for Delphi

technique as equal as the number of experts in the previous round (Srisatidnarakul, 2002). The experts thus were asked to provide opinion whether they agree to retain, modify, or drop each statement of the Version II. They also were invited to provide additional suggestions and comments to improve the statement. As a result, all 74 statements of the evidence-based handoff for Thai OT nurses Version II obtained expert's agreement reaching consensus, and therefore were considered to be retained. However, few modifications were suggested to some statements.

The results of the second round Delphi yielded consensus to all statements in the handoff for Thai OT nurses Version II. This led to a conclusion that the content validity of the evidence-based handoff for Thai OT nurses Version II was acceptable. The results from the second round Delphi then were utilized to establish the evidence-based handoff for Thai OT nurses Version III. Afterwards, its applicability was examined in the next step.

Step 4: Large scale applicability validation by Thai OT nurses

The evidence-based handoff for Thai OT nurses Version III was sent to 400 OT nurses working in secondary and tertiary care hospitals across Thailand. The response rate of 37 percent was obtained. This rather low response rate is commonly found in mailed questionnaire-type of data collection in nursing literature (Badger & Werrett, 2005; Khunkaew, 2011). This may limit representativeness of study sample resulting in low external validity, particularly when it is lower than 50% (Burns & Grove, 2009). The issue of low response rate will be further discussed in the subsequent section.

Regardless of low response rate, the findings shown in Table 16 indicated that subjects participating in this step were typical OT nurses. The majority of them were female Buddhists with bachelor level of nursing education. This is a common figure of Thai nurses. Similar to other countries, male nurses comprise only small proportion compared to female nurses; even though in some countries, this may increase up to 10% (Khunkaew, 2011). More than 70 percent of Thai nurses carry a bachelor degree (Assalee, Thosingha, & Honghern, 2004). In addition, they were from all parts of the country and had various areas of specialty. The above characteristics would allow a wide range of ideas given into their responses.

In conclusion, throughout the development process starting from Step 1: Literature review to Step 4: Large scale applicability validation, it can be assumed that this rigorous effort has contributed to the valid evidence-based handoff for Thai OT nurses, Final Version. Its detail on contents and applicability will be discussed in the next section.

Content and Applicability of the Evidence-based Handoff for Thai OT Nurses

The Final Version consisting of 65 statements, categorized into two categories: information (45 statements) and strategy (20 statements), may be cumbersome for some OT nurses. This was shown by several statements obtaining agreement of the OT nurses on their applicability less than 80%, indicating that many OT nurses perceiving the evidence-based handoff for Thai OT nurses was less applicable. This could be resulted from the evidence-based OT handoff

requiring them to perform more additional tasks during the handoff process. Although they would desire to improve their care quality, working in such an environment that requires them to spend more time assisting with surgical procedures and performing very technical duties would not allow them to both document and report patient's information in a streamlined, efficient, non-redundant, and accurate manner (Hyeoun-Ae et al., 2007). Moreover, shortage of nurses providing care to numerous numbers of patients would lead them to perceive difficulties to following the evidence-based handoff for Thai OT nurses (Ketefian et al., 2005).

However, the statements in the evidence-based handoff for Thai OT nurses cover necessary information needed to ensure quality and safe nursing care. The strategy statements help senders of information to be aware of unintentional missing and prevent errors or degraded information. The use of I-SBAR structure together with the Checklist (Figure 8) helps ensuring that all key information will be conveyed during handoff. Although several articles have recommended checklists, which their appearance similar to this present study, to structure information being transferred, statements consisted in those checklist have not been validated to assure its necessity and applicability.

Examining the contents of each statement, the findings of the large scale validation study confirm the applicability of this evince-based handoff. Through the development process concerning the Thai OT context, 80.22% of OT agreed that they could apply this handoff for Thai OT in their regular practice.

Several explanations are discussed, primarily based on the Theory of Diffusion of Innovation proposed by Rogers (2003).

Rogers (2003) introduced the idea that diffusion is the process by which (1) an innovation, the evidence-based OT handoff in this present study, (2) is communicated through certain channels, (3) over a period of time, among (4) the members of social system. This present study was considered to be the elementary phase of diffusion of innovation. Its adoption was not yet tested. For this reason, only the first element will be explicitly elaborated for explaining the findings of the applicability study of this newly developed evidence-based OT handoff; whereas the latter three elements will be used for further recommendations.

For an innovation to be perceived as useful and likely to be adopted, there must be some certain characteristics. Rogers (2003) stated that it must contain the followings: relative advantage, compatibility, less complexity, trailability, and observability. Relative advantage is the degree to which an innovation is perceived as better than what they currently has. It is more likely that they would adopt it. The OT nurses participating in the study may find the usefulness of this handoff. Nowadays, the quality improvement effort in Thailand health care system has been a major source of influencing factor for healthcare providers, including nurses to find means to improve their care quality, particularly in the area of patient safety. This is to be in consistent with the Institute of Hospital Quality Improvement and Accreditation (HA-Thailand) that has applied the National Patient Safety Goals policy throughout the country (Asavaroengchai et al., 2009). Hereby, the evidence-

based OT handoff may be viewed as a useful means for them to ensure patient safety during perioperative care.

Compatability is the degree to which an innovation is perceived as being consistent with their ritual practice or past experience. The evidence-based OT handoff of this study was developed in concerning with OT nurses' ritual practice and custom. Thus, many OT nurses may find it compatible with their own practice. Less complexity is the degree to which an innovation is perceived as easy to understand and use. Rogers (2003) actually described this characteristic in an opposite way. He regarded that "complexity" in an innovation limited its adoption. The Checklist used to complement the verbal handoff was attractively designed and handy. It does help the handoff process be easy to follow. The latter two characteristics, trialability and observability, refer to the degree to which an innovation may be experimented and its outcome can be visible or measurable to others. These characteristics were not yet established in this present study. Therefore, it is a challenge for OT administrators to adopt this handoff in OT settings.

In addition to an innovation itself, successful adoption of this newly developed evidence-based OT handoff will depend largely on the ways it is communicated to OT nurses, time given for them to make decision for adoption, and local social context or organizational culture of each hospital. Without careful implementation protocol, it is less likely to be successfully adopted. As reported in one study, Assalee, Thosingha, and Honghern (2004) conducted a survey with 292 Thai periopertaive nurses to examine if they had utilized "research" in their work

and what they perceived as barriers. They found that only 34% of the subjects reported a use of research findings in their practice. The most common ten barriers, in order, were their lack of knowledge, being unaware of it, inadequate facilities, relevant materials/literature not compiled in one place, feeling no authority over the change, not readily available, not understandable, not supported by physicians, unclear implications for practice, and not having enough time to read. The findings of Assalee et al.'s study are actually in accordance with Rogers's description of the four elements described here. OT administrators who want to adopt this evidence-based OT handoff in their hospitals should, therefore, concern about these elements to design its implementation.

Areas for Thai OT Nursing Handoff Improvement

The results of this study illustrated two areas for improvement: the slow progress of the Delphi process and the low response rate found in the large scale applicability validation study.

The slow progress of the Delphi process

Using Delphi technique in this study was considered time consuming. It took about a year to complete a two-round Delphi process. This was consistent with many reports (Keeney et al., 2006). The slow progression of the Delphi process could be resulted of two factors. Firstly, the experts were usually very busy with their regular work. Although all experts expressed their willing to participate in this study, the time given to complete and return questionnaire was

not clearly addressed at the beginning. Thus, future studies intending to employ the Delphi technique should explicitly emphasize and ask for confirming if they can complete and return questionnaires in a given timeframe. Emphasizing given only on individual expertise, willingness, and commitment of experts may not be adequate (Keeney et al., 2001).

Secondly, the length and design of the questionnaire also could affect the completion of the questionnaire. Questionnaires contained a large numerous of statements may cause experts feeling fatigue during responding to the questionnaire (Williams & Webb, 1994). Although the researcher tried to use different colors of paper to indicate the changes of subjects for experts scoring their agreements, it seemed being unhelpful to allow them quickly moving forward throughout the questionnaire. Therefore, further studies having the same feature of questionnaire should carefully design the structure and format of the questionnaire to be concise and easy to understand. This could lessen the time for the researcher to receive the returned questionnaire.

Several strategies have been recommended to facilitate the Delphi process. These included the use of personal relationship to build mutual rapport between the researcher and the experts, and to make them have a sense of ownership and accountability to the OT nursing society (Hasson, Keeney, & McKenna, 2000). Although all of these strategies had been applied in this present study, the Delphi process still moved somewhat slowly.

In addition to obtain consensus among experts, nominal group technique could also be applied instead of Delphi technique. By using nominal

group technique, experts are asked to initially express their views privately by mailed questionnaire. Then, collated results of the questionnaire are fed back to each of them when they are brought together to discuss their views, after which they again privately record their views on a questionnaire (Murphy et al., 1998). Then, consensus can be obtained at the end of expert's meeting. This technique, therefore, needs less time to complete than the Delphi technique. In one study, the nominal group technique was used among international experts during a workshop to standardize uveitis nomenclature for reporting clinical data (Jabs, Nussenblatt, & Rosenbaum, 2005). However, it should be noted that introducing this technique may require audition resources for expert's meeting arrangement.

The low response rate

The low response rate for large scale applicability validation of the evidence-based handoff for Thai OT nurses among Thai OT nurses was another area that needs improvement. Although the low response rate has been usually found in a mailed questionnaire in nursing (Badger & Werrett, 2005; Burns & Grove, 2009), it could affect the interpretation of the study (Burns & Grove, 2009). The low response rate in this study could mainly result form a large volume of statements contained in the questionnaire. This could make the questionnaire be boring and not attractive.

In this present study, some strategies were employed in order to increase the response rate. Firstly, on the study invitation letter, the researcher informed the potential participants about the importance of the study, emphasized

on their contribution to the study, and asked them to complete and return the questionnaire to the researcher in a given time period (one month). This aimed to make them feel of ownership of the study. Secondly, the researcher gave a small gift as an incentive to all potential participants by putting it together with the questionnaire in a mailing envelop. Thirdly, when the due date for returning questionnaire passed, the researcher sent a reminding postcard to all of them. In the postcard, the researcher again emphasized the importance and their contribution to the study, and then asked them to complete and return the questionnaire to the researcher. By using these three strategies, the response rate increased from 20% to 37% (85% increased)

Indeed, the Thai Periperative Nursing Association has annually held a conference where approximately 3,000 audiences participating in an annual conference. This could be a good occasion to distribute questionnaire and gain high response rate. However, if this strategy is used, a well preparation and permission from Thai OT Association must be established in advance. Other than this, using network of OT nurses may be helpful to increase the response rate. This could be done by sampling hospitals and asking a person working in that hospital to be an agent for questionnaire collection and return to the researcher.

The literature indicated that, for postal questionnaire, the response rates between 70-84% are considered ‘very good,’ 60% and 69% are ‘acceptable’, and 50% and 59% are ‘barely acceptable’ (Badger & Werrett, 2005). In order to increase the response rate in this present study, some strategies recommended in the literature could be applied. These included giving monetary incentive, providing a

second copy of the questionnaire at follow up, use of colored paper questionnaire, and using first class postage. Although introducing these strategies need more additional resources, they could significantly increase response rate (Edwards Philip et al., 2009).

The development of the evidence-based handoff for Thai OT nurses in this study was a preliminary study. The ultimate goal of the use this handoff is to ensure continuity of care and patient safety among Thai surgical patients. The content and applicability of the evidence-based handoff for Thai OT nurses is now valid. However, its effectiveness has not yet been evaluated. Adopter of this handoff should consider adopting with planning to test its effectiveness in their local setting.

CHAPTER 5

CONCLUSSION AND RECOMMENDATIONS

This chapter presents conclusion, and limitations, implications and recommendations of the study, and lessen learned.

Conclusion

This study aimed to develop and validate the evidence-based handoff for Thai operating theatre (OT) nurses. The development and validation process of this study consisted of 4 steps: 1) literature review, 2) generation of the evidence-based handoff for Thai OT nurses Version I by using the results from the previous step, knowledge and experience of the researcher, and opinions from a focus group discussion of 5 senior OT nurses, 3) content validation of the developed evidence-based handoff for Thai OT nurses by a panel of 17 experts using a two-round Delphi technique, and 4) the large scale applicability validation study with 148 Thai OT nurses.

The evidence-based handoff for Thai OT nurses consisted of two components: information and strategies required for OT handoffs. Initially, a total of 281 statements divided into 252 information and 29 strategy statements were constructed. The information statements, initially structured by using the SBAR mnemonic and subsequently by using the I-SBAR mnemonic, were used across 5 sets of OT handoffs throughout preoperative care. A two-round round Delphi technique was conducted involving 17 and 15 experts, at each round which resulted

in 90.06 % of expert's agreement on the content validity of the evidence-based handoff for Thai OT nurses. The findings from the large scale applicability study with representative samples of Thai OT nurses was used to guide the final revision of the evidence-based handoff for Thai OT nurses Final Version yielded 65 statements in total: 45 information and 20 strategy statements. It obtained agreement of 80.22 % of Thai OT nurses participated in the large scale applicability validation study.

Limitations of the Study

This study has some limitations that could limit its generalizability. There are as the followings:

1. A large volume of questionnaire sending to experts and OT nurses may make them fatigue to respond to the questionnaire, particularly to experts who responded two rounds. This could affect the quality of opinions provided for the evidence-based OT handoff development. However, the researcher believes that their professional commitment and their desire to improve quality to nursing practice would empower and encourage them to intentionally complete the questionnaire.

2. The response rate of the validation study is considered low. This could influence the interpretation of the applicability of the evidence-based handoff for Thai OT nurses. However, the demographic characteristics of the OT nurses participating in this study were typical Thai OT nurses. This would allow representativeness of the OT nurses' ideas given through their responses.

Implications and Recommendations

The evidence-based handoff for OT nurses Final Version is considered valid and applicable for Thai OT nursing handoffs. To the researcher's knowledge, it is being the first evidence-based handoff for Thai OT nurses concerning the Thai nursing context. It could help OT nurses to effectively communicate essential information about surgical patients throughout perioperative phase. For healthcare personnel, care delivery relies on information obtained. Thus, complete, accurate, and relevant information regarding patient's care, treatment and services, condition, and any recent or anticipated changes could bring quality of care to the patient. The evidence-based handoff for Thai OT nurses generated from this study will certainly benefit nursing professional in practice, education, administration, and research as the following:

1. Nursing practice

The OT nurses can apply the evidence-based handoff for Thai OT nurses into their setting for improving handoff quality. By using it, they can consider what information is needed for providing care to the patient in the next phases of care. Moreover, they can deliberately select appropriate strategies to prevent omission, inaccuracy, and irrelevancy of information being transferred. This could lead to the improvement of quality of perioperative nursing care.

2. Nursing education

In-service training for OT nurses regarding improving OT nursing handoff should be given. This evidence-based handoff for Thai OT nurses can be used as teaching material.

3. Nursing administration

Nurse administers could apply the evidence-based handoff for Thai OT nurses into their perioperative environments. Particularly where handoff is performed informally, they could mandate their OT nurses to formally perform handoff every time when patient care is transferred. This is a way to standardize the OT handoffs which could lead to effective communication. Evidence-based is also a response to one requirement of the National Patient Safety Goals. This promotes patient safety and indicates that the hospital is qualified for accreditation.

4. Nursing research

The evidence-based handoff for Thai OT nurses is actually intended to be applied by the OT nurses. However, other settings could use it as a guidance to develop or modify handoffs to be suitable to their settings. For the newly developed handoffs, studies on its effectiveness and how to successfully implement it are required. For the evidence-based handoff for Thai OT nurses Final Version, it consists of a large number of statements which could be cumbersome to users and complicated its implementation. Further, to examine its effective is not able worth investigated.

Lessens Learned

During the process of the study, the researcher has gained some experiences. Firstly, using Delphi technique was time-consuming. It needed patience, well-planned management, and skills of researcher. Secondly, selecting and recruiting experts for Delphi questionnaire was a challenge. The researcher had to be certain that potential experts have expertise in the area of OT and would be willing to participate and complete the study. Using a snowball technique helped the researcher to identify experts, however accessing to them sometimes needed help form others. Thirdly, managing data for each round of the Delphi process was burdensome. Although using computerized software could decrease difficulties, it requires creativity of the researcher to design how information, particularly the statistic findings, should be presented in the best meaningful way. Fourthly, if the questionnaire was not returned in a given time, several following strategies should be undertaken, and otherwise, some experts would not complete and return the questionnaire because they were usually busy. Both several phone calls and e-mails were used as reminders in this study. Fifthly, the design for the questionnaire was also essential. The researcher spent an amount of time to create and design questionnaire to make it most attractive possible. However, it seems that the

designed questionnaire was not good enough to allow and motivate the experts. For this reason, it becomes limitation as discussed earlier.

For the applicability validation process, the sample section was also time-consuming. In doing this, the researcher had to draw the member name list of the Thai Periperative Nursing association form their website, then identified whether each member was licensed OT nurses working in secondary or tertiary care or not. Using this strategy may not be the best method. However, as the researcher intended to obtain opinions form of OT nurses are working in several hospitals across Thailand, this was considered the most appropriate method to the researcher during that time.

REFERENCES

Alem, L., Joseph, M., Kethers, S., Steele, C., & Wilkinson., R. (2008). Information environments for supporting consistent registrar medical handover. *Health Information Management Journal, 37*(1), 9.

Amato-Vealey, E. J., Barba, M. P., & Vealey, R. J. (2008). Hand-off communication: a requisite for perioperative patient safety. *Association of Perioperative Registered Nurses (AORN) Journal, 88*(5), 763-774.

Anatchkova, M., & Bjorner, J. (2010). Health and role functioning: the use of focus groups in the development of an item bank. *Quality of Life Research, 19*(1), 111-123. doi: 10.1007/s11136-009-9570-3

AORN. (2007a). Hand-off communication tools Retrieved from *http://www.aorn.org/docs_assets/55B250E0-9779-5C0D-1DDC8177C9B4C8EB/44F38B6E-17A4-49A8-86A4C7A9869E8A16/HandOff_CommunicationTools.pdf*

AORN. (2007b). Hand-off tool kit executive summary. Retrieved from *http://www.aorn.org/docs_assets/55B250E0-9779-5C0D-1DDC8177C9B4C8EB/44F40E88-17A4-49A8-86B64CAA80F91765/HandOff_Executive.pdf*

AORN. (2007c). Policy guidance for hand-offs. Retrieved from *http://www.aorn.org/docs_assets/55B250E0-9779-5C0D-1DDC8177C9B4C8EB/44F49618-17A4-49A8-8616A44CB1389AE5/HandOff_PolicyGuidance.pdf*

AORN. (2007d). Recommendations for perioperativepatient hand-off. Retrieved from *http://www.aorn.org/docs_assets/55B250E0-9779-5C0D-1DDC8177C9B4C8EB/44F543CC-17A4-49A8-865FDDF56132C37B/HandOff_Recommendations.pdf*

AORN. (2007e). Research in the health care industry. Retrieved from *http://www.aorn.org/docs_assets/55B250E0-9779-5C0D-1DDC8177C9B4C8EB/44F5C9F4-17A4-49A8-86EC6BE101B523B0/HandOFF_Research.pdf*

Arora, V. M., Johnson, J., Lovinger, D., Humphrey, H. J., & Meltzer, D. O. (2005). Communication failures in patient sign-out and suggestions for improvement: a critical incident analysis. *Quality and Safety in Health Care, 14*(6), 401-407. doi: 10.1136/qshc.2005.015107

Arora, V. M., Manjarrez, E., Dressler, D. D., Basaviah, P., Halasyamani, L., & Kripalani, S. (2009). Hospitalist handoffs: a systematic review and task force recommendations. *Journal of Hospital Medicine, 4*(7), 433-440.

Asavaroengchai, S., Sriratanaban, J., Hiransuthikul, N., & Supachutikul, A. (2009). Identifying adverse events in hospitalized patients using global trigger tool in Thailand. *Asian Biomedicine, 3*(5), 545-550.

Assalee, R., Thosingha, O., & Honghern, P. (2004). The survey of research utilization and barriers to research utilization among peri-operative nurses in Thailand. *The Thai Journal of Nursing Council, 19*(1), 27-40.

Atkinson, L. J., & Fortunato, N. (1996). *Berry & Kohn's operating room technique* (8th ed.). St. Louis: Mosby.

Badger, F., & Werrett, J. (2005). Room for improvement? Reporting response rates and recruitment in nursing research in the past decade. *Journal of Advanced Nursing, 51*(5), 502-510. doi: 10.1111/j.1365-2648.2005.03521.x

Baker, S. J. (2010). Bedside shift report improves patient safety and nurse accountability. *Journal of Emergency Nursing, 36*(4), 355-358. doi: DOI: 10.1016/j.jen.2010.03.009

Beckett, C. D., & Kipnis, G. (2009). Collaborative communication: integrating SBAR to improve quality/patient safety outcomes. *Journal for Healthcare Quality, 31*(5), 19-28. doi: 10.1111/j.1945-1474.2009.00043.x

Benner, P. E. (1984). *From novice to expert: Excellence and power in clinical nursing practice*. Menlo Park, CA: Addison-Wesley.

Benson, E., Rippin-Sisler, C., Jabusch, K., & Keast, S. (2007). Improving Nursing Shift-to-Shift Report. *Journal of Nursing Care Quality 22*(1), 80-84.

Berlo, D. K. (1960). *The process of communication: an introduction to theory and practice*. New York: Holt, Rinehart and Winston, Inc.

Beyea, S. C. (2006). The national patient safety goals: A focus for action. *Association of Perioperative Registered Nurses (AORN) Journal, 84*(3), 485-488.

Beyea, S. C. (2008). 2009 Patient Safety Goals: A Perioperative Nursing Priority. *Association of Perioperative Registered Nurses (AORN) Journal, 88*(3), 459-462.

Bhabra, G., Mackeith, S., Monteiro, P., & Pothier, D. D. (2007). An experimental comparison of handover methods. *Annals of The Royal College of Surgeons of England, 89*(3), 298-300. doi: 10.1308/003588407x168352

Bomba, D. T., & Prakash, R. (2005). A description of handover processes in an Australian public hospital. *Australian Health Review, 29*(1), 68.

Boockvar, K. S., & Fridman, B. (2005). Inter-facility transfer of patient information before and after HIPAA privacy measures. *Journal of the American Medical Directors Association, 6*(5), 310-315.

Boonchalermwipas, S., & Limsatid, P. (2010). *Prior to defoliation: living will for the end og life* (3th ed.). Bangkok: October Press.

Bormann, E. G. (1980). *Communication theory*. New York: Holt, Rinehart and Winston.

Braaf, S., Manias, E., & Riley, R. (2011). The role of documents and documentation in communication failure across the perioperative pathway. A literature review. *International Journal of Nursing Studies, 48*(8), 1024-1038. doi: 10.1016/j.ijnurstu.2011.05.009

Broekhuis, M., & Veldkamp, C. (2007). The usefulness and feasibility of a reflexivity method to improve clinical handover. *Journal of Evaluation in Clinical Practice, 13*(1), 109-115. doi: doi:10.1111/j.1365-2753.2006.00675.x

Browman, G. P., Levine, M. N., Mohide, E. A., Hayward, R. S., Pritchard, K. I., Gafni, A., & Laupacis, A. (1995). The practice guidelines development cycle: A conceptual tool for practice guidelines development and implementation. *J Clin Oncol, 13*(2), 502-512.

Brown, D., & McCormack, B. (2006). Determining factors that have an impact upon effective evidence-based pain management with older people, following colorectal surgery: An ethnographic study. *Journal of Clinical Nursing, 15*(10), 1287-1298. doi: doi:10.1111/j.1365-2702.2006.01553.x

Bruce, K., & Suserud, B. (2005). The handover process and triage of ambulance-borne patients: the experiences of emergency nurses. *Nursing in Critical Care, 10*(4), 201-209. doi: 10.1111/j.1362-1017.2005.00124.x

Brunner, N. A. (1981). Communications in nursing service administration. In A. J. Huntsman & J. L. Binger (Eds.), *Communicating effectively*. Massachusetts: Nursing Resources.

Burns, N., & Grove, S. K. (2009). *The practice of nursing research: Appraisal, synthesis, and generation of evidence*: Saunders Elsevier.

Cantrill, J. A., Sibbald, B., & Buetow, S. (1998). Indicators of the appropriateness of long-term prescribing in general practice in the United Kingdom: consensus development, face and content validity, feasibility, and reliability. *Quality in Health Care, 7*(3), 130-135. doi: 10.1136/qshc.7.3.130

Catchpole, K. R., De Leval, M. R., McEwan, A., Pigott, N., Elliott, M. J., McQuillan, A., . . . Goldman, A. J. (2007). Patient handover from surgery to intensive care: using Formula 1 pit-stop and aviation models to improve safety and quality. [10.1111/j.1460-9592.2006.02239.x]. *Pediatric Anesthesia, 17*(5), 470-478.

Chandler, D. (1995). The transmission model of communication. Retrieved Jan 6, 2009 http://www.aber.ac.uk/media/Documents/short/trans.html

Cheah, L.-P., Amott, D. H., Pollard, J., & Watters, D. A. K. (2005). Electronic medical handover: towards safer medical care. *Medical Journal of Australia, 183*(7), 369.

Christian, C. K., Gustafson, M. L., Roth, E. M., Sheridan, T. B., Gandhi, T. K., Dwyer, K., . . . Dierks, M. M. (2006). A prospective study of patient safety in the operating room. *Surgery, 139*(2), 159-173.

Clark, E., Squire, S., Heyme, A., Mickle, M.-E., & Petrie, E. (2009). The PACT Project: improving communication at handover. *Medical Journal of Australia, 190*(11 Suppl), S125-127.

Clemow, R. (2006). Care plans as the main focus of nursing handover: Information exchange model. *Journal of Clinical Nursing, 15*(11), 1463-1465. doi: doi:10.1111/j.1365-2702.2006.01524.x

Cohen, M. D., & Hilligoss, P. B. (2010). The published literature on handoffs in hospitals: deficiencies identified in an extensive review. *Quality and Safety in Health Care*.

Crum Gregory, B. S. (2006). Standardizing hand-off processes. *AORN Journal, 84*(6), 1059-1061.

Crutzen, R., de Nooijer, J., Brouwer, W., Oenema, A., Brug, J., & de Vries, N. K. (2008). Internet-delivered interventions aimed at adolescents: a Delphi study on dissemination and exposure. *Health Education Research, 23*(3), 427-439. doi: 10.1093/her/cym094

Currey, J., Browne, J., & Botti, M. (2006). Haemodynamic instability after cardiac surgery: nurses' perceptions of clinical decision-making. *Journal of Clinical Nursing, 15*(9), 1081-1090.

Currie, J. (2002). Improving the efficiency of patient handover. *Emergency Nurse, 10*(3), 24-27.

Dunne, K. (2005). Effective communication in palliative care. *Nursing Standard, 20*(13), 57-64.

Eccles, M., Clapp, Z., Grimshaw, J., Adams, P. C., Higgins, B., Purves, I., & Russell, I. (1996). North of England evidence based guidelines development project: Methods of guideline development. *BMJ, 312*(7033), 760-762.

Edwards Philip, J., Roberts, I., J, C. M., DiGuiseppi, C., Wentz, R., Kwan, I., . . . Pratap, S. (2009). Methods to increase response to postal and electronic questionnaires. *Cochrane Database of Systematic Reviews*.

Fairchild, S. S. (1996). *Perioperative nursing: Principle and practice* (2 nd ed.). Boston: Little brown and company.

Fenton, W. (2006). Developing a guide to improve the quality of nurses' handover. *Nursing Older People, 18*(11), 32-36.

Ferguson, L., & Day, R. A. (2005). Evidence-based nursing education: myth or reality? *Journal of Nursing Education, 44*(3), 107-115.

Finis, N., & Porché, J. R. A. (2005). Nurse leader strategies for improving patient safety: A joint commission approach. *Nurse Leader, 3*(6), 31-36. doi: 10.1016/j.mnl.2005.09.010

Forsythe, L., Persaud, D., Swanson, M., & Stierman, C. (2008). Smoothing the process of hand-off communication. *OR Nurse, 2*(2), 56.

French, P. (1999). The development of evidence-based nursing. *Journal of Advanced Nursing, 29*(1), 72-78. doi: 10.1046/j.1365-2648.1999.00865.x

Friesen, M. A., White, S. V., & Byers, J. F. (2008). Handoffs: implications for nurses Retrieved from http://www.ahrq.gov/qual/nurseshdbk/docs/FriesenM_HOIN.pdf

Friesen, M. A., White, S. V., & Byers, J. F. (2009). Handoffs: implications for nurses. *Nurses First, 2*(3), 23-28.

Gandhi, T. K., Kachalia, A., Thomas, E. J., Puopolo, A. L., Yoon, C., Brennan, T. A., & Studdert, D. M. (2006). Missed and delayed diagnoses in the ambulatory setting: a study of closed malpractice claims. *Annals of Internal Medicine, 145*(7), 488-496.

Girard, N. J. (2007). Hand-off communications. *Association of Perioperative Registered Nurses (AORN) Journal, 86*, S146-S149.

Greenberg, C. C., Regenbogen, S. E., Studdert, D. M., Lipsitz, S. R., Rogers, S. O., Zinner, M. J., & Gawande, A. A. (2007). Patterns of communication breakdowns resulting in injury to surgical patients. *Journal of the American College of Surgeons, 204*(4), 533-540.

Groah, L. (2006). Hand offs - A link to improving patient safety. *AORN, 83*(1), 227-230.

Haig, K. M., Sutton, S., & Whittington, J. (2006). SBAR: a shared mental model for improving communication between clinicians. *Joint Commission Journal on Quality and Patient Safety, 32*, 167-175.

Hasson, F., Keeney, S., & McKenna, H. (2000). Research guidelines for the Delphi survey technique. *Journal of Advanced Nursing, 32*(4), 1008-1015.

Hopkinson, J. B. (2002). The hidden benefit: The supportive function of the nursing handover for qualified nurses caring for dying people in hospital. *Journal of Clinical Nursing, 11*(2), 168-175. doi: doi:10.1046/j.1365-2702.2002.00576.x

Horn, J., Bell, M. D. D., & Moss, E. (2004). Handover of responsibility for the anaesthetised patient - opinion and practice. *Anaesthesia, 59*(7), 658-663.

Horwitz, L. I., Krumholz, H. M., Green, M. L., & Huot, S. J. (2006). Transfers of patient care between house staff on internal medicine wards: A national survey. *Archives of Internal Medicine, 166*(11), 1173-1177. doi: 10.1001/archinte.166.11.1173

Horwitz, L. I., Parwani, V., Shah, N. R., Schuur, J. D., Meredith, T., Jenq, G. Y., & Kulkarni, R. G. (2009). Evaluation of an asynchronous physician voicemail sign-out for emergency department admissions. *Annals of Emergency Medicine, 54*(3), 368-378. doi: 10.1016/j.annemergmed.2009.01.034

Hsu, C. C., & Sandford, B. A. (2007). The Delphi technique: making sense of consensus. *Practical Assessment, Research & Evaluation, 12*(10), 1-8.

Hyeoun-Ae, P., Hyun Jung, L., & Kesook, Y. (2007). The Perioperative Nursing Data Set in Korean: Translation, Validation, and Testing. *Association of Perioperative Registered Nurses (AORN) Journal, 86*(3), 424-445.

Jabs, D., Nussenblatt, R., & Rosenbaum, J. (2005). Standardization of uveitis nomenclature for reporting clinical data. Results of the First International Workshop. *American journal of ophthalmology, 140*(3), 509.

JCAHO. (2007). FAQs for The Joint Commission's 2007 National Patient Safety Goals (Updated 1/07). Retrieved from http://www.jointcommission.org/NR/rdonlyres/A6839682-0A43-4053-86FB-923257674F09/0/07_NPSG_FAQs_2.pdf

JCAHO. (2008a). FAQs for the 2008 national patient safety goals (Updated 3/08). Retrieved from http://www.jointcommission.org/NR/rdonlyres/13234515-DD9A-4635-A718-D5E84A98AF13/0/2008_FAQs_NPSG_02.pdf

JCAHO. (2008b). Hospital/critical access hospital national patient safety goals. Retrieved from http://www.jointcommission.org/NR/rdonlyres/0B4EB2A3-0AD5-4B9B-B891-D2BCE33D8D49/0/08_CAH_NPSGs_Master.pdf

Jenkin, A., Abelson-Mitchell, N., & Cooper, S. (2007). Patient handover: Time for a change? *Accident and Emergency Nursing, 15*(3), 141-147.

Jha, A. K., Prasopa-Plaizier, N., Larizgoitia, I., & Bates, D. W. (2010). Patient safety research: an overview of the global evidence. *Quality and Safety in Health Care, 19*(1), 42-47. doi: 10.1136/qshc.2008.029165

Jirapaet, V., Jirapaet, K., & Sopajaree, C. (2006). The nurses' experience of barriers to safe practice in the neonatal intensive care unit in Thailand. *Journal of Obstetric, Gynecologic, & Neonatal Nursing, 35*(6), 746-754. doi: doi:10.1111/j.1552-6909.2006.00100.x

Kalkman, C. J. (2010). Handover in the perioperative care process. *Current Opinion in Anesthesiology, 23*(6), 749-753 710.1097/ACO.1090b1013e3283405ac3283408.

Kassean, H. K., & Jagoo, Z. B. (2005). Managing change in the nursing handover from traditional to bedside handover - a case study from Mauritius. *BMC Nursing, 4*(1), 1.

Keeney, S., Hasson, F., & McKenna, H. (2006). Consulting the oracle: ten lessons from using the Delphi technique in nursing research. *Journal of Advanced Nursing, 53*(2), 205-212. doi: 10.1111/j.1365-2648.2006.03716.x

Keeney, S., Hasson, F., & McKenna, H. P. (2001). A critical review of the Delphi technique as a research methodology for nursing. *International Journal of Nursing Studies, 38*(2), 195-200. doi: 10.1016/s0020-7489(00)00044-4

Kenward, G., Berry, A., Despres, J., & McLeod, J. (2007). Defence nursing. Using a Delphi approach to develop a strategy for A&E in defence nursing. *British Journal of Nursing (BJN), 16*(1), 11-15.

Kerr, M. P. (2002). A qualitative study of shift handover practice and function from a socio-technical perspective. *Journal of Advanced Nursing, 37*(2), 125-134. doi: doi:10.1046/j.1365-2648.2002.02066.x

Ketefian, S., Davidson, P., Daly, J., Chang, E., & Srisuphan, W. (2005). Issues and challenges in international doctoral education in nursing. *Nursing & Health Sciences, 7*(3), 150-156. doi: 10.1111/j.1442-2018.2005.00240.x

Khunkaew, S. (2011). *A stairway to confidence in nursing: Thai male nursing students' caring experience of first nursing practice.* Master Thesis. School of Health, Care and Social Welfare, Mälardalen University, Sweden.

Kish, M. A. (2001). Guide to development of practice guidelines. *Clinical Infectious Diseases, 32*(6), 851-854. doi: doi:10.1086/319366

Leonard, M., Graham, S., & Bonacum, D. (2004). The human factor: The critical importance of effective teamwork and communication in providing safe care. *Qual Saf Health Care, 13*(suppl_1), i85-90. doi: 10.1136/qshc.2004.010033

Ling, L. H. (2007). From Shannon-Weaver to Boisot: A review on the research of knowledge transfer model. *IEEE Xplore*. Retrieved from http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=04341107

Lingard, L., Espin, S., Whyte, S., Regehr, G., Baker, G. R., Reznick, R., . . . Grober, E. (2004). Communication failures in the operating room: an observational classification of recurrent types and effects. *Qual Saf Health Care, 13*(5), 330-334. doi: 10.1136/qshc.2003.008425

Lingard, L., Regehr, G., Orser, B., Reznick, R., Baker, G. R., Doran, D., . . . Whyte, S. (2008). Evaluation of a preoperative checklist and team briefing among surgeons, nurses, and anesthesiologists to reduce failures in communication. *Archives of Surgery, 143*(1), 12-17. doi: 10.1001/archsurg.2007.21

Macmillan, T. T. (1971). *The Delphi Technique*. Paper presented at the the annual meeting of the California Junior Colleges Associations Committee on Research and Development Monterey, Californai. http://www.eric.ed.gov/ERICWebPortal/search/detailmini.jsp?_nfpb=true&_&ERICExtSearch_SearchValue_0=ED064302&ERICExtSearch_SearchType_0=no&accno=ED064302

Makary, M. A., Mukherjee, A., Sexton, J. B., Syin, D., Goodrich, E., Hartmann, E., . . . Pronovost, P. J. (2007). Operating room briefings and wrong-site surgery. *Journal of the American College of Surgeons, 204*(2), 236-243.

Manasurakarn, J., Chaowalit, A., Suttharangsee, W., Isaramalai, S., & Geden, E. (2008). Values underlying end-of-life decisions of Thai Buddhist patients and their families. *Songklanakarind Medical Journal, 26*(6), 549-559.

Manias, E., Aitken, R., & Dunning, T. (2005). Graduate nurses' communication with health professionals when managing patients' medications. *Journal of Clinical Nursing, 14*(3), 354-362. doi: doi:10.1111/j.1365-2702.2004.01084.x

Marshall, S., Harrison, J., & Flanagan, B. (2009). The teaching of a structured tool improves the clarity and content of interprofessional clinical communication. *Quality and Safety in Health Care, 18*(2), 137-140.

McKenna, H. P. (1994). The Delphi technique: A worthwhile research approach for nursing? *Journal of Advanced Nursing, 19*(6), 1221-1225.

McMurray, A., Chaboyer, W., Wallis, M., & Fetherston, C. (2010). Implementing bedside handover: strategies for change management. *Journal of Clinical Nursing, 19*(17-18), 2580-2589. doi: 10.1111/j.1365-2702.2009.03033.x

Meißner, A., Hasselhorn, H.-M., Estryn-Behar, M., Nézet, O., Pokorski, J., & Gould, D. (2007). Nurses' perception of shift handovers in Europe - results from the European Nurses' Early Exit Study. *Journal of Advanced Nursing, 57*(5), 535-542.

Moore, C., Wisnivesky, J., Williams, S., & McGinn, T. (2003). Medical errors related to discontinuity of care from an inpatient to an outpatient setting. *Journal of General Internal Medicine, 18*(8), 646-651. doi: doi:10.1046/j.1525-1497.2003.20722.x

Moore, G. H. (2008). The critical link to safer care. *DNA Reporter, 33*(3), 7.

Murphy, M. K., Black, N. A., Lamping, D. L., McKee, C. M., Sanderson, C. F., J. Askham, & Marteau, T. (1998). Consensus development methods, and their use in clinical guideline development. *Health Technology Assessment 2*(3), i-iv,1-88.

Nagpal, K., Arora, S., Abboudi, M., Vats, A., Wong, H. W., Manchanda, C., . . . Moorthy, K. M. (2010). Postoperative handover: Problems, pitfalls, and prevention of error. *Annals of Surgery, 252*(1), 171-176.

Oxford Advanced Learner's dictionary of current English. (Ed.) (2005) (7th ed.). OXFORD university press, New York. .

Patterson, E. S., Roth, E. M., Woods, D. D., Chow, R., & Gomes, J. O. (2004). Handoff strategies in settings with high consequences for failure: Lessons for health care operations. *International Journal for Quality in Health Care, 16*(2), 125-132. doi: 10.1093/intqhc/mzh026

Philpin, S. (2006). 'Handing over': transmission of information between nurses in an intensive therapy unit. *Nursing in Critical Care, 11*(2), 86-93. doi: 10.1111/j.1362-1017.2006.00157.x

Polit, D. F., & Beck, C. T. (2008). *Nursing research: Generating and assessing evidence for nursing practice*: Lippincott Williams & Wilkins.

Polprasit, P., Saejew, A., & Wungthanakorn, S. (2006). Nurses' handover report: a case study in male medical ward 2, Songklanagarind hospital. *Songklanagarind Medical Journal, 24*(6), 493-503.

Porritt, L. (1990). *Interaction strategies: An introduction for health professionals* (2 nd ed.). Melbourne: Churchill Livingstone.

Pothier, D., Monteiro, P., Mooktiar, M., & Shaw, A. (2005). Pilot study to show the loss of important data in nursing handover. *British Journal of Nursing, 14*(20), 125-132.

Riesenberg, L. A., Leisch, J., & Cunningham, J. M. (2010). Nursing handoffs: a systematic review of the literature. *The American Journal of Nursing, 110*(4), 24-34. doi: 10.1097/01.NAJ.0000370154.79857.09

Riesenberg, L. A., Leitzsch, J., & Little, B. W. (2009). Systematic review of handoff mnemonics literature. *American Journal of Medical Quality, 24*(3), 196-204.

Riesenberg, L. A., Leitzsch, J., Massucci, J. L., Jaeger, J., Rosenfeld, J. C., Patow, C., . . . Karpovich, K. P. (2009). Residents' and attending physicians' handoffs: a systematic review of the literature. *Academic Medicine, 84*(12), 1775-1787.

Rogers, E. M. (2003). Diffusion of innovations (5th ed.): New York: Free Press.

Sexton, A., Chan, C., Elliott, M., Stuart, J., Jayasuriya, R., & Crookes, P. (2004). Nursing handovers: Do we really need them? *Journal of Nursing Management, 12*(1), 37-42. doi: doi:10.1111/j.1365-2834.2004.00415.x

Shannon, C. E., & Weaver, W. (1949). *The mathematical theory of communication*. Urbana: University of Illinois Press.

Shekelle, P. G., Woolf, S. H., Eccles, M., & Grimshaw, J. (1999). Clinical guidelines: Developing guidelines. *British Medical Journal, 318*(7183), 593–596.

Simpson, K. R. (2005). Handling handoffs safely. *MCN, American Journal of Maternal Child Nursing 30*(2), 152.

Singchungchai, P., Kampalikit, S., & Nasae, T. (1996). Nursing research: Principles and methods. In P. Singchungchai (Ed.), *Population and sample* (2 nd ed., pp. 132-161). Songkhla, Thailand: Thames printing.

Sittisombut, S., Love, E. J., & Sitthi-amorn, C. (2005). Attitudes toward advance directives and the impact of prognostic information on the preference for cardiopulmonary resuscitation in medical inpatients in Chiang Mai University Hospital, Thailand. *Nursing & Health Sciences, 7*(4), 243-250. doi: 10.1111/j.1442-2018.2005.00243.x

Smith, A. F., Pope, C., Goodwin, D., & Mort, M. (2008). Interprofessional handover and patient safety in anaesthesia: observational study of handovers in the recovery room. *British Journal of Anaesthesia, 101*(3), 332-337. doi: 10.1093/bja/aen168

Solet, D. J., Norvell, J. M., Rutan, G. H., & Frankel, R. M. (2005). Lost in translation: Challenges and opportunities in physician-to-physician communication during patient handoffs. *Academic Medicine December, 80*(12), 1094-1099.

Srisatidnarakul, B. (2002). *The methodology in nursing research* (2 nd ed.). Bangkok: Chulalongkorn university press.

Stahl, K., Palileo, A., Schulman, C., Wilson, K., Augenstein, J., Kiffin, C., & McKenney, M. (2009). Enhancing patient safety in the trauma/surgical intensive care unit. *The Journal of Trauma, 67*(3), 430-435.

Strople, B., & Ottani, P. (2006). Can technology improve intershift report? What the research reveals. *Journal of Professional Nursing, 22*(3), 197-204.

Sullivan, E. E. (2007). Hand-off communication. *Journal of PeriAnesthesia Nursing, 22*(4), 275-279.

Supachutikul, A. (2011). *HA update 2011* (1st ed.). Nonthaburi: D 1 Book Co., Ltd.

Taylor, C. (2002). Assessing patients' needs: Does the same information guide expert and novice nurses? *International Nursing Review, 49*(1), 11-19. doi: doi:10.1046/j.1466-7657.2002.00098.x

The Oxford Advanced Learner's Dictionary of Current English. (Ed.) (2005) (7th ed.). OXFORD university press, New York. .

Thongpiyapoom, S., Narong, M. N., Suwalak, N., Jamulitrat, S., Intaraksa, P., Boonrat, J., . . . Unahalekhaka, A. (2004). Device-associated infections and patterns of antimicrobial resistance in a medical-surgical intensive care unit in a university hospital in Thailand. *Journal of the Medical Association of Thailand, 87*(7), 819-824.

Van Eaton, E. G., Horvath, K. D., Lober, W. B., Rossini, A. J., & Pellegrini, C. A. (2005). A randomized, controlled trial evaluating the impact of a computerized rounding and sign-out system on continuity of care and resident work hours. *Journal of the American College of Surgeons, 200*(4), 538-545.

Velji, K., Baker, G. R., Fancott, C., Andreoli, A., Boaro, N., Tardif, G., . . . Sinclair, L. (2008). Effectiveness of an adapted SBAR communication tool for a rehabilitation setting. *Healthcare Quarterly, 11*(Sp), 72-79.

Wacogne, I., & Diwakar, V. (2010). Handover and note-keeping: the SBAR approach. *Clinical Risk, 16*(5), 173-175. doi: 10.1258/cr.2010.010043

Waltz, C. F., Strickland, O. L., & Lenz, E. R. (2005). *Measurement in nursing and health research* (3 rd ed.). Philadelphia: Springer Publishing Company.

Willgerodt, M. A. (2003). Using Focus Groups to Develop Culturally Relevant Instruments. *Western Journal of Nursing Research, 25*(7), 798-814. doi: 10.1177/0193945903256708

Williams, P. L., & Webb, C. (1994). The Delphi technique: A methodological discussion. *Journal of Advanced Nursing, 19*(1), 180-186.

Woolf, S. H., Grol, R., Hutchinson, A., Eccles, M., & Grimshaw, J. (1999). Clinical guidelines: Potential benefits, limitations, and harms of clinical guidelines. *BMJ, 318*(7182), 527-530.

Ye, K., McD Taylor, D., Knott, J. C., Dent, A., & MacBean, C. E. (2007). Handover in the emergency department: Deficiencies and adverse effects. *Emergency Medicine Australasia, 19*(5), 433-441. doi: 10.1111/j.1742-6723.2007.00984.x

APPENDICES

APPENDIX A

RESEARCH APPROVAL

BY THE FACULTY OF NURSING RESEARCH ETHICS COMMITTEE

ที่ ศธ ๐๕๒๑.๑.๐๕/ ๒๖๖๗

คณะพยาบาลศาสตร์
มหาวิทยาลัยสงขลานครินทร์
ตู้ ปณ.๙ ปทฝ.คอหงส์
อ.หาดใหญ่ จ.สงขลา ๙๐๑๑๒

หนังสือฉบับนี้ ให้ไว้เพื่อรับรองว่า นางสาวรัดใจ เวชประสิทธิ์ รหัสนักศึกษา ๕๐๐๑๐๔๓๐๐๐๑ นักศึกษาหลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาการพยาบาล (หลักสูตรนานาชาติ) คณะพยาบาลศาสตร์ มหาวิทยาลัยสงขลานครินทร์ มีความประสงค์ที่จะทำวิทยานิพนธ์ เรื่อง “การพัฒนามาตรฐานการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทย (Development of Standardized Handoff Practice for Thai Operating Theatre Nurses)” โดยมี ผู้ช่วยศาสตราจารย์ ดร.วงจันทร์ เพชรพิเชฐเชียร เป็นอาจารย์ที่ปรึกษาวิทยานิพนธ์ ทั้งนี้วิทยานิพนธ์ของนักศึกษาได้ผ่านการพิจารณาด้านจริยธรรมจากคณะกรรมการประเมินงานวิจัยด้านจริยธรรม และสอบโครงร่างวิทยานิพนธ์ผ่านเมื่อวันที่ ๒๙ ธันวาคม ๒๕๕๑ แล้ว

ให้ไว้ ณ วันที่ ๑๖ กันยายน พ.ศ. ๒๕๕๔

(รองศาสตราจารย์ ดร.อรัญญา เชาวลิต)
คณบดีคณะพยาบาลศาสตร์

APPENDIX B

INVITATION LETTER

ขอเชิญเข้าร่วมโครงการวิจัย
เรื่อง: การพัฒนาและการตรวจสอบคุณสมบัติของแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทยที่มาจากหลักฐานเชิงประจักษ์

เรียนท่านผู้อ่านที่นับถือ

ดิฉันนางสาวรัดใจ เวชประสิทธิ์ พยาบาลห้องผ่าตัด โรงพยาบาลสงขลานครินทร์ ขณะนี้เป็นนักศึกษาหลักสูตรปรัชญาดุษฎีบัณฑิต สาขาการพยาบาล คณะพยาบาลศาสตร์ มหาวิทยาลัยสงขลานครินทร์ ขณะนี้กำลังทำการศึกษาวิจัยเรื่อง “การพัฒนาและการตรวจสอบคุณสมบัติของแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทยที่มาจากหลักฐานเชิงประจักษ์” ดิฉันใคร่ขอเล่าถึงโครงการวิจัยที่กำลังทำอยู่และขอเชิญชวนท่านเข้าร่วมโครงการนี้

การส่งต่อข้อมูลผู้ป่วย เป็นกระบวนการสื่อสารข้อมูลที่เกี่ยวข้องกับการให้การดูแลผู้ป่วยจากผู้ให้การดูแลผู้ป่วยคนหนึ่งไปยังผู้ที่จะให้การดูแลผู้ป่วยคนต่อไปเพื่อเป็นการส่งมอบความรับผิดชอบในการดูแลผู้ป่วย ดังนั้น การส่งต่อข้อมูลผู้ป่วยจึงมีความสำคัญ ในการที่จะส่งผลให้ผู้ป่วยได้รับการพยาบาลที่มีคุณภาพตลอดระยะเวลาที่อยู่ภายใต้การดูแลของผู้ให้บริการทางสุขภาพ อย่างไรก็ตาม ปัจจุบันพบว่า พยาบาลห้องผ่าตัดไทยยังขาดแนวทางที่เหมาะสมสำหรับการส่งต่อข้อมูลผู้ป่วย เหตุการณ์ดังกล่าวนับเป็นสาเหตุหนึ่งที่ทำให้ผู้ให้การดูแลผู้ป่วยทำกาส่งต่อข้อมูลผู้ป่วยได้ไม่สมบูรณ์หรือด้อยประสิทธิภาพ ซึ่งอาจก่อให้เกิดผลอันไม่พึงประสงค์ต่อทั้งผู้ป่วยและต่อผู้ให้การดูแลผู้ป่วย ดังนั้น เพื่อให้พยาบาลห้องผ่าตัดไทยได้มีแนวทางที่เป็นเหมาะสมสำหรับการส่งต่อข้อมูลผู้ป่วยได้อย่างมีประสิทธิภาพ ดิฉันจึงมีความสนใจที่จะศึกษาในเรื่องดังกล่าว ทั้งนี้ การมีแนวทางการส่งต่อข้อมูลผู้ป่วยที่เหมาะสมสำหรับพยาบาลห้องผ่าตัดไทย จะช่วยให้พยาบาลห้องผ่าตัดสามารถสื่อสารข้อมูลที่เกี่ยวข้องกับการดูแลผู้ป่วยไปยังผู้ที่จะให้การดูแลผู้ป่วยเป็นคนต่อไปได้อย่างถูกต้องและครบถ้วน เป็นผลให้ผู้ที่จะให้การดูแลผู้ป่วยนั้น สามารถนำข้อมูลที่ได้รับไปใช้ในการตัดสินใจวางแผนในการให้การดูแลผู้ป่วยได้อย่างถูกต้องเหมาะสมตามความต้องการและสังคมวัฒนธรรมของผู้ป่วย และที่สำคัญยิ่งก็คือ ทำให้ผู้ป่วยได้รับการดูแลที่มีคุณภาพอย่างต่อเนื่องและมีความปลอดภัยตลอดเวลาที่อยู่ภายใต้การดูแลของผู้ให้บริการทางสุขภาพ

หากท่านตัดสินใจเข้าร่วมโครงการ ท่านเพียงตอบแบบสอบถามพร้อมทั้งให้คำแนะนำและแสดงความคิดเห็นของท่าน ในการตอบแบบสอบถาม ท่านอาจได้รับการเชิญชวนให้ตอบแบบสอบถามจำนวน 1-2 ครั้ง โดยแต่ละครั้งใช้เวลาในการตอบแบบสอบถาม 30 นาที ถึง 2 ชั่วโมง ทั้งนี้ขึ้นอยู่กับวัตถุประสงค์ของแบบสอบถาม

การเข้าร่วมโครงการครั้งนี้จะไม่ก่อให้เกิดผลเสียใดๆต่อท่าน นอกจากอาจทำให้ท่านเกิดความรู้สึกความเหนื่อยล้าเพียงเล็กน้อยจากการตอบแบบสอบถาม อย่างไรก็ตาม ท่านสามารถบรรเทาความรู้สึกนี้ได้โดยการหยุดพักเพื่อผ่อนคลาย

การเลือกที่จะเข้าร่วมหรือไม่เข้าร่วมโครงการวิจัยครั้งนี้ท่านเป็นผู้มีสิทธิตัดสินใจด้วยตนเอง และแม้ว่าท่านได้ตัดสินใจเข้าร่วมโครงการแล้ว ท่านมีสิทธิจะถอนตัวออกจากการเข้าร่วมโครงการเมื่อไรก็ได้ โดยไม่เกิดผลเสียประการใดแก่ท่านทั้งสิ้น ท่านจะได้รับคำอธิบายถึงข้อมูลทั้งหมดเกี่ยวกับโครงการนี้ตามความเป็นจริง อย่างเปิดเผย ตามที่ท่านต้องการตลอดระยะเวลาของการเข้าร่วมโครงการ และข้อมูลของท่านจะถูกเก็บรักษาไว้เป็นความลับโดยผู้วิจัยจะนำเสนอผลของการวิจัยในภาพรวมเท่านั้น

หากท่านมีปัญหาหรือข้อสงสัยใดๆที่จะสอบถามเกี่ยวกับการเข้าร่วมโครงการครั้งนี้ หรือแม้แต่ในเรื่องอื่นๆที่เกี่ยวข้อง ท่านสามารถติดต่อสอบถามโดยตรงกับผู้วิจัยได้ที่ ห้องผ่าตัด โรงพยาบาลสงขลานครินทร์ อ.หาดใหญ่ จ.สงขลา 90112 โทรศัพท์ 074-451640 (ในเวลาราชการ) หรือ โทรศัพท์เคลื่อนที่ หมายเลข 081-6906039 หรือ อีเมล์ vratjai@yahoo.com หรือ จาก ผู้ประสานงานวิจัยคณะพยาบาลศาสตร์ มหาวิทยาลัยสงขลานครินทร์ โทรศัพท์ 074-286456 (ในเวลาราชการ) ผู้วิจัยขอขอบพระคุณในความอนุเคราะห์ให้ความร่วมมือของท่านในครั้งนี้

นางสาวรัดใจ เวชประสิทธิ์

ผู้วิจัย

APPENDIX C

INFORMED CONSENT

ใบยินยอมเข้าร่วมโครงการวิจัย
เรื่อง: การพัฒนาและการตรวจสอบคุณสมบัติของแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทยที่มาจากหลักฐานเชิงประจักษ์

ข้าพเจ้า (นาย,นาง,นางสาว).....
ยินดีเข้าร่วมเป็นผู้ให้ข้อมูลหรือผู้ถูกสังเกตตามวิธีการที่ นางสาวรัดใจ เวชประสิทธิ์ ได้อธิบายให้ข้าพเจ้าทราบ (ดังใบเชิญชวนให้เข้าร่วมโครงการวิจัยที่แนบมานี้)

หากข้าพเจ้ามีข้อสงสัยเกี่ยงกับการเป็นผู้ให้ข้อมูลในการวิจัยครั้งนี้ ข้าพเจ้ามีสิทธิ์ซักถามผู้วิจัยได้ในระหว่างการเข้าร่วมโครงการ หากการกระทำและการชี้แจงของผู้วิจัยยังไม่เป็นที่พอใจ ข้าพเจ้ามีสิทธิ์แจ้งต่อประธานกรรมการพิจารณาจริยธรรมในคน คณะพยาบาลศาสตร์ มหาวิทยาลัยสงขลานครินทร์ โทรศัพท์ 074-286561 (ในเวลาราชการ) ได้ และหากข้าพเจ้าไม่พอใจในการเป็นผู้ให้ข้อมูล ข้าพเจ้ามีสิทธิ์ปฏิเสธการเข้าร่วมโครงการนี้ได้ทันที โดยไม่ได้รับผลเสียหรือผลกระทบใดๆทั้งสิ้น

ข้าพเจ้าได้อ่านและเข้าใจเกี่ยวกับการเป็นผู้ให้ข้อมูลทั้งหมดตามคำอธิบายข้างต้นแล้ว ข้าพเจ้ายินยอมเข้าร่วมโครงการดังกล่าว

.....	.....
(.....)	วัน/เดือน/ปี
ลายเซ็นอาสาสมัคร	
.....	.....
(.....)	วัน/เดือน/ปี
ลายเซ็นพยาน	
.....	.....
(.....)	วัน/เดือน/ปี
ลายเซ็นนักวิจัย	

APPENDIX D

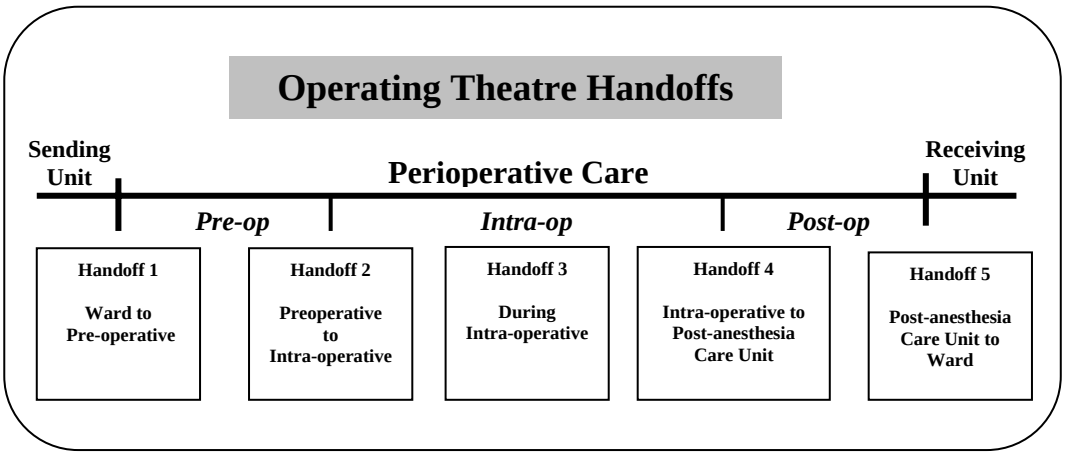
INTERVIEW GUIDE FOR FOCUS GROUP DISCUSSION

Section 1: Demographic Data Form (for each participant)

1. Name……Last name……
2. Gender ( ) Female ( ) Male
3. Age……years
4. Religion ( ) Buddhism ( ) Islam ( ) Christianity ( ) Others….
5. Marital status, ( ) Single ( ) Married
   ( ) Widowed ( ) Divorced/Separated
6. Education level ( ) Bachelor ( ) Master ( ) Doctor
7. Work place……
8. Position of work……
9. Duration of work experience in the area of OT…….years

Section 2: Interview questions

According to the draft of evidence-based handoff for Thai OT nurses Version I developed by the researcher, the points of OT handoff can be presented in the following figure.



Handoff refers to communication between nurses at different points of patient care transfer throughout perioperative care as the followings.

Handoff 1 refers to the handoff performed for care transfer from a ward nurse to a preoperative OT nurse, providing care to the patient during waiting for the operation in OT,

Handoff 2 refers to the handoff performed for care transfer from a preoperative OT nurse to an intraoperative OT nurse, providing care to the patient during the operation performed,

Handoff 3 refers to the handoff performed for care transfer between intra-operative OT nurses, in case of changing OT nursing team,

Handoff 4 refers to the handoff performed for care transfer from an intraoperative OT nurse to a postoperative nurse, providing care to the patient after the end of the operation at the recovery area,

Handoff 5 refers to the handoff performed for care transfer from a postoperative OT nurse to a ward nurse, providing care to the patient for post operative recovery at patient's ward.

Please provide your opinions, discussion, and recommendations on the evidence-based handoff for Thai OT nurses Version I proposed by the researcher (on the following pages) by response to the following questions.

1. What should be added, taken off, or modified for information required for each point of handoff throughout periopeartive care?
2. What should be added, taken off, or modified for appropriate strategies carrying information to be transferred for OT handoff throughout periopeartive care?
3. Are there other suggestions for developing the evidence-based handoff for Thai OT nurses Version I.

APPENDIX E
FORMAT OF THE FIRST ROUND DELPHI QUESTIONNAIRE

โครงการวิจัยเรื่องการพัฒนาและการตรวจสอบคุณสมบัติของแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาล ห้องผ่าตัดในประเทศไทยที่มาจากหลักฐานเชิงประจักษ์

(The Development of Evidence-based handoff for Thai Operating Theatre Nurses)

****

คำชี้แจง: แบบสอบถามโครงการวิจัยเรื่องการพัฒนาและการตรวจสอบคุณสมบัติของแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทยที่มาจากหลักฐานเชิงประจักษ์ ประกอบด้วย 3 ตอน คือ

ตอนที่ 1: แบบสอบถามข้อมูลส่วนบุคคล

ตอนที่ 2: แบบสอบถามความเห็นด้วยต่อข้อความซึ่งแสดงเนื้อหาของแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทย

ตอนที่ 3: แบบสอบถามถึงข้อคิดเห็นและข้อเสนอแนะอื่นๆ เกี่ยวกับแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทย

****

ตอนที่ 1: แบบสอบถามข้อมูลส่วนบุคคล

คำชี้แจง ตอนที่ 1: โปรดเติมคำในช่องว่างให้สมบูรณ์ และเลือกคำตอบที่ท่านเห็นว่าตรงกับตัวท่านมากที่สุดโดยใส่เครื่องหมาย ✓ หน้าข้อความนั้น

1. ชื่อ.....สกุล.....
2. เพศ ( ) หญิง ( ) ชาย
3. อายุ.....ปี
4. ศาสนา ( ) พุทธ ( ) อิสลาม ( ) คริสต์ ( ) อื่นๆ โปรดระบุ.....
5. สถานภาพสมรส ( ) โสด ( ) คู่ ( ) หม้าย ( ) หย่า/ร้าง
6. ระดับการศึกษา ( ) ปริญญาตรีหรือเทียบเท่า ( ) ปริญญาโท ( ) ปริญญาเอก
7. สถานที่ปฏิบัติงานปัจจุบัน.....
8. ตำแหน่งที่ปฏิบัติงานปัจจุบัน.....
9. ระยะเวลาการปฏิบัติงานซึ่งมีความเกี่ยวข้องกับงานของห้องผ่าตัด.....ปี

ตอนที่ 2: แบบสอบถามความเห็นด้วยต่อข้อความซึ่งแสดงเนื้อหาของแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทย

คำชี้แจง ตอนที่ 2:

"การส่งต่อข้อมูลผู้ป่วย" หรือ "Handoff" ในที่นี้หมายถึง กระบวนการสื่อสารแบบมีปฏิสัมพันธ์ระหว่างพยาบาลห้องผ่าตัดด้วยกันเอง และระหว่างพยาบาลห้องผ่าตัดกับพยาบาลประจำหอผู้ป่วยหรือวิสัญญีพยาบาล เพื่อส่งต่อข้อมูลของผู้ป่วยที่สำคัญ รวมถึงความรับผิดชอบและบทบาทในการจัดการดูแลผู้ป่วยที่เข้ารับการผ่าตัด โดยมีจุดประสงค์เพื่อให้ผู้ป่วยได้รับการดูแลที่ต่อเนื่อง (Continuity of care) และมีความปลอดภัย (Patient safety)

แบบสอบถามความเห็นด้วยต่อข้อความซึ่งแสดงเนื้อหาของแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทย ประกอบด้วย 2 ส่วน ดังนี้

ส่วนที่ 1 ประกอบด้วยชุดของข้อความซึ่งแสดงถึงข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดไทยในแต่ละจุด จำนวน 5 จุด เพื่อเป็นการส่งมอบการดูแลผู้ป่วยตลอดระยะเวลาที่ผู้ป่วยได้รับการพยาบาลผ่าตัด ซึ่งการส่งต่อข้อมูลผู้ป่วยในแต่ละจุด จะประกอบด้วยข้อมูล 4 ประเภท คือ

1) ข้อมูลที่แสดงถึงสถานะของผู้ป่วย (Situation)
2) ข้อมูลที่แสดงถึงรายละเอียดทั่วไปของผู้ป่วย (Background)
3) ข้อมูลที่แสดงถึงการประเมินสภาพและความต้องการของผู้ป่วย (Assessment)
4) ข้อมูลที่แสดงถึงข้อแนะนำต่างๆ ในการให้การดูแลผู้ป่วย (Recommendations)

ส่วนที่ 2 ประกอบด้วยชุดของข้อความซึ่งแสดงถึงวิธีการสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทย เพื่อเป็นการส่งมอบการดูแลผู้ป่วยตลอดระยะเวลาที่ผู้ป่วยได้รับการพยาบาลผ่าตัด

นอกจากนั้นแต่ละข้อความซึ่งแสดงเนื้อหาของแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทย จะได้รับการระบุถึงประเภทของหลักฐานและความน่าเชื่อถือของการนำเสนอ ที่ทำให้ข้อความดังกล่าวถูกนำมาบรรจุไว้ในแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทย โดยการระบุถึงประเภทของหลักฐานและความน่าเชื่อถือของการนำเสนอ จะใช้เกณฑ์ดังนี้

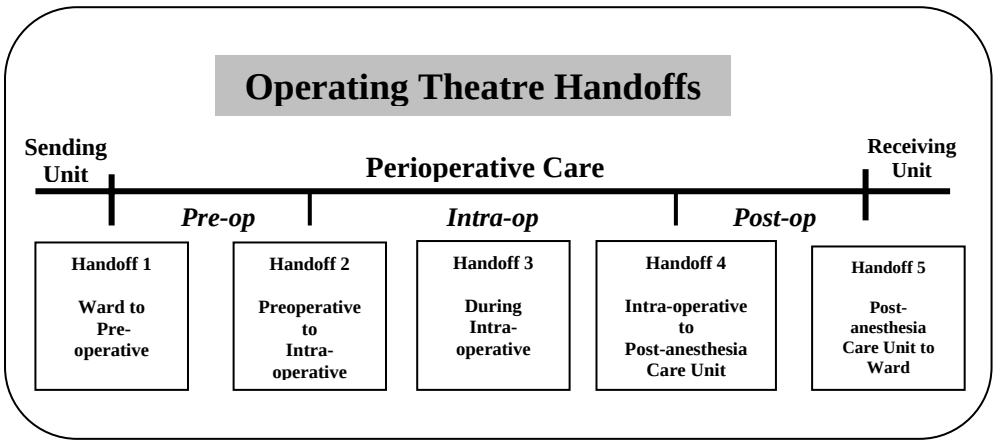
ประเภทของหลักฐาน

Ia	หมายถึง	เป็นหลักฐานซึ่งได้จากการศึกษาที่เป็น meta-analysis ของ randomized controlled trial ต่างๆ
Ib	หมายถึง	เป็นหลักฐานซึ่งได้จากการศึกษาที่เป็น randomized controlled trial อย่างน้อยหนึ่งการศึกษา
IIa	หมายถึง	เป็นหลักฐานซึ่งได้จากการศึกษาที่เป็น controlled study without randomization อย่างน้อยหนึ่งการศึกษา
IIb	หมายถึง	เป็นหลักฐานซึ่งได้จากการศึกษาที่เป็น quasi-experimental study อย่างอื่น แบบใดแบบหนึ่ง อย่างน้อยหนึ่งการศึกษา
III	หมายถึง	เป็นหลักฐานซึ่งได้จากการศึกษาที่เป็น non-experimental descriptive studies เช่น comparative study, correlation study และ case-control study ต่างๆ เป็นต้น
IV	หมายถึง	เป็นหลักฐานซึ่งได้จากรายงานการประชุมของคณะกรรมการต่างๆ หรือได้จากข้อคิดเห็นของผู้เชี่ยวชาญทางคลินิกที่น่าเชื่อถือ

ความน่าเชื่อถือการนำเสนอ

A	หมายถึง	เป็นข้อเสนอแนะซึ่งได้จาก หลักฐานประเภท I โดยตรง
B	หมายถึง	เป็นข้อเสนอแนะซึ่งได้จาก หลักฐานประเภท II โดยตรง หรือ เป็นข้อเสนอแนะทางอ้อม โดยอาศัยการอ้างอิงข้อมูลจากหลักฐานประเภท I
C	หมายถึง	เป็นข้อเสนอแนะซึ่งได้จาก หลักฐานประเภท III โดยตรง หรือ เป็นข้อเสนอแนะทางอ้อม โดยอาศัยการอ้างอิงข้อมูลจากหลักฐานประเภท I หรือ II
D	หมายถึง	เป็นข้อเสนอแนะซึ่งได้จาก หลักฐานประเภท IV โดยตรง หรือ เป็นข้อเสนอแนะทางอ้อม โดยอาศัยการอ้างอิงข้อมูลจากหลักฐานประเภท I, II หรือ III

ส่วนที่ 1: ข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทยในแต่ละจุด จำนวน 5 จุดโดยจุดต่างๆของการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดสามารถแสดงได้ ดังภาพต่อไปนี้



Handoff 1 หมายถึง การส่งต่อข้อมูลผู้ป่วยระหว่างพยาบาลประจำหอผู้ป่วยกับพยาบาลห้องผ่าตัดในระยะก่อนผ่าตัด

Handoff 2 หมายถึง การส่งต่อข้อมูลผู้ป่วยระหว่างพยาบาลห้องผ่าตัดในระยะก่อนผ่าตัดกับพยาบาลห้องผ่าตัดในระยะผ่าตัด

Handoff 3 หมายถึง การส่งต่อข้อมูลผู้ป่วยระหว่างพยาบาลห้องผ่าตัดในระยะผ่าตัด (กรณีมีการเปลี่ยนทีมพยาบาล)

Handoff 4 หมายถึง การส่งต่อข้อมูลผู้ป่วยระหว่างพยาบาลห้องผ่าตัดในระยะผ่าตัดกับพยาบาลผู้ดูแลผู้ป่วยในระยะหลังผ่าตัด (ระยะฟื้นตัวจากยาสลบ)

Handoff 5 หมายถึง การส่งต่อข้อมูลผู้ป่วยระหว่างพยาบาลผู้ดูแลผู้ป่วยในระยะหลังผ่าตัด (ระยะฟื้นตัวจากยาสลบ) กับพยาบาลประจำหอผู้ป่วย

คำชี้แจง ส่วนที่ 1:

ขอให้ท่านประเมินระดับของการเห็นด้วยของท่านต่อแต่ละข้อความที่แสดงถึงข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทยในแต่ละจุด จำนวน 5 จุด (ดังที่ได้แสดงไว้ในภาพ) ใน 3 ด้าน คือ 1) ความเกี่ยวข้อง (relevancy) 2) ความสมบูรณ์ (sufficiency) และ 3) ความชัดเจน (clarity) ซึ่งแต่ละด้านมีความหมายดังนี้

ความเกี่ยวข้อง หมายถึง ข้อความนั้นมีความสัมพันธ์และเกี่ยวข้องกับการเป็นข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทย

ความสมบูรณ์ หมายถึง ข้อความนั้นมีเนื้อหาสมบูรณ์ ครบถ้วน

ความชัดเจน	หมายถึง	ข้อความนั้นสามารถสื่อความหมายได้ชัดเจนหรือง่ายต่อการเข้าใจ

ในการประเมินระดับของการเห็นด้วย ขอให้ท่านทำเครื่องหมาย ○ ล้อมรอบตัวเลขที่ตรงกับระดับคะแนนของการเห็นด้วยของท่านหลังแต่ละข้อความ การให้ระดับคะแนนของการเห็นด้วยของท่าน มีระดับคะแนนเริ่มตั้งแต่ 0 ถึง 6 ดังนี้

คะแนน 0	หมายถึง	ท่าน “ไม่เห็นด้วยเป็นอย่างยิ่ง” ต่อ ความเกี่ยวข้อง/ความสมบูรณ์/ความชัดเจน ของข้อความนั้นที่จะนำมาใช้เป็นข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทยในแต่ละจุดของการส่งต่อข้อมูลผู้ป่วย ที่ท่านกำลังทำการประเมิน
คะแนน 1-5	หมายถึง	ท่าน “เห็นด้วย” จาก น้อย คือ คะแนน 1 จนถึง มาก คือ คะแนน 5 ต่อ ความเกี่ยวข้อง/ความสมบูรณ์/ ความชัดเจน ของข้อความนั้นที่จะนำมาใช้เป็นข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทยในแต่ละจุดของการส่งต่อข้อมูลผู้ป่วย ที่ท่านกำลังทำการประเมิน
คะแนน 6	หมายถึง	ท่าน “เห็นด้วยเป็นอย่างยิ่ง” ต่อ ความเกี่ยวข้อง/ความสมบูรณ์/ ความชัดเจน ของข้อความนั้นที่จะนำมาใช้เป็นข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทยในแต่ละจุดของการส่งต่อข้อมูลผู้ป่วย ที่ท่านกำลังทำการประเมิน

นอกจากนั้น ขอให้ท่านกรุณาให้คำแนะนำและให้เหตุผลต่อทุกข้อความที่ท่านได้ให้คะแนนตั้งแต่ 0 ถึง 3 รวมถึงโปรดให้คำแนะนำ ข้อเสนอแนะ และเหตุผลต่างๆ เพิ่มเติม หากท่านมีความเห็นว่าข้อความที่แสดงถึงข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทย ในแต่ละจุดที่ท่านได้ทำการประเมินข้อความใด ควรได้รับการปรับปรุง หรือเปลี่ยนแปลงแก้ไข อย่างไร เพื่อให้ข้อความนั้นมีความเหมาะสมกับการนำไปปฏิบัติและเพื่อให้เป็นที่ยอมรับของพยาบาลห้องผ่าตัดไทยโดยทั่วไป

Handoff 1: การส่งต่อข้อมูลผู้ป่วยระหว่างพยาบาลประจำหอผู้ป่วยกับพยาบาลห้องผ่าตัดในระยะก่อนผ่าตัด

ข้อมูลผู้ป่วย	ประเภท & ความน่าเชื่อถือ	ด้าน	ไม่เห็นด้วยเป็นอย่างยิ่ง → เห็นด้วยเป็นอย่างยิ่ง							ข้อเสนอแนะและเหตุผล
1. ข้อมูลที่แสดงถึงสถานะของผู้ป่วย (Situation)										
1.1 ชื่อของพยาบาลผู้ส่งต่อและรับข้อมูลผู้ป่วย	IV, D	เกี่ยวข้อง	0	1	2	3	4	5	6	
		สมบูรณ์	0	1	2	3	4	5	6	
		ชัดเจน	0	1	2	3	4	5	6	
2. ข้อมูลที่แสดงถึงรายละเอียดทั่วไปของผู้ป่วย (Background)										
2.1 ประวัติความเจ็บป่วยของผู้ป่วยเฉพาะที่สำคัญและเกี่ยวข้องกับการผ่าตัดครั้งนี้	III, C	เกี่ยวข้อง	0	1	2	3	4	5	6	
		สมบูรณ์	0	1	2	3	4	5	6	
		ชัดเจน	0	1	2	3	4	5	6	
		ชัดเจน	0	1	2	3	4	5	6	
3. ข้อมูลที่แสดงถึงการประเมินสภาพและความต้องการของผู้ป่วย (Assessment)										
3.1 ระดับความรู้สึกตัวของผู้ป่วย	III, C	เกี่ยวข้อง	0	1	2	3	4	5	6	
		สมบูรณ์	0	1	2	3	4	5	6	
		ชัดเจน	0	1	2	3	4	5	6	

ข้อมูลผู้ป่วย	ประเภท & ความน่าเชื่อถือ	ด้าน	ไม่เห็นด้วยเป็นอย่างยิ่ง → เห็นด้วยเป็นอย่างยิ่ง							ข้อเสนอแนะและเหตุผล
4. ข้อมูลที่แสดงถึงข้อแนะนำต่างๆ ในการให้การดูแลผู้ป่วย (Recommendations)										
4.1 แผนการพยาบาลที่เฉพาะเจาะจงสำหรับผู้ป่วย	IV, D	เกี่ยวข้อง	0	1	2	3	4	5	6	
		สมบูรณ์	0	1	2	3	4	5	6	
		ชัดเจน	0	1	2	3	4	5	6	

Handoff 2: การส่งต่อข้อมูลผู้ป่วยระหว่างพยาบาลห้องผ่าตัดในระยะก่อนผ่าตัดกับพยาบาลห้องผ่าตัดในระยะผ่าตัด

ข้อมูลผู้ป่วย	ประเภท & ความน่าเชื่อถือ	ด้าน	ไม่เห็นด้วยเป็นอย่างยิ่ง → เห็นด้วยเป็นอย่างยิ่ง							ข้อเสนอแนะและเหตุผล
1. ข้อมูลที่แสดงถึงสถานะของผู้ป่วย (Situation)										
1.1 ชื่อของพยาบาลผู้ส่งต่อและรับข้อมูลผู้ป่วย	IV, D	เกี่ยวข้อง	0	1	2	3	4	5	6	
		สมบูรณ์	0	1	2	3	4	5	6	
		ชัดเจน	0	1	2	3	4	5	6	

ข้อมูลผู้ป่วย	ประเภท & ความน่าเชื่อถือ	ด้าน	ไม่เห็นด้วยเป็นอย่างยิ่ง → เห็นด้วยเป็นอย่างยิ่ง							ข้อเสนอแนะและเหตุผล
2. ข้อมูลที่แสดงถึงรายละเอียดทั่วไปของผู้ป่วย (Background)										
2.1 ประวัติความเจ็บป่วยของผู้ป่วยเฉพาะที่สำคัญและเกี่ยวข้องกับการผ่าตัดครั้งนี้	III, C	เกี่ยวข้อง	0	1	2	3	4	5	6	
		สมบูรณ์	0	1	2	3	4	5	6	
		ชัดเจน	0	1	2	3	4	5	6	
		ชัดเจน	0	1	2	3	4	5	6	
3. ข้อมูลที่แสดงถึงการประเมินสภาพและความต้องการของผู้ป่วย (Assessment)										
3.1 ระดับความรู้สึกตัวของผู้ป่วย	III, C	เกี่ยวข้อง	0	1	2	3	4	5	6	
		สมบูรณ์	0	1	2	3	4	5	6	
		ชัดเจน	0	1	2	3	4	5	6	
4. ข้อมูลที่แสดงถึงข้อแนะนำต่างๆ ในการให้การดูแลผู้ป่วย (Recommendations)										
4.1 แผนการพยาบาลที่เฉพาะเจาะจงสำหรับผู้ป่วย	IV, D	เกี่ยวข้อง	0	1	2	3	4	5	6	
		สมบูรณ์	0	1	2	3	4	5	6	
		ชัดเจน	0	1	2	3	4	5	6	

ข้อคิดเห็นและข้อเสนอแนะอื่นๆ เกี่ยวกับข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทย

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

ส่วนที่ 2: วิธีการสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทย

คำชี้แจง ส่วนที่ 2:

ขอให้ท่านประเมินระดับของการเห็นด้วยต่อแต่ละข้อความที่แสดงถึงวิธีการสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทย ใน 3 ด้าน คือ 1) ความเกี่ยวข้อง 2) ความสมบูรณ์ และ 3) ความชัดเจน ซึ่งมีความหมายดังนี้

ความเกี่ยวข้อง	หมายถึง	ข้อความนั้นมีความสัมพันธ์และเกี่ยวข้องกับการเป็นวิธีการสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทย
ความสมบูรณ์	หมายถึง	ข้อความนั้นมีเนื้อหาสมบูรณ์ ครบถ้วน
ความชัดเจน	หมายถึง	ข้อความนั้นสามารถสื่อความหมายหรือง่ายต่อการเข้าใจ

ในการประเมินระดับของการเห็นด้วย ขอให้ท่านทำเครื่องหมาย ○ ล้อมรอบตัวเลขที่ตรงกับระดับคะแนนของการเห็นด้วยของท่านหลังแต่ละข้อความ การให้ระดับคะแนนของการเห็นด้วยของท่าน มีระดับคะแนนเริ่มตั้งแต่ 0 ถึง 6 ดังนี้

คะแนน 0	หมายถึง	ท่าน “ไม่เห็นด้วยเป็นอย่างยิ่ง” ต่อ ความเกี่ยวข้อง/ความสมบูรณ์/ความชัดเจน ของข้อความนั้นที่จะนำมาใช้เป็นวิธีการสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทย
คะแนน 1-5	หมายถึง	ท่าน “เห็นด้วย” จาก น้อย คือ คะแนน 1 จนถึง มาก คือ คะแนน 5 ต่อ ความเกี่ยวข้อง/ความสมบูรณ์/ความชัดเจน ของข้อความนั้นที่จะนำมาใช้เป็นวิธีการสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทย
คะแนน 6	หมายถึง	ท่าน “เห็นด้วยเป็นอย่างยิ่ง” ต่อ ความเกี่ยวข้อง/ความสมบูรณ์/ความชัดเจน ของข้อความนั้นที่จะนำมาใช้เป็นวิธีการสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทย

นอกจากนั้น ขอให้ท่านกรุณาให้คำแนะนำและให้เหตุผลต่อทุกข้อความที่ท่านได้ให้คะแนนตั้งแต่ 0 ถึง 3 รวมถึงโปรดให้คำแนะนำ ข้อเสนอแนะ และเหตุผลต่างๆ เพิ่มเติม หากท่านมีความเห็นว่าข้อความที่แสดงถึงวิธีการสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทยข้อความใด ควรได้รับการปรับปรุง เปลี่ยนแปลงแก้ไข อย่างไร เพื่อให้มีความเหมาะสมกับการนำไปปฏิบัติและเพื่อให้เป็นที่ยอมรับของพยาบาลห้องผ่าตัดไทยโดยทั่วไป

วิธีการส่งต่อข้อมูลผู้ป่วย	ประเภท & ความน่าเชื่อถือ	ด้าน	ไม่เห็นด้วยเป็นอย่างยิ่ง → เห็นด้วยเป็นอย่างยิ่ง							ข้อเสนอแนะและเหตุผล
1. ผู้ส่งต่อข้อมูลผู้ป่วยจะต้องเป็นพยาบาลผู้ที่รู้และเข้าใจเกี่ยวกับข้อมูลของผู้ป่วยเป็นอย่างดี และผู้รับข้อมูลผู้ป่วยควรเป็นพยาบาลผู้ที่จะทำหน้าที่รับผิดชอบโดยตรง ในการให้การดูแลผู้ป่วยต่อจากผู้ส่งต่อข้อมูลผู้ป่วย	III, C	เกี่ยวข้อง	0	1	2	3	4	5	6	
		สมบูรณ์	0	1	2	3	4	5	6	
		ชัดเจน	0	1	2	3	4	5	6	
2. ผู้ส่งต่อข้อมูลและผู้รับข้อมูลผู้ป่วยจะต้องทำการตรวจสอบความถูกต้องในการระบุตัวตนของผู้ป่วยทุกครั้งที่มีการส่งต่อข้อมูลผู้ป่วยตามกระบวนการตรวจสอบความถูกต้องในการระบุตัวตนของผู้ป่วยของแต่ละโรงพยาบาล ทั้งนี้ เพื่อให้แน่ใจว่าข้อมูลกำลังจะได้รับการส่งต่อนั้นเป็นข้อมูลของผู้ป่วยที่กำลังจะถูก ส่งตัวให้ไปอยู่ภายใต้การดูแลรับผิดชอบของผู้รับข้อมูลผู้ป่วย	III, C	เกี่ยวข้อง	0	1	2	3	4	5	6	
		สมบูรณ์	0	1	2	3	4	5	6	
		ชัดเจน	0	1	2	3	4	5	6	
3. ผู้ส่งต่อข้อมูลผู้ป่วยจะต้องใช้ความตั้งใจในการที่บอกเล่าและบันทึกข้อมูลต่างๆ ของผู้ป่วย และผู้รับข้อมูลผู้ป่วยจะต้องใช้ความตั้งใจที่จะฟังและอ่านบันทึกข้อมูลต่างๆ ของผู้ป่วย	III, C	เกี่ยวข้อง	0	1	2	3	4	5	6	
		สมบูรณ์	0	1	2	3	4	5	6	
		ชัดเจน	0	1	2	3	4	5	6	
4. ผู้ส่งต่อข้อมูลผู้ป่วยจะต้องเตรียมตนเองให้พร้อมก่อนที่จะทำการส่งต่อข้อมูลผู้ป่วย ทั้งนี้ เพื่อให้มั่นใจว่าข้อมูลที่สำคัญและเกี่ยวข้องกับการดูแลผู้ป่วยจะได้รับการส่งต่อไปยังผู้รับข้อมูลผู้ป่วยซึ่งเป็นผู้ที่จะทำหน้าที่รับผิดชอบในการดูแลผู้ป่วยเป็นคนต่อไป	III, C	เกี่ยวข้อง	0	1	2	3	4	5	6	
		สมบูรณ์	0	1	2	3	4	5	6	
		ชัดเจน	0	1	2	3	4	5	6	

ข้อคิดเห็นและข้อเสนอแนะอื่นๆ เกี่ยวกับวิธีการสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทย

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

ตอนที่ 3: แบบสอบถามถึงข้อคิดเห็นและข้อเสนอแนะอื่นๆ เกี่ยวกับแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทย

คำชี้แจง ตอนที่ 3:

ขอให้ท่านโปรดให้ข้อคิดเห็นและข้อเสนอแนะต่างๆเกี่ยวกับการพัฒนาและการตรวจสอบคุณสมบัติของแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทยที่มาจากหลักฐานเชิงประจักษ์

.....

.....

.....

.....

.....

.....

.....

****

ขอขอบพระคุณเป็นอย่างยิ่งต่อความกรุณาให้ความร่วมมือเป็นอย่างดีของท่าน

APPENDIX F

FORMAT OF THE SECOND ROUND DELPHI QUESTIONNAIRE

แบบสอบถาม ครั้งที่ 2

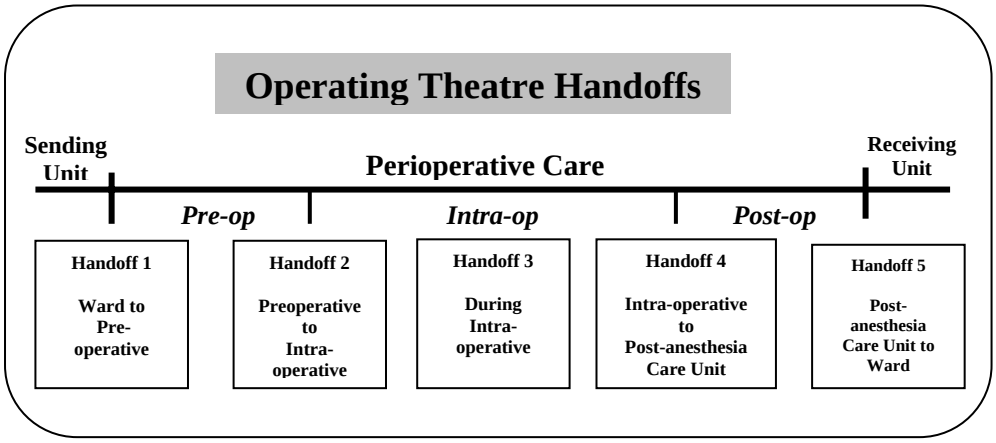
การวิจัยเรื่อง การพัฒนาและการตรวจสอบคุณสมบัติของแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทยที่มาจากหลักฐานเชิงประจักษ์

(The Development of Evidence-based handoff for Thai Operating Theatre Nurses)

****

คำชี้แจง:

1) "การส่งต่อข้อมูลผู้ป่วย" หรือ "Handoff" ในที่นี้หมายถึง กระบวนการสื่อสารแบบมีปฏิสัมพันธ์ระหว่างพยาบาลห้องผ่าตัดด้วยกันเอง และระหว่างพยาบาลห้องผ่าตัดกับพยาบาลประจำหอผู้ป่วยหรือวิสัญญีพยาบาล เพื่อเป็นการส่งต่อข้อมูลที่สำคัญและเกี่ยวข้องกับการดูแลผู้ป่วย **โดยการใช้วาจาร่วมกับการบันทึก** เมื่อมีการผลัดเปลี่ยนผู้รับผิดชอบในการดูแลผู้ป่วยที่เข้ารับการพยาบาลปริศัลยกรรม (peri-operative care) ทั้งนี้ เพื่อให้ผู้ป่วยได้รับการดูแลที่ต่อเนื่อง (Continuity of care) และปลอดภัย (Patient safety) ตลอดเวลาที่เข้ารับการพยาบาลปริศัลยกรรม ซึ่งโดยทั่วไป จะสามารถพบการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทยในระยะของการพยาบาลปริศัลยกรรมได้ 5 ระยะ ดังแสดงได้โดยภาพต่อไปนี้



Handoff 1 หมายถึง การส่งต่อข้อมูลผู้ป่วยระหว่างพยาบาลประจำหอผู้ป่วยกับพยาบาลห้องผ่าตัดในระยะก่อนผ่าตัด

Handoff 2 หมายถึง การส่งต่อข้อมูลผู้ป่วยระหว่างพยาบาลห้องผ่าตัดในระยะก่อนผ่าตัดกับพยาบาลห้องผ่าตัดในระยะผ่าตัด

Handoff 3	หมายถึง	การส่งต่อข้อมูลผู้ป่วยระหว่างพยาบาลห้องผ่าตัดในระยะผ่าตัด (กรณีมีการเปลี่ยนทีมพยาบาล)
Handoff 4	หมายถึง	การส่งต่อข้อมูลผู้ป่วยระหว่างพยาบาลห้องผ่าตัดในระยะผ่าตัดกับพยาบาลผู้ดูแลผู้ป่วยในระยะหลังผ่าตัด (ระยะฟื้นตัวจากยาสลบ)
Handoff 5	หมายถึง	การส่งต่อข้อมูลผู้ป่วยระหว่างพยาบาลผู้ดูแลผู้ป่วยในระยะหลังผ่าตัด (ระยะฟื้นตัวจากยาสลบ) กับพยาบาลประจำหอผู้ป่วย

2) แบบสอบถามโครงการวิจัยเรื่อง การพัฒนาและการตรวจสอบคุณสมบัติของแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทยที่มาจากหลักฐานเชิงประจักษ์ฉบับนี้ เป็นแบบสอบถามผู้เชี่ยวชาญ ครั้งที่ 2 (รอบสุดท้ายสำหรับผู้เชี่ยวชาญ) ประกอบด้วย 3 ตอน คือ

ตอนที่ 1: แบบสอบถามการยืนยันการยอมรับของผู้เชี่ยวชาญต่อข้อความที่ระบุถึงข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทย เพื่อส่งต่อการดูแลผู้ป่วยในการพยาบาลปริศัลยกรรม

ตอนที่ 2: แบบสอบถามการยืนยันการยอมรับของผู้เชี่ยวชาญต่อข้อความที่ระบุถึงวิธีการสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทย เพื่อส่งต่อการดูแลผู้ป่วยในการพยาบาลปริศัลยกรรม

ตอนที่ 3: แบบสอบถามถึงข้อคิดเห็นและข้อเสนอแนะอื่นๆ เกี่ยวกับแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทย เพื่อส่งต่อการดูแลผู้ป่วยในการพยาบาลปริศัลยกรรม

ตอนที่ 1: แบบสอบถามการยืนยันการยอมรับของผู้เชี่ยวชาญต่อข้อความที่ระบุถึงข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทย เพื่อส่งต่อการดูแลผู้ป่วยในการพยาบาลปริศัลยกรรม

คำชี้แจง ตอนที่ 1:

ขอให้ท่านพิจารณารายงานผลการประเมินระดับของการเห็นด้วยของผู้เชี่ยวชาญทั้งหมดต่อข้อความที่ระบุถึงข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทย ในแบบสอบถามครั้งที่ 1 (ซึ่งผู้วิจัยได้แนบมาด้วย หน้าที่ 11 ถึงหน้าที่ 104) แล้ว นำผลการพิจารณาดังกล่าวมาประกอบในการพิจารณาข้อความที่ระบุถึงข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทยซึ่งผู้วิจัยได้ทำการปรับเปลี่ยนจากแบบสอบถามครั้งที่ 1 พร้อมการให้

เหตุผลของการคงไว้หรือเปลี่ยนแปลงข้อความของผู้วิจัย ทั้งนี้ ผู้วิจัยได้ทำการสรุปข้อความที่ระบุถึงข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทย ในแบบสอบถามครั้งที่ 2 นี้ มาพัฒนาเป็นแบบโครงร่างและแบบตรวจสอบข้อมูลที่จำเป็นสำรับการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัด (I-SBAR Peri-operative Nursing Handoff Template/Checklist) ซึ่งผู้วิจัยได้ขอให้ท่านได้ทำการประเมินในตอนต่อไป ดังนี้

I-SBAR Peri-operative Nursing Handoff Template/Checklist

I

INTRODUCTION:

❑ Sender's & receiver's name/position: ❍ Sender: ……………………………………..❍ Receiver: …………………………………..
❑ **Patient's name**: …………………………………………. ❑ **HN**: ……………………❑ **Age**: ………………❑ **Gender:** …………
❑ **Patient's ward prior to being accompanied to the operating room**: ……………………………………………………………

S

SITUATION:

❑ **Diagnosis**: ……………………………………………………
❑ **Operation:** ………………………………………….(site/side)
❑ **Surgeons**: ……………………………………………………

Intra-op & Intra-op→Post-op & Post-op

❑ **Method of anesthesia:** ………………………………………….
❑ **Anesthetists:** ……………………………………………………
❑ **Patients' position**: …………………………………………………
Time ❍ **Patient arrived OT**: ……………………………………
❍ **Operation started**……………………………………
❍ **Operation finished**……………………………………
❍ **Patient discharged from PACU**…………………………

B

BACKGROUND:

Significantly relevant to current procedure, if the patient has:
❑ **Illness history:** ………………………………………………
❑ **Medications used:** ……………………………………………
❑ Allergies: ………………………………………………………
❑ **Artifacts & implants attached to patient:** ……………………
…………………………………………………………………
❑ **Patient's limitations:** …………………………………………

❑ **Communicable diseases:** ……………………………
❑ **Means of contacting patient's relatives**: ……………
…………………………………………………………
…………………………………………………………
…………………………………………………………

A

ASSESSMENT:

If under perioperative nurses' responsibility

❑ **Level of consciousness**: ……………………………
❑ **Vital signs:** ❍ Temp: …………°c, ❍ Pulse: ………..bpm
❍ HR: ……… /min, ❍ BP: ……….mmHg

❑ **Respiratory status:**
❍ Normal ❍ ET tube ❍ Tracheostomy
❍ Ambu bag ❍ O_2………..L/min Via ………………….
❑ **Pain level/managements**: ……………………………………

Pre-op & Pre-op → Intra-op	*Intra-op*	*Intra-op → Post-op & Post-op:*
❑ **NPO status** ❍ **No** ❍ **Yes at** ………………. ❑ **Pre-medications:** …………………… ❑ **IV solutions/blood components given:** ……………………… …………………………………… ❑ Previous wound details: ………….. ❑ **Drain attached**: …………………… ❑ **Items sent to OT with patient:** …………………………………… ❑ **Special needs for the operation:** …………………………………… …………………………………… ……………………………………	❑ Surgical status ❑ Swab/sponge counts ❑ Instrument/needle/small item counts ❑ Necessary/needed materials/instruments ❑ Used and unused material/drugs/items come with/prepared for patient ❑ Drugs/solutions administered to/plan to be administered to patient ❑ Drains: ❍ Previously attached ❍ Newly placed ❍ Removed ❑ Status of specimens	❑ Surgical wound/dressing detail ❑ **Summary of drains** …………………………………… ❑ **Drugs/solutions administered that need further care** …………………………………… ❑ Prioritized doctors' orders ❑ **Summary of specimens:** …………………………………… ❑ Items sent back to ward with patient

❑ Significant recent events
❑ Recent changes of treatment/care
❑ Recent complications/problems

❑ Patient's special needs: ……………………………………………
❑ Uncompleted tasks needing further action: ………………………
…………………………………………………………………………

R

RECOMMENDATION:

❑ Specific nursing care plan and preparations for consequent care
❑ Anticipated changes/complications needing further assessment

❑ Concerns/warnings/monitoring for unanticipated events prevention
❑ **Questions?**

Remark: Information in bold-upright letters is recommended to be included in patient record, and could be transferred by written handoff; ***BACKGROUND*** **(B)** is not required to be provided if the patient is transferred to the previous caregivers or ward

หลังจากนั้น ขอให้ท่านทำเครื่องหมาย ✓ ลงในช่องที่ตรงกับการยืนยันการยอมรับของท่านต่อข้อความที่ระบุถึงข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทยที่ได้รับการปรับเปลี่ยนแล้ว พร้อมทั้งให้ข้อเสนอแนะและเหตุผล ดังตัวอย่างในตารางต่อไปนี้

เหตุผลของการคงไว้หรือเปลี่ยนแปลงข้อความของผู้วิจัย	**ข้อมูลผู้ป่วยที่ปรับเปลี่ยนแล้ว**	**การให้คำรับรองของท่านในครั้งนี้**			
		เห็นด้วย	ไม่เห็นด้วย		ข้อเสนอแนะและเหตุผล
			ปรับเปลี่ยน	ลบ	
XXXXX	I_1	✓			XXXXXX

หมายถึง เหตุผลที่ผู้วิจัยได้คงไว้หรือปรับเปลี่ยนข้อความที่ระบุถึงข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วยในแบบสอบถาม ครั้งที่ 1ซึ่งได้นำเสนอในตารางที่ผ่านมา

หมายถึง
ข้อความที่ระบุถึงข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วยซึ่งผู้วิจัยได้คงไว้หรือปรับเปลี่ยนใหม่ตามความเห็นของผู้เชี่ยวชาญและเหตุผลของผู้วิจัย ซึ่ง**ผู้วิจัยขอให้ท่านพิจารณาและให้คำรับรองการยอมรับของท่านต่อข้อความนี้**

หมายถึง
ขอให้ท่านพิจารณาและให้คำรับรองการยอมรับของท่านต่อข้อความที่ระบุถึงข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วยที่ปรับเปลี่ยนแล้วข้อความนี้ในส่วนนี้

หมายถึง
ขอให้ท่านให้อเสนอแนะและเหตุผลในการให้คำรับรองการยอมรับของท่านต่อข้อความที่ระบุถึงข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วยที่ปรับเปลี่ยนแล้วข้อความนี้ในส่วนนี้

ตอนที่ 1

ข้อมูลผู้ป่วย

Introduction

การแนะนำตนเองและผู้ป่วย

เหตุผลของการคงไว้หรือเปลี่ยนแปลงข้อความของผู้วิจัย	ข้อมูลผู้ป่วยที่ปรับเปลี่ยนแล้ว	การให้คำรับรองของท่านในครั้งนี้			
		เห็นด้วย	ไม่เห็นด้วย		ข้อเสนอแนะและเหตุผล
			ปรับเปลี่ยน	ลบ	
- จากความคิดเห็นของผู้เชี่ยวชาญในเอกสารรายงานผลการตอบแบบสอบถามครั้งที่ 1 (หน้า 16 ถึงหน้า 17) - ปรับเปลี่ยนตามข้อเสนอแนะของผู้เชี่ยวชาญ • เปลี่ยนจากคำว่า “พยาบาลผู้ส่งต่อและรับข้อมูลผู้ป่วย” เป็น “ผู้ส่งต่อและผู้รับข้อมูลผู้ป่วย” เนื่องจากในบางโรงพยาบาลผู้ส่งต่อและรับข้อมูลผู้ป่วยอาจไม่ใช่พยาบาล - จุดประสงค์ของข้อนี้ก็คือ ให้ทั้งผู้ส่งและผู้รับข้อมูลผู้ป่วยทราบว่าตนเองกำลังทำการส่งต่อหรือรับข้อมูลผู้ป่วยอยู่กับใคร เพื่อที่ว่าหากต้องการติดต่อสอบถามข้อมูลเพิ่มเติมในภายหลัง จะสามารถทำได้อย่างสะดวกรวดเร็ว โดยเฉพาะการส่งต่อข้อมูลทางโทรศัพท์ - การให้ระบุทั้งชื่อและสกุลของผู้ส่งต่อ.....	I_1 ชื่อและตำแหน่งของผู้ส่งต่อและผู้รับข้อมูลผู้ป่วย				

เหตุผลของการคงไว้หรือเปลี่ยนแปลงข้อความของผู้วิจัย	ข้อมูลผู้ป่วยที่ปรับเปลี่ยนแล้ว	การให้คำรับรองของท่านในครั้งนี้			
		เห็นด้วย	ไม่เห็นด้วย		ข้อเสนอแนะและเหตุผล
			ปรับเปลี่ยน	ลบ	
- จากความคิดเห็นของผู้เชี่ยวชาญในเอกสารรายงานผลการตอบแบบสอบถามครั้งที่ 1 (หน้า 18 ถึงหน้า 20) - คงไว้เหมือนเดิมตามความเห็นของผู้เชี่ยวชาญส่วนใหญ่ - ข้อนี้มีจุดประสงค์หลักเพื่อเป็นการแนะนำตัวผู้ป่วยให้ผู้แก่รับข้อมูลผู้ป่วย ซึ่งผู้วิจัยมีความเห็นว่า ผู้ส่งต่อข้อมูลผู้ป่วยควรทำการระบุตัวตนของผู้ป่วยอย่างเฉพาะเจาะจง เพื่อให้ผู้รับข้อมูลสามารถนำข้อมูลดังกล่าวไปใช้ในการตรวจสอบความถูกต้องได้ว่าข้อมูลที่ได้รับเป็นข้อมูลของผู้ป่วยที่ตนกำลังจะรับไว้ในความดูแลหรือไม่ - แม้ว่าใน journal ต่างประเทศจะแนะนำให้ระบุ วัน-เดือน-ปีเกิด แต่การใช้การระบุวัน-เดือน-ปีเกิดแทนการระบุอายุ อาจไม่สามารถนำไปปฏิบัติได้จริงทุกครั้งในบริบทของการให้บริการทางสุขภาพไทยในปัจจุบันซึ่งบุคลากร	**I_2** **ระบุตัวตนของผู้ป่วยที่กำลังได้รับการส่งต่อข้อมูล โดยระบุเลขที่โรงพยาบาล (HN) ชื่อ-นามสกุล อายุ และเพศของผู้ป่วย**				

Situation

สถานภาพการผ่าตัดของผู้ป่วย

Situation - Part I

For all OR handoffs

ระบุถึงสถานภาพการผ่าตัดของผู้ป่วยต่อไปนี้

ทุกครั้งที่ทำการส่งต่อข้อมูลผู้ป่วย

เหตุผลของการคงไว้หรือเปลี่ยนแปลงข้อความของผู้วิจัย	ข้อมูลผู้ป่วยที่ปรับเปลี่ยนแล้ว	การให้คำรับรองของท่านในครั้งนี้			
		เห็นด้วย	ไม่เห็นด้วย		ข้อเสนอแนะและเหตุผล
			ปรับเปลี่ยน	ลบ	
- จากความคิดเห็นของผู้เชี่ยวชาญในเอกสารรายงานผลการตอบแบบสอบถามครั้งที่ 1 (หน้า 25) - คงไว้ตามความเห็นของผู้เชี่ยวชาญแต่มีการปรับเปลี่ยนข้อความจาก “การวินิจฉัยโรคเบื้องต้น” และ “การวินิจฉัยโรคของผู้ป่วยภายหลังการผ่าตัด” เป็น “การวินิจฉัยโรคที่เป็นปัจจุบันของผู้ป่วย” เพื่อให้ข้อความสามารถใช้ได้ตลอดทุกครั้งของการส่งต่อข้อมูลผู้ป่วยในการพยาบาลผ่าตัด และเพื่อให้ผู้ส่งต่อข้อมูลได้ให้ข้อมูลเกี่ยวกับการวินิจฉัยโรคที่เป็นปัจจุบันสำหรับนำไปใช้ในการวางแผนการผ่าตัดหรือการดูแลผู้ป่วยในระยะต่อไป - หากมีการบันทึกข้อมูลในส่วนนี้อยู่แล้ว ทั้งผู้ส่งต่อและผู้รับข้อมูลต้องตรวจสอบให้แน่ใจว่าข้อมูลที่ถูกบันทึกนั้นเป็นการวินิจฉัยโรคที่เป็นปัจจุบันของผู้ป่วย และสามารถถือว่าการบันทึก.....	**S-I_1** **การวินิจฉัยโรคที่เป็นปัจจุบันของผู้ป่วยสำหรับการผ่าตัดในครั้งนี้**				

ข้อคิดเห็นและข้อเสนอแนะอื่นๆ เกี่ยวกับข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทย ฉบับที่ได้รับการปรับปรุงใหม่

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

ตอนที่ 2: แบบสอบถามการยืนยันการยอมรับของผู้เชี่ยวชาญต่อข้อความที่ระบุถึงวิธีการสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทย เพื่อส่งต่อการดูแลผู้ป่วยในการพยาบาลปริศัลยกรรม

คำชี้แจง ตอนที่ 2:

ขอให้ท่านพิจารณารายงานผลการประเมินระดับของการเห็นด้วยของผู้เชี่ยวชาญทั้งหมดต่อข้อความที่ระบุถึงวิธีการสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทย ในแบบสอบถามครั้งที่ 1(ซึ่งผู้วิจัยได้แนบมาด้วย หน้าที่ 105 ถึงหน้าที่ 122) แล้ว นำผลการพิจารณาดังกล่าวมาประกอบในการพิจารณาข้อความที่ระบุถึงวิธีการสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทยซึ่งผู้วิจัยได้ทำการปรับเปลี่ยนจากแบบสอบถามครั้งที่ 1 พร้อมการให้เหตุผลของการคงไว้หรือเปลี่ยนแปลงข้อความของผู้วิจัย

หลังจากนั้น ขอให้ท่านทำเครื่องหมาย ✓ ลงในช่องที่ตรงกับการยืนยันการยอมรับของท่านต่อข้อความที่ระบุถึงวิธีการสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทยที่ได้รับการปรับเปลี่ยนแล้ว พร้อมทั้งให้ข้อเสนอแนะและเหตุผล ดังตัวอย่างในตารางต่อไปนี้

เหตุผลของการคงไว้หรือเปลี่ยนแปลงข้อความของผู้วิจัย	**วิธีการส่งต่อข้อมูลผู้ป่วยที่ปรับเปลี่ยนแล้ว**	**การให้คำรับรองของท่านในครั้งนี้**			
		เห็นด้วย	ไม่เห็นด้วย		ข้อเสนอแนะและเหตุผล
			ปรับเปลี่ยน	ลบ	
XXXXX	I_1	✓			XXXXXX

หมายถึง เหตุผลที่ผู้วิจัยได้คงไว้หรือปรับเปลี่ยนข้อความที่ระบุถึงวิธีการส่งต่อข้อมูลผู้ป่วยในแบบสอบถาม ครั้งที่ 1ซึ่งได้นำเสนอในตารางที่ผ่านมา

หมายถึง ข้อความที่ระบุถึงวิธีการส่งต่อข้อมูลผู้ป่วยซึ่งผู้วิจัยได้คงไว้หรือปรับเปลี่ยนใหม่ตามความเห็นของผู้เชี่ยวชาญและเหตุผลของผู้วิจัย ซึ่ง**ผู้วิจัยขอให้ท่านพิจารณาและให้คำรับรองการยอมรับของท่านต่อข้อความนี้**

หมายถึง **ขอให้ท่านให้คำรับรองการยอมรับของท่านต่อข้อความที่ระบุถึงวิธีการส่งต่อข้อมูลผู้ป่วยที่ปรับเปลี่ยนแล้วข้อความนี้ในส่วนนี้**

หมายถึง **ขอให้ท่านเสนอแนะและให้เหตุผลในการให้คำรับรองการยอมรับของท่านต่อข้อความที่ระบุถึงวิธีการส่งต่อข้อมูลผู้ป่วยที่ปรับเปลี่ยนแล้วข้อความนี้ในส่วนนี้**

ตอนที่ 2

วิธีการส่งต่อข้อมูลผู้ป่วย

เหตุผลของการคงไว้หรือเปลี่ยนแปลงข้อความของผู้วิจัย	วิธีการส่งต่อข้อมูลผู้ป่วยที่ปรับเปลี่ยนแล้ว	การให้คำรับรองของท่านในครั้งนี้			
		เห็นด้วย	ไม่เห็นด้วย		ข้อเสนอแนะและเหตุผล
			ปรับเปลี่ยน	ลบ	
- จากความคิดเห็นของผู้เชี่ยวชาญในเอกสารรายงานผลการตอบแบบสอบถามครั้งที่ 1 (หน้า 106 ตารางบน) - ปรับเปลี่ยนให้สอดคล้องกับข้อคิดเห็นของผู้เชี่ยวชาญ โดย • ปรับเปลี่ยนจาก “เป็นพยาบาลผู้ที่รู้” เป็น “เป็นผู้ที่รู้” และ จาก “เป็นพยาบาลผู้ที่จะทำหน้าที่รับผิดชอบ” เป็น “เป็นผู้ที่ทำหน้าที่รับผิดชอบ” เนื่องจาก แต่ละโรงพยาบาลผู้ที่รับผิดชอบในการส่งต่อข้อมูลของผู้ป่วยจะเป็นใคร หรือระดับใดนั้นขึ้นอยู่กับนโยบายของโรงพยาบาล • ใช้คำว่า “ควร” แทนคำว่า “ต้อง” (ในส่วนหลัง) เพื่อให้เป็นข้อแนะนำที่จะทำให้ผู้รับและส่งต่อข้อมูลผู้ป่วยนำไปปฏิบัติเพื่อ.....	**ข้อ 1.** ผู้ส่งต่อและผู้รับข้อมูลผู้ป่วยจะต้องเป็นเป็นผู้ที่สามารถที่จะรู้ เข้าใจและสื่อสารข้อมูลของผู้ป่วยได้เป็นอย่างดี และควรเป็นผู้ที่ทำหน้าที่รับผิดชอบโดยตรงในการให้การดูแลผู้ป่วย				

ข้อคิดเห็นและข้อเสนอแนะอื่นๆ เกี่ยวกับวิธีการสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทย ฉบับที่ได้รับการปรับปรุงใหม่

.....

.....

.....

.....

.....

.....

.....

.....

ตอนที่ 3: แบบสอบถามถึงข้อคิดเห็นและข้อเสนอแนะอื่นๆ เกี่ยวกับแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทย เพื่อส่งต่อการดูแลผู้ป่วยในการพยาบาลปริศัลยกรรม

คำชี้แจง ตอนที่ 3:

ขอให้ท่านโปรดให้ข้อคิดเห็นและข้อเสนอแนะต่างๆเกี่ยวกับการพัฒนาและการตรวจสอบคุณสมบัติของแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทยที่มาจากหลักฐานเชิงประจักษ์ฉบับที่ได้รับการปรับปรุงใหม่ **ในภาพรวม**

.....

.....

.....

.....

.....

.....

.....

.....

****

ขอขอบพระคุณเป็นอย่างยิ่งต่อความกรุณาให้ความร่วมมือเป็นอย่างดีของท่าน

APPENDIX G
FORMAT OF THE APPLICABILITY VERIFICATION QUESTIONNAIRE

แบบสอบถาม

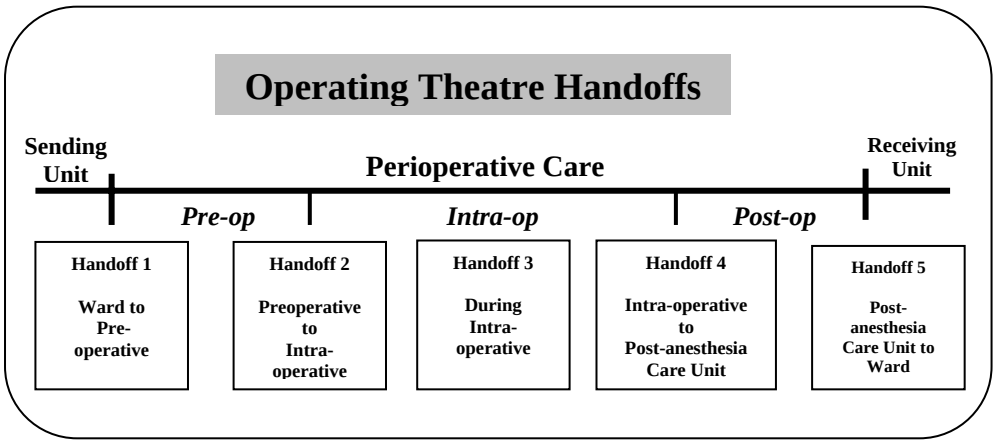
การพัฒนาและการตรวจสอบคุณสมบัติของแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทยที่มาจากหลักฐานเชิงประจักษ์

(The Development of Evidence-based handoff for Thai Operating Theatre Nurses)

****

คำชี้แจง:

1) “การส่งต่อข้อมูลผู้ป่วย” หรือ “Handoff” ในที่นี้หมายถึง กระบวนการสื่อสารแบบมีปฏิสัมพันธ์ระหว่างพยาบาลห้องผ่าตัดด้วยกันเอง และระหว่างพยาบาลห้องผ่าตัดกับพยาบาลประจำหอผู้ป่วยหรือวิสัญญีพยาบาล เพื่อเป็นการส่งต่อข้อมูลที่เกี่ยวข้องกับการดูแลผู้ป่วยที่สำคัญ**โดยการใช้วาจาร่วมกับการบันทึก** เมื่อมีการผลัดเปลี่ยนผู้รับผิดชอบในการดูแลผู้ป่วยที่เข้ารับการพยาบาลปริศัลยกรรม (peri-operative care) เพื่อให้ผู้ป่วยได้รับการดูแลที่ต่อเนื่อง (Continuity of care) และปลอดภัย (Patient safety) ตลอดเวลาที่เข้ารับการพยาบาลปริศัลยกรรม ซึ่งโดยทั่วไป จะสามารถพบการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทยในระยะของการพยาบาลปริศัลยกรรมได้ 5 ระยะ ดังแสดงในภาพต่อไปนี้



Handoff 1 หมายถึง การส่งต่อข้อมูลผู้ป่วยระหว่างพยาบาลประจำหอผู้ป่วยกับพยาบาลห้องผ่าตัดในระยะก่อนผ่าตัด

Handoff 2 หมายถึง การส่งต่อข้อมูลผู้ป่วยระหว่างพยาบาลห้องผ่าตัดในระยะก่อนผ่าตัดกับพยาบาลห้องผ่าตัดในระยะผ่าตัด

Handoff 3 หมายถึง การส่งต่อข้อมูลผู้ป่วยระหว่างพยาบาลห้องผ่าตัดในระยะผ่าตัด (กรณีมีการเปลี่ยนทีมพยาบาล)

Handoff 4 หมายถึง การส่งต่อข้อมูลผู้ป่วยระหว่างพยาบาลห้องผ่าตัดในระยะผ่าตัดกับพยาบาลผู้ดูแลผู้ป่วยในระยะหลังผ่าตัด (ระยะฟื้นตัวจากยาสลบ)

Handoff 5 หมายถึง การส่งต่อข้อมูลผู้ป่วยระหว่างพยาบาลผู้ดูแลผู้ป่วยในระยะหลังผ่าตัด (ระยะฟื้นตัวจากยาสลบ) กับพยาบาลประจำหอผู้ป่วย

2) แบบสอบถาม เรื่อง การพัฒนาและการตรวจสอบคุณสมบัติของแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทยที่มาจากหลักฐานเชิงประจักษ์ ประกอบด้วย 3 ตอน คือ

ตอนที่ 1: แบบสอบถามข้อมูลส่วนบุคคล

ตอนที่ 2: แบบสอบถามความคิดเห็นถึงการสามารถนำไปปฏิบัติได้จริงในการส่งต่อข้อมูลผู้ป่วยของแต่ละข้อความซึ่งแสดงเนื้อหาของแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทย

ตอนที่ 3: แบบสอบถามถึงข้อคิดเห็นและข้อเสนอแนะอื่นๆ เกี่ยวกับแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทย

ตอนที่ 1: แบบสอบถามข้อมูลส่วนบุคคล

คำชี้แจง ตอนที่ 1: โปรดเติมคำในช่องว่างให้สมบูรณ์ และเลือกคำตอบที่ท่านเห็นว่าตรงกับตัวท่านมากที่สุดโดยใส่เครื่องหมาย ✓ หน้าข้อความนั้น

1. ตำแหน่ง ( ) พยาบาลห้องผ่าตัด ( ) ผู้ช่วยพยาบาลห้องผ่าตัด
( ) อื่นๆ ระบุ.....
2. เพศ ( ) หญิง ( ) ชาย
3. อายุ.....ปี
4. ศาสนา ( ) พุทธ ( ) อิสลาม ( ) คริสต์ ( ) อื่นๆ โปรดระบุ.....
5. สถานภาพสมรส ( ) โสด ( ) คู่ ( ) หม้าย ( ) หย่า/ร้าง
6. ระดับการศึกษา ( ) ปริญญาตรีหรือเทียบเท่า ( ) ปริญญาโท ( ) ปริญญาเอก
7.แผนกที่ปฏิบัติงานในห้องผ่าตัด.....
8. ระยะเวลาการปฏิบัติงานในห้องผ่าตัด.....ปี
9. โรงพยาบาลของท่านอยู่ในจังหวัด.....
10. โรงพยาบาลของท่านให้บริการในระดับ ( ) ปฐมภูมิ ( ) ทุติยภูมิ ( ) ตติยภูมิ
11. โรงพยาบาลของท่านผ่านการรับรองคุณภาพโรงพยาบาล ( ) ยังไม่ผ่าน ( ) ผ่านแล้ว

ตอนที่ 2: แบบสอบถามความคิดเห็นถึงการสามารถนำไปปฏิบัติได้จริงในการส่งต่อข้อมูลผู้ป่วยของแต่ละข้อความซึ่งแสดงเนื้อหาของแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทย

คำชี้แจง ตอนที่ 2:

แบบสอบถามความเห็นถึงการสามารถนำไปปฏิบัติได้จริงในการส่งต่อข้อมูลผู้ป่วยของแต่ละข้อความซึ่งแสดงในเนื้อหาของแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทย ประกอบด้วย 2 ส่วน ดังนี้

ส่วนที่ 1 ประกอบด้วยชุดของข้อความที่แสดงถึงข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดไทย ซึ่งจะประกอบด้วยข้อมูล 5 ประเภท (I-SBAR) คือ
- ข้อมูลที่เป็นการแนะนำตนเองและผู้ป่วย (Introduction)
- ข้อมูลที่แสดงถึงสถานภาพการผ่าตัดของผู้ป่วย (Situation)
- ข้อมูลที่แสดงถึงประวัติและข้อมูลทั่วไปของผู้ป่วย (Background)
- ข้อมูลที่แสดงถึงการประเมินสภาพและความต้องการของผู้ป่วย (Assessment)
- ข้อมูลที่แสดงถึงข้อแนะนำสำหรับการให้การดูแลผู้ป่วย (Recommendations)

ส่วนที่ 2 ประกอบด้วยชุดของข้อความที่แสดงถึงข้อความที่ระบุถึงวิธีการสำหรับการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดไทย

ส่วนที่ 1: ข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดไทย

ผู้วิจัยได้ทำการสรุปเอาข้อความที่ระบุถึงข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทย มาพัฒนาเป็นแบบโครงร่างและแบบตรวจสอบข้อมูลที่จำเป็นสำรับการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัด (I-SBAR Peri-operative Nursing Handoff Template/Checklist) ซึ่งผู้วิจัยจะขอให้ท่านทำการประเมินในแบบสอบถามส่วนที่ 1 ต่อไป ดังแบบฟอร์มต่อไปนี้

I-SBAR Peri-operative Nursing Handoff Template/Checklist

I

INTRODUCTION:

❑ Sender's & receiver's name/position: ❍ Sender: ……..❍ Receiver: ……..
❑ **Patient's name**: ……..…… ❑ **HN**: ……..❑ **Age**: ……..❑ **Gender:** ……
❑ **Patient's ward prior to being accompanied to the operating room**: ……

S

SITUATION:

❑ **Diagnosis**: ……..……..……
❑ **Operation:** ……..(site/side)
❑ **Surgeons**: ……..……..……

Intra-op & Intra-op→Post-op & Post-op
❑ **Method of anesthesia:** ……..……..
❑ **Anesthetists:** ……..……..
❑ **Patients' position**: ……..……..
Time ❍ **Patient arrived OT**: ……..……..
❍ **Operation started**……..……..
❍ **Operation finished**……..……..
❍ **Patient discharged from PACU**……..……..

B

BACKGROUND:

Significantly relevant to current procedure, if the patient has:
❑ **Illness history:** ……..……..
❑ **Medications used:** ……..……..
❑ Allergies: ……..……..……
❑ **Artifacts & implants attached to patient:** ……..
……..
❑ **Patient's limitations:** ……..……..

❑ **Communicable diseases:** ……..……..

❑ **Means of contacting patient's relatives**: ……..……..
……..……..
……..……..

A

ASSESSMENT:

If under perioperative nurses' responsibility

❑ **Level of consciousness**: ……..……..
❑ **Vital signs:** ❍ Temp: ……..°c, ❍ Pulse: ……..…..bpm
❍ HR: ……..… /min, ❍ BP: ……..……mmHg

❑ **Respiratory status:**
❍ Normal ❍ ET tube ❍ Tracheostomy
❍ Ambu bag ❍ O_2……..L/min Via ……..……..
❑ **Pain level/managements**: ……..……..

Pre-op & Pre-op → Intra-op	*Intra-op*	*Intra-op → Post-op & Post-op:*
❑ **NPO status** ❍ **No** ❍ **Yes at** …….. ❑ **Pre-medications:** …….. ❑ **IV solutions/blood components given:** ……..…….. …….. ❑ Previous wound details: ……..…… ❑ **Drain attached**: ……..…….. ❑ **Items sent to OT with patient:** ……..…….. ❑ **Special needs for the operation:** …….. …….. ……..	❑ Surgical status ❑ Swab/sponge counts ❑ Instrument/needle/small item counts ❑ Necessary/needed materials/instruments ❑Used and unused material/drugs/items come with/prepared for patient ❑ Drugs/solutions administered to/plan to be administered to patient ❑ Drains: ❍ Previously attached ❍ Newly placed ❍ Removed ❑ Status of specimens	❑ Surgical wound/dressing detail ❑ **Summary of drains** ……..…….. ❑ **Drugs/solutions administered that need further care** ……..…….. ❑ Prioritized doctors' orders ❑ **Summary of specimens:** ……..…….. ❑ Items sent back to ward with patient

❑ Significant recent events
❑ Recent changes of treatment/care
❑ Recent complications/problems

❑ Patient's special needs: ……..……..
❑ Uncompleted tasks needing further action: ……..
……..……..

R

RECOMMENDATION:

❑ Specific nursing care plan and preparations for consequent care
❑ Anticipated changes/complications needing further assessment

❑ Concerns/warnings/monitoring for unanticipated events prevention
❑ **Questions?**

Remark: Information in bold-upright letters is recommended to be included in patient record, and could be transferred by written handoff; ***BACKGROUND*** **(B)** is not required to be provided if the patient is transferred to the previous caregivers or ward

คำชี้แจง ส่วนที่ 1:

ขอให้ท่านประเมินระดับของการเห็นด้วยของท่านต่อการสามารถนำไปปฏิบัติได้จริงในการส่งต่อข้อมูลผู้ป่วยของแต่ละข้อความแสดงถึงข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทย

ในการประเมินระดับของการเห็นด้วย ขอให้ท่านทำเครื่องหมาย ○ ล้อมรอบตัวเลขที่ตรงกับระดับคะแนนความคิดเห็นของท่านซึ่งอยู่หลังแต่ละข้อความ โดยกำหนดให้คะแนนความคิดเห็นของท่าน มีระดับคะแนนเริ่มตั้งแต่ 0 ถึง 6 ดังนี้

คะแนน 0	หมายถึง	ท่านมีความเห็นว่า การส่งต่อข้อมูลผู้ป่วยในข้อความนั้น “ไม่สามารถนำไปปฏิบัติได้จริงอย่างแน่นอนที่สุด”
คะแนน 1-5	หมายถึง	ท่านท่านมีความเห็นว่า การส่งต่อข้อมูลผู้ป่วยในข้อความนั้น สามารถนำไปใช้ในการปฏิบัติจริง จาก “น้อย” คือ คะแนน 1 จนถึง “มาก” คือ คะแนน 5
คะแนน 6	หมายถึง	ท่านมีความเห็นว่า การส่งต่อข้อมูลผู้ป่วยในข้อความนั้น “สามารถสามารถนำไปปฏิบัติได้จริงอย่างแน่นอนที่สุด”

นอกจากนั้น ขอให้ท่านกรุณาให้คำแนะนำ หรือเหตุผลต่อทุกข้อความที่ท่านได้ให้คะแนนตั้งแต่ 0 ถึง 4 รวมถึงโปรดให้คำแนะนำ ข้อเสนอแนะ และเหตุผลต่างๆ เพิ่มเติม หากท่านมีความเห็นว่าข้อความที่แสดงถึงข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทยข้อความใด ควรได้รับการปรับปรุง หรือเปลี่ยนแปลงแก้ไข อย่างไร เพื่อให้ข้อความที่เป็นข้อมูลนั้นสามารถ นำไปปฏิบัติได้จริงในการส่งต่อข้อมูลผู้ป่ายสำหรับพยาบาลห้องผ่าตัดไทยโดยทั่วไป

ตอนที่ 1

ข้อมูลผู้ป่วย

หมายเหตุ: **ข้อมูลที่เป็นตัวหนังสือทึบ** = เป็นข้อมูลที่แนะนำให้มีการบันทึกไว้ในรายงานผู้ป่วยและสามารถทำการส่งต่อข้อมูลนี้ด้วยวิธีการบันทึกได้

Introduction: การแนะนำตนเองและผู้ป่วย

ข้อมูลผู้ป่วย	ไม่สามารถนำไปปฏิบัติได้ (0%) → สามารถนำไปปฏิบัติได้ (100%)							ข้อเสนอแนะและเหตุผล
I_1 ชื่อและตำแหน่งของผู้ส่งต่อและผู้รับข้อมูลผู้ป่วย	0	1	2	3	4	5	6	
I_2 **ระบุตัวตนของผู้ป่วยที่กำลังได้รับการส่งต่อข้อมูล โดยระบุเลขที่โรงพยาบาล (HN) ชื่อ-นามสกุล อายุ และเพศของผู้ป่วย**	0	1	2	3	4	5	6	
I-3 **หอผู้ป่วยที่ผู้ป่วยพักอยู่ก่อนการผ่าตัด**	0	1	2	3	4	5	6	

Situation: สถานภาพการผ่าตัดของผู้ป่วย			
Situation _Part I:	**ระบุถึงสถานภาพการผ่าตัดของผู้ป่วยต่อไปนี้ทุกครั้งที่ทำการส่งต่อข้อมูลผู้ป่วย (All handoffs)**		
ข้อมูลผู้ป่วย		ไม่สามารถนำไปปฏิบัติได้ (0%) → สามารถนำไปปฏิบัติได้ (100%)	**ข้อเสนอแนะและเหตุผล**
S-I_1 การวินิจฉัยโรคที่เป็นปัจจุบันของผู้ป่วยสำหรับการผ่าตัดในครั้งนี้		0 1 2 3 4 5 6	
Situation_Part II:	**ระบุถึงสถานภาพการผ่าตัดของผู้ป่วยต่อไปนี้เฉพาะการส่งต่อข้อมูลในระยะผ่าตัดไปจนถึงระยะหลังผ่าตัด (Handoff 3 - Handoff 5)**		
S-II_Intra-Post_1 วิธีการระงับความรู้สึกที่ผู้ป่วยได้รับ		0 1 2 3 4 5 6	
S-II_Intra-Post_2 ชื่อวิสัญญีแพทย์หรือวิสัญญีพยาบาลผู้รับผิดชอบในการให้ยาระงับความรู้สึกแก่ผู้ป่วย		0 1 2 3 4 5 6	

ข้อมูลผู้ป่วย	ไม่สามารถนำไปปฏิบัติได้ (0%) → สามารถนำไปปฏิบัติได้ (100%)	ข้อเสนอแนะและเหตุผล
Background: ประวัติและข้อมูลทั่วไปของผู้ป่วย *หมายเหตุ*: ข้อมูลส่วนอาจไม่จำเป็นต้องทำการส่งต่อด้วยวาจาในกรณีที่ผู้ป่วยถูกส่งตัวกลับไปอยู่ในความดูแลของพยาบาลคนเดิมหรือหอผู้ป่วยเดิม		
B_1 ประวัติความเจ็บป่วยของผู้ป่วยเฉพาะที่สำคัญและเกี่ยวข้องกับการผ่าตัดครั้งนี้ ได้แก่ การมีภาวะปอดอุดกั้นเรื้อรัง (COPD) ความดันโลหิตสูง (HT) หรือเบาหวาน (DM) เป็นต้น	0 1 2 3 4 5 6	
Assessment: การประเมินสภาพและความต้องการของผู้ป่วย		
Assessment_Part I: ระบุการประเมินสภาพและความต้องการของผู้ป่วยต่อไปนี้ เมื่อการประเมินต่อไปนี้อยู่ภายใต้การดูแลของพยาบาล OR (All handoffs if under OR nurse's responsibility)		
A-I_If OR_1 ระดับความรู้สึกตัวของผู้ป่วย	0 1 2 3 4 5 6	
A-I_If OR_2 สัญญาณชีพของผู้ป่วยในระยะที่ผ่านมาและที่ได้รับการประเมินเป็นครั้งสุดท้าย และหากผู้ป่วยมีปัญหาเกี่ยวกับการหายใจ ให้ระบุถึงรายละเอียดเกี่ยวกับสภาวะการหายใจของผู้ป่วย โดยประเมินว่าผู้ป่วยสามารถหายใจได้ด้วยตนเองหรือต้องช่วยหายใจ	0 1 2 3 4 5 6	

ข้อมูลผู้ป่วย	ไม่สามารถนำไปปฏิบัติได้ (0%) → สามารถนำไปปฏิบัติได้ (100%)	ข้อเสนอแนะและเหตุผล
Assessment_Part II:	**ระบุการประเมินสภาพและความต้องการของผู้ป่วยต่อไปนี้ เฉพาะการส่งต่อข้อมูลในระยะก่อนผ่าตัด และจากระยะก่อนผ่าตัดไปยังระยะผ่าตัด (Handoff 1 – Handoff 2)**	
A-II_Pre_1 **ในกรณีที่มีคำสั่งจากแพทย์ ให้ผู้ป่วยงดน้ำและอาหาร เพื่อเป็นการเตรียมความพร้อมสำหรับการระงับความรู้สึก ให้ระบุว่าผู้ป่วยได้ปฏิบัติตามคำสั่งแพทย์ได้อย่างสมบูรณ์หรือไม่**	0 1 2 3 4 5 6	
Assessment_Part III:	**ระบุการประเมินสภาพและความต้องการของผู้ป่วยต่อไปนี้ เฉพาะการส่งต่อข้อมูลในระยะผ่าตัด (Handoff 3)**	
A-III_Intra_1 สถานะของการผ่าตัดในขณะนั้น การผ่าตัดที่ได้ดำเนินการไปแล้ว และแผนการผ่าตัดในระยะต่อไป	0 1 2 3 4 5 6	
Assessment_Part IV:	**ระบุการประเมินสภาพและความต้องการของผู้ป่วยต่อไปนี้ เฉพาะการส่งต่อข้อมูลจากระยะผ่าตัดไปยังระยะ หลังผ่าตัด และในระยะหลังผ่าตัด (Handoff 4 – Handoff 5)**	
A-IV_Post_1 ระบุลักษณะของแผลผ่าตัดภายหลังการผ่าตัด เช่น ลักษณะการปิดแผลผ่าตัด หรือการคงค้างไว้ของผ้าซับโลหิตหรือเครื่องมือผ่าตัดชนิดต่างๆในแผลผ่าตัดตามแผนการรักษาของแพทย์	0 1 2 3 4 5 6	

ข้อมูลผู้ป่วย	ไม่สามารถนำไปปฏิบัติได้ (0%) → สามารถนำไปปฏิบัติได้ (100%)	ข้อเสนอแนะและเหตุผล
Assessment_Part V: **ระบุการประเมินสภาพและความต้องการของผู้ป่วยต่อไปนี้ ทุกครั้งที่ทำการส่งต่อข้อมูลผู้ป่วย (All handoffs)**		
A-V_All_1 เหตุการณ์สำคัญต่างๆซึ่งเกี่ยวข้องกับการผ่าตัดของผู้ป่วยที่เกิดขึ้นในช่วงเวลาที่ผ่านมา	0 1 2 3 4 5 6	
Recommendation: ข้อแนะนำสำหรับการให้การดูแลผู้ป่วย		
R_1 แผนการพยาบาลต่อเนื่องที่เฉพาะเจาะจงสำหรับผู้ป่วย และสิ่งที่ควรปฏิบัติหรือจัดเตรียมเป็นพิเศษสำหรับการดูแลผู้ป่วยอย่างต่อเนื่องในระยะต่อไป	0 1 2 3 4 5 6	
R_2 การเปลี่ยนแปลงทางอาการ การรักษา การดูแล หรือภาวะแทรกซ้อนต่างๆ ที่คาดว่าจะเกิดขึ้นกับผู้ป่วยในระยะต่อไปซึ่งจำเป็นต้องได้รับการประเมินหรือการดูแลอย่างต่อเนื่องต่อไป	0 1 2 3 4 5 6	
R_3 ข้อควรคำนึงถึงหรือข้อควรระวังสำหรับการดูแลผู้ป่วยรวมถึงคำแนะนำในการเฝ้าระวังความเสี่ยงและการเกิดเหตุการณ์ไม่พึงประสงค์ต่างๆ สำหรับผู้ป่วย	0 1 2 3 4 5 6	

ข้อคิดเห็นและข้อเสนอแนะอื่นๆ เกี่ยวกับข้อมูลที่จำเป็นสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทย

.....

.....

.....

.....

.....

ส่วนที่ 2: วิธีการสำหรับการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดไทย

คำชี้แจง ส่วนที่ 2:

ขอให้ท่านประเมินระดับของการเห็นด้วยของท่านต่อการสามารถนำไปปฏิบัติได้จริงในการส่งต่อข้อมูลผู้ป่วยของแต่ละข้อความแสดงถึงวิธีการสำหรับการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดไทย

ในการประเมินระดับของการเห็นด้วย ขอให้ท่านทำเครื่องหมาย O ล้อมรอบตัวเลขที่ตรงกับระดับคะแนนความคิดเห็นของท่านซึ่งอยู่หลังแต่ละข้อความ โดยกำหนดให้คะแนนความคิดเห็นของท่าน มีระดับคะแนนเริ่มตั้งแต่ 0 ถึง 6 ดังนี้

คะแนน 0	หมายถึง	ท่านมีความเห็นว่า วิธีการส่งต่อข้อมูลผู้ป่วยในข้อความนั้น “ไม่สามารถนำไปปฏิบัติได้จริงอย่างแน่นอนที่สุด”
คะแนน 1-5	หมายถึง	ท่านท่านมีความเห็นว่า วิธีการส่งต่อข้อมูลผู้ป่วยในข้อความนั้น สามารถนำไปใช้ในการปฏิบัติจริง จาก “น้อย” คือ คะแนน 1 จนถึง “มาก” คือ คะแนน 5
คะแนน 6	หมายถึง	ท่านมีความเห็นว่า วิธีการส่งต่อข้อมูลผู้ป่วยในข้อความนั้น “สามารถสามารถนำไปปฏิบัติได้จริงอย่างแน่นอนที่สุด”

นอกจากนั้น ขอให้ท่านกรุณาให้คำแนะนำ หรือเหตุผลต่อทุกข้อความที่ท่านได้ให้คะแนนตั้งแต่ 0 ถึง 4 รวมถึงโปรดให้คำแนะนำ ข้อเสนอแนะ และเหตุผลต่างๆ เพิ่มเติม หากท่านมีความเห็นว่าข้อความที่แสดงถึงวิธีการสำหรับการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดไทยข้อความใด ควรได้รับการปรับปรุง หรือเปลี่ยนแปลงแก้ไข อย่างไร เพื่อให้วิธีการสำหรับการส่งต่อข้อมูลผู้ป่วยข้อความนั้นสามารถ นำไปปฏิบัติได้จริงสำหรับพยาบาลห้องผ่าตัดไทยโดยทั่วไป

ตอนที่ 2

วิธีการส่งต่อข้อมูลผู้ป่วย

ข้อมูลผู้ป่วย	ไม่สามารถนำไปปฏิบัติได้ (0%) → สามารถนำไปปฏิบัติได้ (100%)	ข้อเสนอแนะและเหตุผล
ข้อ 1. ผู้ส่งต่อและผู้รับข้อมูลผู้ป่วยจะต้องเป็นเป็นผู้ที่สามารถที่จะรู้ เข้าใจและสื่อสารข้อมูลของผู้ป่วยได้เป็นอย่างดี และควรเป็นผู้ที่ทำหน้าที่รับผิดชอบโดยตรงในการให้การดูแลผู้ป่วย	0 1 2 3 4 5 6	
ข้อ 2. ผู้ส่งต่อข้อมูลและผู้รับข้อมูลผู้ป่วยจะต้องทำการตรวจสอบความถูกต้องในการระบุตัวตนของผู้ป่วยทุกครั้งที่มีการส่งต่อข้อมูลผู้ป่วยตามกระบวนการตรวจสอบความถูกต้องในการระบุตัวตนของผู้ป่วยของแต่ละโรงพยาบาล ทั้งนี้ เพื่อให้แน่ใจว่าข้อมูลกำลังจะได้รับการส่งต่อนั้นเป็นข้อมูลของผู้ป่วยที่กำลังจะถูกส่งตัวให้ไปอยู่ภายใต้การดูแลรับผิดชอบของผู้รับข้อมูลผู้ป่วย	0 1 2 3 4 5 6	

ข้อคิดเห็นและข้อเสนอแนะอื่นๆ เกี่ยวกับวิธีการสำหรับการส่งต่อข้อมูลผู้ป่วยของพยาบาลห้องผ่าตัดไทย

.....

.....

.....

.....

.....

.....

.....

.....

.....

ตอนที่ 3: แบบสอบถามถึงข้อคิดเห็นและข้อเสนอแนะอื่นๆ เกี่ยวกับแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทย เพื่อส่งต่อการดูแลผู้ป่วยในการพยาบาลปริศัลยกรรม

คำชี้แจง ตอนที่ 3:

ขอให้ท่านโปรดให้ข้อคิดเห็นและข้อเสนอแนะต่างๆเกี่ยวกับการพัฒนาและการตรวจสอบคุณสมบัติของแนวทางการส่งต่อข้อมูลผู้ป่วยสำหรับพยาบาลห้องผ่าตัดในประเทศไทยที่มาจากหลักฐานเชิงประจักษ์ **ในภาพรวม**

.....

.....

.....

.....

.....

.....

.....

.....

.....

****

ขอขอบพระคุณเป็นอย่างยิ่งต่อความกรุณาให้ความร่วมมือเป็นอย่างดีของท่าน

APPENDIX H

RESULTS OF THE SYUDY

Table 25

List of Example Evidences for OT Nursing Handoff Resulted From Literature Review

Evidence	Category & Strength (Reference)
Information required for OT handoff	
1. Handoff 1 (H_1)	
Situation	
1. Name of nurse sending ……...	IV, D (Sandlin, 2007)
2. Patient's name and surname	III, C (Currie, 2002)
Background	
1. Summary of patient's ……..	III, C (Currie, 2002)
2. Patient's history of allergies	III, C (Kalkman, 2010)
Assessment	
1. Patient's level of consciousness	III, C (Arora et al., 2005)
2. Patient's vital signs	III, C (Currie, 2002)
Recommendation	
1. Specific nursing care plan for……	IV, D (Caruso, 2007)
2. Anticipated changes of patient's …….	IIb, C (Makary et al., 2007)
2. Handoff 2 (H_2):	
1. Name of nurse sending and…….	IV, D (Sandlin, 2007)
2. Patient's name and surname	III, C (Currie, 2002)
Background	
1. Summary of patient's history …….	III, C (Currie, 2002)
2. Patient's history of allergies	III, C (Kalkman, 2010)

Table 25 (continued)

Evidence	Category & Strength (Reference)
Assessment	
1. Patient's level of …….	III, C (Arora et al., 2005)
2. Patient's vital signs	III, C (Currie, 2002)
Recommendation	
1. Specific nursing care plan for the patient	IV, D (Caruso, 2007)
2. Anticipated changes of patient's……	IIb, C (Makary et al., 2007)
3. Handoff 3 (H_3)	
Situation	
1. Name of nurse sending and ……	IV, D (Sandlin, 2007)
2. Patient's name and surname	III, C (Currie, 2002)
Background	
1. Summary of patient's …….	III, C (Currie, 2002)
2. Patient's history of allergies	III, C (Kalkman, 2010)
Assessment	
1. Patient's level of consciousness	III, C (Arora et al., 2005)
2. Current status of patient's……	IV, D (Friesen, White, & Byers, 2009)
Recommendation	
1. Specific nursing care plan for the patient	IV, D (Caruso, 2007)
2. Anticipated changes of patient's …….	IV, D (Friesen et al., 2009)
4. Handoff 4 (H_4)	
Situation	
1. Name of nurse sending and ……	IV, D (Sandlin, 2007)
2. Patient's name and surname	III, C (Currie, 2002)

Table 25 (continued)

Evidence	Category & Strength (Reference)
Background	
2. Patient's history of allergies	III, C (Kalkman, 2010)
Assessment	
1. Patient's level of consciousness	III, C (Arora et al., 2005)
4. Patient's level of pain	IV, D (Amato-Vealey et al., 2008)
Recommendation	
1. Specific nursing care plan for the patient	IV, D (Caruso, 2007)
2. Anticipated changes of ……	IV, D (Friesen et al., 2009)
5. Handoff 5 (H_5):	
Situation	
1. Name of nurse sending and receiving ……..	IV, D (Sandlin, 2007)
2. Patient's name and surname	III, C (Currie, 2002)
Background	
1. Summary of patient's history ……	III, C (Currie, 2002)
2. Patient's history of allergies	III, C (Kalkman, 2010)
Assessment	
2. Abnormal patient's conditions during ……	IV, D (Amato-Vealey et al., 2008)
Recommendation	
1. Specific nursing care plan for the patient	IV, D (Caruso, 2007)
2. Anticipated changes of patient……	IV, D (Friesen et al., 2009)
Strategies required for OT handoff	
1. Sender of patient information for ……...	IV, D (Crum Gregory, 2006)
2. Sender of patient information …….....	IV, D (Manias, Aitken, & Dunning, 2005)

Table 26

List of Example Statements and Results of the First-Round Delphi on Content Validation of the Evidence-based Handoff for Thai OT Nurses Version I by Experts (n=17)

	Statement	Aspect	Mode (N)	Mean (SD)	Median (IQR)	N of score < 5	N of score ≥ 5	Percent of agreement	Decision
Information required for OT handoff									
1. Handoff 1 (H1): transfer of patient care from ward nurse to pre-operative OT nurse									
Situation									
S1	Name of nurse sending and receiving …….....	relevancy	6 (13)	5.59 (1.00)	6 (0.50)	1	16	94.12	Combined to I1 Ĉ
		sufficiency	6 (14)	5.53 (1.46)	6 (0.00)	1	16	94.12	H2S1, H3S1,
		clarity	6 (14)	5.47 (1.51)	6 (0.00)	2	15	88.24	H4S1, H5S1
Background									
B1	Patient's history of illness ……...	relevancy	6 (13)	5.59 (1.00)	6 (0.50)	1	16	94.12	Combined to B1 Ĉ
		sufficiency	6 (12)	5.41 (1.46)	6 (1.00)	1	16	94.12	H2B1, H3B1,
		clarity	6 (12)	5.35 (1.50)	6 (1.00)	2	15	88.24	H4B1, H5BA1

Table 26 (continued)

		Statement	Aspect	Mode (N)	Mean (SD)	Median (IQR)	N of score < 5	N of score ≥ 5	Percent of agreement	Decision
Assessment										
	A8	In case that the patient is able to urinate …….	relevancy	6 (10)	4.65 (1.94)	6 (3.00)	6	11	64.71	Deleted
			sufficiency	6 (10)	4.65 (2.12)	6 (2.50)	5	12	70.59	
			clarity	6 (10)	4.65 (2.12)	6 (2.50)	5	12	70.59	
Recommendations										
	R2	Anticipated changes of patient's …….	relevancy	6 (15)	5.65 (1.06)	6 (0.00)	2	15	88.24	Combined to R2 Ĉ H2R2, H3R2, H3R3, H3R5, H4R3, H4R4, H4R5, H5R3, H5R4, H5R5
			sufficiency	6 (14)	5.47 (1.51)	6 (0.00)	2	15	88.24	
			clarity	6 (14)	5.35 (1.62)	6 (0.00)	3	14	82.35	
2. Handoff 2 (H2): transfer of patient care from pre-operative OT nurse to intra-operative OT nurse										
Situation										
	S1	Name of nurse sending and ……	relevancy	6 (12)	5.24 (1.68)	6 (1.00)	2	15	88.24	Combined to I1 Ĉ H1S1, H3S1, H4S1, H5S1
			sufficiency	6 (12)	5.24 (1.68)	6 (1.00)	2	15	88.24	
			clarity	6 (12)	5.24 (1.68)	6 (1.00)	2	15	88.24	
			clarity	6 (11)	5.29 (1.49)	6 (1.00)	2	15	88.24	

Table 26 (continued)

	Statement	Aspect	Mode (N)	Mean (SD)	Median (IQR)	N of score < 5	N of score ≥ 5	Percent of agreement	Decision
Background									
B1	Patient's history of illness……	relevancy	6 (13)	5.18 (1.78)	6 (0.00)	3	14	82.35	Combined to B1 Ĉ H1B1, H3B1, H4B1, H5BA1
		sufficiency	6 (13)	5.18 (1.78)	6 (0.00)	3	14	82.35	
		clarity	6 (14)	5.35 (1.69)	6 (0.00)	2	15	88.24	
Assessment									
A5	In case that the patient is ……..	relevancy	6 (9)	4.88 (1.73)	6 (1.50)	4	13	76.47	Deleted
		sufficiency	6 (8)	4.47 (2.07)	5 (2.50)	6	11	64.71	
		clarity	6 (8)	4.53 (2.07)	5 (2.50)	5	12	70.59	
Recomm5endations									
R1	Specific nursing care plan …….....	relevancy	6 (14)	5.53 (1.46)	6 (0.00)	1	16	94.12	Combined to R1 Ĉ H1B5, H1R1, H1R5, H2B5, H2R5, H3B5, H3R1, H3R4, H3R6, H3R9, H4B5, H4R1, H4R2, H4R8, H5BA5, H5R1, H5R2, H5R8,
		sufficiency	6 (14)	5.53 (1.46)	6 (0.00)	1	16	94.12	
		clarity	6 (14)	5.53 (1.46)	6 (0.00)	1	16	94.12	

Table 26 (continued)

	Statement	Aspect	Mode (N)	Mean (SD)	Median (IQR)	N of score < 5	N of score ≥ 5	Percent of agreement	Decision
3. Handoff 3 (H3): transfer of patient care between intra- to intra-operative OT nurse (In case of changing nursing team during intra-operative phase of care)									
Situation									
S6	Position of the patient for……	relevancy	6 (14)	5.59 (1.06)	6 (0.00)	2	15	88.24	Retained to SB3
		sufficiency	6 (14)	5.47 (1.51)	6 (0.00)	2	15	88.24	
		clarity	6 (14)	5.47 (1.51)	6 (0.00)	2	15	88.24	
Background									
B10	Drugs, fluids, and solutions administrated ……..…	relevancy	6 (13)	5.24 (1.72)	6 (0.50)	3	14	82.35	Modified to AC6 Ĉ
		sufficiency	6 (15)	5.71 (0.99)	6 (0.00)	1	16	94.12	
		clarity	6 (15)	5.71 (0.99)	6 (0.00)	1	16	94.12	
Assessment									
A3	Current status of patient's operation,……....	relevancy	6 (13)	5.71 (0.59)	6 (0.50)	1	16	94.12	Retained to AC1
		sufficiency	6 (13)	5.71 (0.59)	6 (0.50)	1	16	94.12	
		clarity	6 (13)	5.71 (0.59)	6 (0.50)	1	16	94.12	

Table 26 (continued)

	Statement	Aspect	Mode (N)	Mean (SD)	Median (IQR)	N of score < 5	N of score ≥ 5	Percent of agreement	Decision
Recommendations									
R2	Anticipated changes of….....	relevancy	6 (10)	4.82 (1.94)	6 (1.50)	4	13	76.47	Combined to R2 Ĉ
		sufficiency	6 (10)	4.76 (2.08)	6 (1.50)	4	13	76.47	H1R2, H2R2, H3R3, H3R5, H4R3, H4R4, H4R5, H5R3, H5R4, H5R5
		clarity	6 (10)	4.76 (2.08)	6 (1.50)	4	13	76.47	
4. Handoff 4 (H4): transfer of patient care from intra-operative OT nurse to post-anesthesia care nurse									
Situation									
S-1	Name of nurse sending and receiving …….	relevancy	6 (12)	4.88 (2.21)	6 (1.00)	3	14	82.35	Combined to I1 Ĉ
		sufficiency	6 (13)	5.18 (1.98)	6 (0.50)	2	15	88.24	H1S1, H2S1,
		clarity	6 (13)	5.18 (1.98)	6 (0.50)	2	15	88.24	H3S1, H5S1
Background									
B1	Patient's history of illness ……..……	relevancy	6 (11)	5.06 (1.95)	6 (1.00)	2	15	88.24	Combined to B1 Ĉ
		sufficiency	6 (12)	5.41 (1.46)	6 (1.00)	1	16	94.12	H1B1, H2B1,
		clarity	6 (12)	5.41 (1.46)	6 (1.00)	1	16	94.12	H3B1, H5BA1

Table 26 (continued)

	Statement	Aspect	Mode (N)	Mean (SD)	Median (IQR)	N of score < 5	N of score ≥ 5	Percent of agreement	Decision
Assessme4nt									
A1	Patient's level of consciousness	relevancy	6 (12)	5.41 (1.46)	6 (1.00)	1	16	94.12	Combined to AA1 Ĉ
		sufficiency	6 (14)	5.82 (0.39)	6 (0.00)	0	17	100.00	H1A1, H2A1,
		clarity	6 (14)	5.82 (0.39)	6 (0.00)	0	17	100.00	H3A1, H5A1
Recommendations									
R5	Instructions for taking care ……..……	relevancy	6 (8)	4.94 (1.69)	5.50 (1.00)	3	13	81.25*	Combined to R2 Ĉ
		sufficiency	6 (8)	4.94 (1.69)	5.50 (1.00)	3	13	81.25*	H1R2, H2R2, H3R2, H3R3,
		clarity	6 (8)	4.94 (1.69)	5.50 (1.00)	3	13	81.25*	H3R5, H4R3, H4R4, H5R3, H5R4, H5R5
5. Handoff 5 (H5): transfer of patient care from post-anesthesia care nurse to ward nurse									
Situation									
S1	Name of nurse sending and receiving ……...……..	relevancy	6 (15)	5.71 (0.99)	6 (0.00)	1	16	94.12	Combined to I1 Ĉ
		sufficiency	6 (15)	5.71 (0.99)	6 (0.00)	1	16	94.12	H1S1, H2S1,
		clarity	6 (15)	5.71 (0.99)	6 (0.00)	1	16	94.12	H3S1, H4S1

Table 26 (continued)

	Statement	Aspect	Mode (N)	Mean (SD)	Median (IQR)	N of score < 5	N of score ≥ 5	Percent of agreement	Decision
Background									
Background Part I:	indicate the following information in this section in case of changing ward nurse taking care of the patient or changing patient's ward after the operation								
BA1	Patient's history of illness…….	relevancy	6 (11)	5.18 (1.43)	6 (1.50)	4	13	76.47	Combined to B1 Ĉ
		sufficiency	6 (12)	5.29 (1.53)	6 (1.00)	3	14	82.35	H1B1, H2B1,
		clarity	6 (12)	5.29 (1.53)	6 (1.00)	3	14	82.35	H3B1, H4B1
Background Part II:	Indicate the following information in this section every time OT nurse responsible for patient's post operative care giving transfer of patient care to patient's ward nurse (after the operation)								
BB1	Patient's special needs related……	relevancy	6 (12)	5.29 (1.57)	6 (1.00)	2	15	88.24	Combined to AE4 Ĉ
		sufficiency	6 (13)	5.47 (1.46)	6 (0.50)	1	16	94.12	H1A12, H2B9,
		clarity	6 (13)	5.47 (1.46)	6 (0.50)	1	16	94.12	H3B14, H4B11
Assessment									
A1	Patient's level of consciousness	relevancy	6 (15)	5.82 (0.53)	6 (0.00)	1	16	94.12	Combined to AA1 Ĉ
		sufficiency	6 (15)	5.82 (0.53)	6 (0.00)	1	16	94.12	H1A1, H2A1,
		clarity	6 (15)	5.82 (0.53)	6 (0.00)	1	16	94.12	H3A1, H4A1

Table 26 (continued)

		Statement	Aspect	Mode (N)	Mean (SD)	Median (IQR)	N of score < 5	N of score ≥ 5	Percent of agreement	Decision
Recommendations										
	R3	Anticipated changes of patient's ……	relevancy	6 (13)	5.76 (0.44)	6 (0.50)	0	17	100.00	Combined to R2 Ĉ
			sufficiency	6 (12)	5.71 (0.47)	6 (1.00)	0	17	100.00	H1R2, H2R2, H3R2, H3R3, H3R5, H4R3, H4R4, H4R5, H5R4, H5R5
			clarity	6 (12)	5.71 (0.47)	6 (1.00)	0	17	100.00	
Strategies required for OT handoff										
	ST1	Sender of patient information must be a ……	relevancy	6 (12)	5.19 (1.60)	6 (1.50)	4	12	75.00*	Modified to ST1
			sufficiency	6 (12)	5.25 (1.57)	6 (0.75)	3	13	81.25*	
			clarity	6 (13)	5.31 (1.58)	6 (0.00)	3	13	81.25*	
	ST2	In order to ensure that information……..……..	relevancy	6 (14)	5.88 (0.34)	6 (0.00)	0	16	100.00*	Retained to ST2
			sufficiency	6 (14)	5.88 (0.34)	6 (0.00)	0	16	100.00*	
			clarity	6 (14)	5.88 (0.34)	6 (0.00)	0	16	100.00*	

Ĉ = with

Table 27

List of Example Statements and Results of the Second-Round Delphi on Content Validation of the Evidence-based Handoff for Thai OT Nurses version II by Experts (n=15)

	Statement	Agree (n)	Modify (n)	Delete (n)	Percent of agreement	Decision
Information required for OT handoff						
Introduction						
I1	Name of staff sending and receiving ……	15	0	0	100.00	Retained
I3	Ward that the patient has been ……..…..……..	15	0	0	100.00	Retained
Situation						
Situation Part I: Indicate all following patient's situations in this part for all handoffs						
SA1	Patient's current diagnosis ……..……	14	1	0	93.33	Retained
SA3	Name of surgeon or team surgeons ……...…….	12	3	0	80.00	Retained
Situation Part II: Indicate all following patient's situations in this part form intra operative handoff to post operative handoff (Handoff 3 – Handoff 5)						
SB1	Method of anesthesia for the patient	15	0	0	100.00	Retained
SB3	Patient's position for the operation.	15	0	0	100.00	Retained
Background						
<u>Note</u>: Information in this part may not be required to transfer by verbal report if the patient is sent back to the same nurse taking care of the patient or to the patient's previous ward prior to coming for the operation						
B1	Patient's history of illness that ……..……	14	1	0	93.33	Retained
B2	Patient's history of taken medication that ……..……..	14	1	0	93.33	Retained

Table 27 (continued)

	Statement	Agree (n)	Modify (n)	Delete (n)	Percent of agreement	Decision
Assessment						
Assessment Part I: Indicate patient assessments and patient's needs for all handoffs when the following assessments are under responsibility of operating theatre nurses						
AA1	level of patient's consciousness	14	1	0	93.33	Retained
AA2	Patient's vital signs during the recent ……..……..	13	2	0	86.67	Retained
Assessment Part II: Indicate all following patient assessments and patient's needs in this part for pre-operative handoff and handoff from pre-operative nurse to intra-operative nurse (Handoff 1 – Handoff 2)						
AB1	In case that the doctor gave the patient …….…….....	13	2	0	86.67	Retained
AB2	In case that the anesthesiologist ……..……..	15	0	0	100.00	Retained
Assessment Part III: Indicate all following patient assessments and patient's needs only for handoff preformed between intra-operative operating theatre nurses (Handoff 3)						
AC1	Current status of patient's operation, ……..……..	14	1	0	93.33	Retained
AC2	Check for the correctness of swab count ……...……	15	0	0	100.00	Retained
Assessment Part IV: Indicate all following patient assessments and patient's needs in this part for handoff performed intra-operative nurse to post-operative nurse and for post-operative handoff (Handoff 4 – Handoff 5)						
AD1	Feature of the surgical wound after the operation…….…….	15	0	0	100.00	Retained
Assessment Part V: Indicate all following patient assessments and patient's needs in this part for all operating theatre handoffs						
AE1	Significant events occur to the patient ……..……	15	0	0	100.00	Retained
AE2	Changes of patient's conditions, treatments, ……	15	0	0	100.00	Retained

Table 27 (continued)

	Statement	Agree (n)	Modify (n)	Delete (n)	Percent of agreement	Decision
Recommendation						
R_1	Specific nursing care plan and special preparations…….……	15	0	0	100.00	Retained
R_2	Anticipated changes of patient's conditions ……..……..	15	0	0	100.00	Retained
Strategies required for OT handoff						
ST1	Sender and receiver of patient information …….	14	1	0	93.33	Retained
ST2	For every handoff, sender and receiver of ……..…….	13	2	0	86.67	Retained
ST3	Sender of patient information has to …….……..	14	1	0	93.33	Retained

Table 28

List of Example Statements, and Results of the Applicability Validation of the Evidence-based Handoff for Thai OT Nurses version III by Thai OT Nurses (n=148)

	Statement	Mode (N)	Mean (SD)	Median (IQR)	N of score < 5	N of score ≥ 5	Percent of agreement	Decision
Information required for OT handoff								
Introduction								
I1	Name of staff sending and receiving……	6 (59)	4.73 (1.39)	5 (2.00)	52	95	64.63	Retained
I2	Patient's identification, including …….…….	6 (88)	5.23 (1.22)	6 (1.00)	29	118	80.27	Retained
Situation								
	Situation Part I: Indicate all following patient's situations in this part for all handoffs							
SA1	Patient's current diagnosis for …….	6 (92)	5.41 (0.91)	6 (1.00)	24	121	83.45	Retained
SA2	Patient's current operation as……..	6 (110)	5.69 (0.61)	6 (0.00)	9	136	93.79	Retained
	Situation Part II: Indicate all following patient's situations in this part form intra operative handoff to post operative handoff (Handoff 3 - Handoff 5)							
SB1	Method of anesthesia for …….……	6 (96)	5.38 (1.12)	6 (1.00)	21	124	85.52	Retained
SB4	Duration of operative time and/or …….……..	6 (68)	4.90 (1.35)	5 (2.00)	46	99	68.28	Deleted

Table 28 (continued)

	Statement	Mode (N)	Mean (SD)	Median (IQR)	N of score < 5	N of score ≥ 5	Percent of agreement	Decision
Background								
Note: Information in this part may not be required to transfer by verbal report if the patient is sent back to the same nurse taking care of the patient or to the patient's previous ward prior to coming for the operation								
B1	Patient's history of illness that is ……..……..	6 (72)	5.08 (1.20)	6 (1.00)	35	108	75.52	Retained
B7	Telephone number or approach that ……..…….	5 (41)	4.27 (1.46)	5 (2.00)	70	72	50.70	Deleted
Assessment								
Assessment Part I: Indicate patient assessments and patient's needs for all handoffs when the following assessments are under responsibility of operating theatre nurses								
AA1	level of patient's consciousness	6 (80)	5.22 (1.15)	6 (1.00)	27	117	81.25	Retained
AA2	Patient's vital signs during ……..…….	6 (88)	5.26 (1.21)	6 (1.00)	26	117	81.82	Retained
Assessment Part II: Indicate all following patient assessments and patient's needs in this part for pre-operative handoff and handoff from pre-operative nurse to intra-operative nurse (Handoff 1 – Handoff 2)								
AB2	In case that the anesthesiologist…….	6 (80)	4.75 (1.80)	6 (2.00)	45	102	69.39	Deleted
AB3	In case that the patient is being …….	6 (57)	4.36 (1.78)	5 (3.00)	67	80	54.42	Deleted

Table 28 (continued)

	Statement	Mode (N)	Mean (SD)	Median (IQR)	N of score < 5	N of score ≥ 5	Percent of agreement	Decision
Assessment Part III: Indicate all following patient assessments and patient's needs only for handoff preformed between intra-operative operating theatre nurses (Handoff 3)								
AC1	Current status of patient's operation,	6 (66)	5.04 (1.14)	5 (2.00)	39	104	72.73	Retained
AC2	Check for the correctness of swab count ……	6 (133)	5.86 (0.51)	6 (0.00)	6	139	95.86	Retained
Assessment Part IV: Indicate all following patient assessments and patient's needs in this part for handoff performed intra-operative nurse to post-operative nurse and for post-operative handoff (Handoff 4 – Handoff 5)								
AD1	Feature of the surgical wound after the operation…….	6 (126)	5.79 (0.54)	6 (0.00)	9	139	93.92	Retained
Assessment Part V: Indicate all following patient assessments and patient's needs in this part for all operating theatre handoffs								
AE1	Significant events occur to the patient…….……..	6 (70)	5.12 (1.10)	5 (1.00)	34	114	77.03	Retained
Recommendation								
R1	Specific nursing care plan and special ……..	6 (66)	5.07 (1.20)	5 (1.00)	32	115	78.23	Retained
R2	Anticipated changes of patient's conditions…….…….	6 (64)	5.01 (1.32)	5 (1.00)	32	115	78.23	Retained
Strategies required for OT handoff								
ST1	Sender and receiver of patient information ……...……	6 (58)	5.06 (0.96)	5 (1.00)	36	112	75.68	Retained
ST2	For every handoff, sender and receiver of …….	6 (89)	5.47 (0.73)	6 (1.00)	17	131	88.51	Retained

APPENDIX I

LIST OF EXPET PARTICIPANTS

Seventeen Experts Participating on Content Validation of the Evidence-based Handoff for Thai OT Nurse:

1. Assoc. Prof. Pinit Prechanond
   Department of Surgical Nursing, Ramathibodi School of Nursing, Faculty of Medicine Ramathibodi, Mahidol University
2. Asst. Prof. Dr. Usavadee Asdornwised
   Department of Surgical Nursing, Faculty of Nursing, Mahidol University
3. Asst. Prof. Dr. Orapan Tosingha
   Department of Surgical nursing, Faculty of Nursing, Mahidol University
4. Asst. Prof. Siriporn Phutharangsi
   Thai Red Cross College of Nursing
5. Dr. Yuwadee Kestsumpun
   Department of Quality Improvement, Faculty of Medicine Siriraj Hospital, Mahidol University
6. Ms. Shawantip Pitaknatee
   Orthopedic Operating Theatre, Chulalongkorn Hospital, Faculty of Medicine, Chulalongkorn University
7. Ms. Sulaya Paikemsirimonkol
   Nursing Department, Samitivej Srinakarin Hospital
8. Ms. Parichat Pakwipas
   Department of Operating Theater and Recovery Room Nursing Section, Maharaj Nakorn Chiang Mai Hospital, Faculty of Medicine, ChiangMai University
9. Ms. Kidchanok Anucharn
   Operating Theater, Hatyai Hospital

10. Benjawan Teerathertrakul
    Operating Theater, Faculty of Medicine Siriraj Hospital, Mahidol University
11. Ms. Wassana Tranpun
    Operating Theater, Maharaj Nakhon Ratchasima Hospital
12. Suvimon Supawongwattana
    Department of Anesthesiology, Maharaj Nakorn Chiang Mai Hospital, Faculty of Medicine, ChiangMai University
13. Petchara Kalsakul
    Department of Anesthesiology, Maharaj Nakhon Ratchasima Hospital
14. Appapan Namasa
    Trauma Ward, Maharaj Nakhon Ratchasima Hospital
15. Orapin Narubal
    Woman-Surgical Ward, Nursing Department, SongklaNagarind Hospital, Faculty of Medicine, Prince of Songkla University
16. Asst. Prof. Dr. Thida Uakritdathikarn
    Department of Anesthesiology, Faculty of Medicine, Prince of Songkla University
17. Asst. Prof. Dr. Teeranut Boonpipattanapong
    Department of Surgery, Faculty of Medicine, Prince of Songkla University

VITAE

Name Ms. Ratjai Vachprasit

Student ID 5010430001

Educational Attainment

Degree	Name of Institution	Year of Graduation
1. Bachelor of Science in Nursing (Nursing and Midwifery)	Prince of Songkla University	1991
2. Master of Nursing Science (Adult Nursing)	Prince of Songkla University	2005

Scholarship Awards during Enrolment

The Thailand Nursing and Midwifery Council

Work – Position and Address (If Possible)

Perioperative nurse, The Operating Theatre, Songklanagarind Hospital, Prince of Songkla University, Thailand, Phone: +6674-451640, E-mail: ratjai.v@psu.ac.th

List of Publication and Proceeding (If Possible)

Vachprasit, R., Petpichetchain, W., Blegen, M.A. & Songwathana, P. (2010, April 7-9). Does Improving Clinical Handoff Improve Patient Outcomes? A Literature Review. Oral presentation at *the 2010 International Nursing Conference "Diversity and Dynamic of Nursing Science and Art"*. Phuket Graceland Resort & Spa, Phuket, Thailand.