THE EFFECTS OF THE ICU TRANSFERRED-PREPARATION PROGRAM FOR OPENED-HEART SURGERY PATIENTS ON TRANSFER ANXIETY

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ABSTRACT

This quasi-experimental study aimed to determine the effects of the ICU transfer- preparation program (ICU-TPP) for open-heart surgery (OHS) patients on transfer anxiety. Stress, appraisal and coping theory was used as the conceptual framework for the study. The purposive sample comprised 40 OHS patients recruited from the surgical wards and surgical intensive care unit in a tertiary care hospital located in metropolitan Bangkok, Thailand, from July 2001 to April 2002. The inclusion criteria were OHS patients who: (1) were between 20-80 years of age; (2) had undergone open-heart surgery for the first time; (3) were able to communicate in Thai; (4) had had no previous psychosis or neurosis; and (5) agreed to participate in the study. A matching technique was used to select subjects in a control group to match those in an experimental group, with 20 pairs or 20 subjects in each group. Matching criteria included: age; gender; functional class; and type of operation. The experimental group received the ICU-TPP for OHS patients on transfer anxiety, whereas the control group received the usual care. Transfer anxiety was measured twice by the Pre-Post Transfer Anxiety Inventory (Pre-Transfer Anxiety Inventory and Post-Transfer Anxiety Inventory form developed by the researcher). The first measurement was taken on the transfer day within 8 hours before transfer from the ICU. The second measurement was taken on the same day within 8 hours after transfer from the ICU, with at least 4 hours between the 2 measurements. Data were analyzed using descriptive statistics and mean comparison statistics.

This study showed that patients' anxiety before and after discharge from an ICU to a general ward significantly decreased after implementation of the ICU-TPP. It therefore confirmed that ICU-TPP reduces transfer anxiety in OHS patients during transfer from an ICU. The study also showed patients' anxiety within the experimental group was lower after discharge from the ICU than before, although the difference was not significant. Therefore, these findings suggest that the ICU-TPP should be used before transfer out of an ICU.

KEY WORDS: TRANSFER ANXIETY/ OPEN-HEART SURGERY/ ICU TRANSFERRED-PREPARATION

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ผลของโปรแกรมการเตรียมความพร้อมในการย้ายออกจากไอซียู ในผู้ป่วยผ่าตัดหัวใจแบบเปิด ต่อความวิตกกังวลจากการย้าย (THE EFFECTS OF THE ICU TRANSFERRED-PREPARATION PROGRAM FOR OPENED-HEART SURGERY PATIENTS ON TRANSFER ANXIETY)

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บทคัดย่อ

การวิจัยกึ่งทดลองครั้งนี้มีวัตถุประสงค์ เพื่อศึกษาผลของโปรแกรมการเตรียมความพร้อมในการย้ายผู้ป่วยผ่าตัดหัวใจแบบเปิดออกจากไอซียูต่อความวิตกกังวลจากการย้ายโดยใช้ทฤษฎีความเครียดและการเผชิญความเครียดของลาซารัส เป็นกรอบแนวคิด กลุ่มตัวอย่างเป็นผู้ป่วยที่เข้ารับการรักษาด้วยการผ่าตัดหัวใจแบบเปิด จำนวน 40 ราย ณ หอผู้ป่วยศัลยกรรมและไอซียูศัลยกรรม โรงพยาบาลพระมงกุฎเกล้าฯ กรุงเทพมหานคร ระหว่างเดือนกรกฎาคม พ.ศ.2544 ถึง เดือนเมษายน พ.ศ.2545 คัดเลือกกลุ่มตัวอย่างแบบเฉพาะเจาะจง โดยมีคุณสมบัติตามเกณฑ์กำหนดคือ อายุ 20-80 ปี, ได้รับการผ่าตัดหัวใจเป็นครั้งแรก, สามารถเข้าใจและพูดภาษาไทยได้, ไม่มีอาการเจ็บป่วยทางจิต และยินดีเข้าร่วมการวิจัยโดยสมัครใจ แบ่งกลุ่มตัวอย่างเป็นกลุ่มทดลองและกลุ่มควบคุม กลุ่มละ 20 คน ใช้เทคนิคการจับคู่เพื่อให้มีคุณสมบัติสำคัญของ 2 กลุ่มเหมือนกันด้าน อายุ เพศ ความรุนแรงของโรค และชนิดของการผ่าตัด กลุ่มทดลองได้รับการเตรียมตามโปรแกรมการเตรียมความพร้อมในการย้ายผู้ป่วยผ่าตัดหัวใจออกจากไอซียูที่ผู้วิจัยสร้างขึ้น ส่วนกลุ่มควบคุมได้รับการพยาบาลแบบปรกติ ประเมินความวิตกกังวลจากการย้ายออกจากไอซียู 2 ครั้ง โดยใช้แบบประเมินความวิตกกังวลจากการย้ายที่ผู้วิจัยสร้างขึ้นเอง ครั้งแรกประเมินในวันที่ย้ายออกจากไอซียู โดยประเมินภายใน 8 ชั่วโมง ก่อนเวลาย้ายออกจากไอซียู และครั้งที่สองประเมินภายใน 8 ชั่วโมง หลังเวลาย้ายออกจากไอซียูในวันเดียวกัน ระยะเวลาวัด 2 ครั้งห่างกันอย่างน้อย 4 ชั่วโมง วิเคราะห์ข้อมูลด้วยสถิติบรรยายและสถิติการเปรียบเทียบค่าเฉลี่ย ผลการวิจัยพบว่า ผู้ป่วยผ่าตัดหัวใจแบบเปิดที่ได้รับการเตรียมในการย้าย ด้วยโปรแกรมการเตรียมความพร้อมในการย้ายออกจากไอซียู มีคะแนนความวิตกกังวลจากการย้ายทั้งก่อนการย้ายและหลังการย้ายต่ำกว่ากลุ่มที่ได้รับการพยาบาลตามปรกติอย่างมีนัยสำคัญทางสถิติ ดังนั้นผลของโปรแกรมการเตรียมความพร้อมในการย้ายออกจากไอซียู สามารถลดความวิตกกังวลในการย้ายออกจากไอซียูของผู้ป่วยผ่าตัดหัวใจแบบเปิดได้ อย่างไรก็ตามผลวิจัยในกลุ่มที่ได้รับโปรแกรมพบว่าคะแนนความวิตกกังวลหลังย้ายน้อยกว่าคะแนนความวิตกกังวลก่อนย้าย แต่ไม่มีนัยสำคัญทางสถิติ จากการวิจัยครั้งนี้มีข้อเสนอแนะว่า การเตรียมความพร้อมในการย้ายออกจากไอซียูของผู้ป่วยผ่าตัดหัวใจควรมีการสอนการเตรียมตัวให้พร้อมสำหรับการย้ายก่อนการย้ายออกจากไอซียู

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CHAPTER 1
INTRODUCTION

Background and significance of the study

Transfer out of intensive care unit (ICU) is one of the leading causes of transfer anxiety or transfer stress in critical care patients (Leith, 1998: 24). Both transfer anxiety and transfer stress equate to relocation stress -- a state in which an individual experiences physiological and/or psychological disturbances as a result of transfer from one environment to another (Capenito, 2000: 715). Critical attributes of transfer anxiety include a negative perception of an impending or recent transfer from one environment to another, physical or physiological signs, symptoms of anxiety, and the occurrence of signs or symptoms shortly before or after transfer (Leith, 1998: 25). Transfer anxiety particularly arises when the move occurs without planning. In addition, the effect of transfer anxiety is intensified when the patient is very sick or frail (McKinney & Melby, 2002; 149).

Recently, one important psychological health problem found in critical patients is transfer anxiety. Critical patients are among the largest group of patients who experience transfer anxiety or transfer stress. Consequently, this type of anxiety has the propensity to pose common and distinct problems for many patients and their family members, both before and after discharge from the critical care area (Coyle, 2001: 138). Transfer anxiety or transfer stress is not only experienced by patients transferred from ICU to the general ward, but also may affect geriatric patients transferred from home or hospital to a long-term care facility. Each transfer involves stress for patients and their family (Mitchell et al., 2003). All of the transfer anxiety or transfer stress occurred after transferring from the ICU (Leith, 1998: 24). Over 75% of medical ICU patients and family members experienced moderate to severe transfer stress (Leith, 1999: 24). According to the literature review (Robinson, 2002), the majority of these studies dealt with the critical care patients and elderly in long-term

care residents. The overall results also revealed that relocation could have negative physical and psychological effects on patients in critical care and residents of long-term care. Some of these studies found that patients who are transferred several times are more likely to die compared to those patients who are not transferred (Bernard, et al., 1996; Clough, et al., 1993; Schiff et al., 1986).

Presently, progressive patient care in Thailand continues to experience a transition from ICU to the general ward. It may be related to the need of critical care beds in Thailand having risen dramatically. There is an acute awareness that critical care beds are a finite resource. Consequently, a decision to transfer patients to a general ward depends not only upon their physical condition but also on the demand for beds. This has resulted in an increase in the number of critically ill. In the past, critical patients remained in the ICU for most of their recovery period, but now they are discharged earlier. Especially the open-heart surgery patient, who must stay in ICU after surgery, ends up staying in ICU only for a short period of time. In other words, open-heart surgery patients are discharged from ICU while they needed electro cardiogram monitoring, chest drain, and high percentage oxygen. Therefore, critical care staff tend to focus on 'here and now' with little time preparing the open-heart surgical patient for eventual transfer to a less intensive environment.

Open-heart surgery has become an area of interest for studies by numerous critical care nurses in Thailand because the trend of transfer of these patients (in-country) will follow clinical practice guideline of their setting. The number of open-heart surgery patients is increasing rapidly every year. Statistics from Siriraj Hospital, where open-heart surgery has been done the most in Thailand, shows that the number of cardiac surgery patients has increased 20 % and open-heart surgery has increased 34 % (Cardio-Thoracic Surgery Association, 1999). It is evident that the patients may stay in ICU for 2-4 days (Statistic of Pramongkutkalo Hospital, 2003) and then the transfer occurs more rapidly without adequate psychological preparation for transfer. Furthermore, open-heart surgery affects more patients in Thailand than any other high-risk surgery condition. It's life threatening and a high cost containment. Those critically ill transferred several times during one hospitalization may experience different types of care, various changes in hospital staff, and varieties of environment. Sometimes the transfer is so quick that patients don't have enough time to be prepared

for those kinds of variables. In addition, patients who undergo open-heart surgery may be anxious about their surgery and transferring because of pain, loss of control, fear, anxiety, stress, uncertainty, insecurity and even death. Health care professionals may overlook the effects of transfer for patients.

Continuity of care is essential to ease the discharge and transition to ward (Dracup, Westlake, Erickson, Moser, Caldwell, & Hamilton, 2003) because the continuity of care was identified as a bridge of care. Thus, it is necessary for the nurse to provide the continuity of care in patients who are transferred from ICU. Nearly three decades ago, critical care nurses conducted several studies in the United States with a majority focusing on transfer anxiety or relocation stress of critically ill patients. Research has indicated that most of the patients expressed ambivalent feelings towards their transfer out of ICU (Leith, 1999; McKinney & Melby 2002; Odell, 2000). Although the transfer from ICU to a ward is mainly viewed as a positive step or deemed a sign of improvement (Leith, 1999; McKinney & Melby 2002), the result also indicated that most transfers from ICU to a ward were viewed as a negative experience by patients (Dracup et. al., 2003).

Furthermore, from the literature review (McKinney & Melby, 2002), 48 studies have been conducted by nurses and critical care nurses over the past three decades. The overall results also revealed that transfer to the ward following a period in critical care might cause patient stress. Some of these studies found that the patients' responses to transfer are identified, along with the physical and psychological problems that have been associated with discharge from critical care (Daffurn et al., 1994; Hall-Smith et al., 1997; Leith, 1998; Minckley et al., 1979; Odell, 2000). Some patients and family can become quite anxious due to removal of monitoring, changes in routine and reduced surveillance and observation (Coyle, 2001: 138). These changes can lead to transfer stress or transfer anxiety, which can affect patients' recovery and may also create distress for their family (McKinney & Melby 2002; Whittaker & Ball, 2000). Besides that, patients and family may find it difficult to adjust to a ward where one-on-one care is not available (Green 1996; Leith 1999). These patients often felt confused, stressed, anxious, and tired. It could be harmful to the patient's life. Toth (1980:29-30) stated that the effect of stress could lead to the increase of oxygen needed in cardiac patients and leads to chest pain due to

myocardial ischemia. Consequently, this could lead to cardiac arrhythmia or sudden death. Negative emotional states such as anxiety and depression are associated with increased mortality and morbidity in cardiac patients (Doering el. Al., 2004). In the United Kingdom, the mortality of patients who die on the ward after discharge from intensive care is high (9% to 27%) (Goldhill & Sumner, 1998; Munn et al., 1995). Besides that, stress could affect the learning of postoperative self-care, and may lead to complications and long hospitalization. Transfer anxiety is a potential source of stress for patients and their families that may adversely affect their coping during the difficult process of adaptation to illness (Leith, 1998: 32). Therefore, critical care nurses should concern themselves with the effects of transfer anxiety and develop specific intervention to minimize patients' negative outcome.

The critical care staff is responsible for the caring for and supporting of patients in order to minimize physiologic complications and psychological responses, which are related to their transfer. Several studies conducted by nurses in the United States are based on Leith's findings (1998: 31-32). Nursing intervention aims to prevent or reduce transfer anxiety by helping patients and their family members develop and maintain a positive perception of transfer from ICU. Some studies showed that patients, who were prepared before transfer from ICU, reported a good experience of transfer (Anderson, 1982; Poe, 1982). Leith (1998) suggested that structured teaching plans by integration of ICU discharge planning and the critical pathway was very effective to promote continuity of care and to reduce significantly the frequency of transfer anxiety in patients and their family members. Rorden (1990) stated that the objective of discharge planning was continuing care organized to meet patients need. Discharge planning reduces costs of hospital stay and permits more efficient bed utilization (Inui, 1981). Thus, it is a process in which the hospital can reverse discontinuance of care and improve their delivery systems for providing continuity of care (Schlemmer, 1989). To be effective, it needs to be implemented systematically in order to integrate care around the goal of coordinating patient needs with available resources (Romans, 1984).

To assist the open-heart surgery (OHS) patients who are at risk for transfer anxiety to release transfer anxiety, health care professionals should provide continuance of care. The structured preoperative teaching plans have been found to

promote more positive outcomes than unstructured preoperative teaching ones (Aernam, 1971). Critical pathway combined with discharge planning has been claimed to prevent transfer anxiety in both ICU patients and their family members (Leith, 1998: 28). For this study, the researcher is interested in developing the transfer preparation program to improve quality of care. Based on the literature review, there are some studies in other countries regarding transfer anxiety reduction programs of patients in the coronary care unit (CCU), but they are not specifically designed for OHS patients. There is also a cultural difference that may limit the research utilization with Thai patients. Therefore, this quasi-experimental study was designed to help reduce transfer anxiety of Thai OHS patients during transfer from ICU.

Conceptual Framework

This research was conceptualized by the stress and coping model of Lazarus & Folkman's (1984) and the concept of integrating ICU discharge planning in critical pathway by Leith (1998: 32).

Lazarus & Folkman's (1984) provided the framework of this study, in which stress and anxiety occurs when a person appraises a situation as threatening to his/her well-being. This theory is based on the premise that the patients must continually seek new ways of coping and re-appraisal until they find ways of effectively coping. Patients are responsible for fulfilling their coping ability need. However, when patients are unable to effectively cope, nurses work with them to enhance individual coping abilities for maintaining their health and well-being.

An individual's appraisal of a situation as stressful may be influenced by personal factors, such as knowledge, belief, values, commitment and by situational factors, such as physical environment or the support available. The stressful experience is appraised by the person in relation to available coping mechanisms. The stress, appraisal, and coping theory have been used to explain the occurrence of transfer anxiety in terms of stressful experience.

Transfer anxiety arises when individuals are separated from a familiar environment and personnel, which leads to uncertainty, an onset of a stressful experience and a potential decrease in coping abilities, when they are without adequate information and preparation. Through preventing potential factors for separation

anxiety, imparting information to construct a cognitive meaning for an illness-related event, and assisting patients to develop relevant coping abilities, nurses can eliminate and modify potential factors that contribute to the anxiety, information to construct a cognitive meaning for an illness-related event, and enhance patients' coping resource.

It is an important concern for the 'gap' in care that began when the patient was transferred from the ICU to ward (Griffiths, 1992; Wesson, 1997). Leith (1998: 32) provided the concept of integrating ICU discharge planning in critical pathway for transfer anxiety reduction, in which this reduction could be facilitated by making discharge planning part of the critical pathway when patients are transferred from the ICU, by developing structured teaching plans for transfer of patients from the ICU, and by integrating ICU discharge planning in critical pathway. This concept is based on discharge planning, which leads to confidence that patients would receive continuing care, help when the patients needed, and also assistance for the family in dealing effectively with the health problems. To be effective, utilization of the critical pathway is very important. It enhances the quality of life and quality of care (Leith, 1988: 26). The concept of discharge planning and critical pathway was used as a frame of intervention for reducing transfer anxiety.

OHS patients have many needs for adequate preparatory for transfer, such as information related results of the surgery and limitations after surgery, a list of invasive devices and their effects, present stay in ICU as temporary, instruction pamphlets for patient and family about transfer, present transfer as a sign of progress, compare and contrast ICU and general ward and miscellaneous, while the patient may have inadequate information to perform their needs. The ICU-transfer preparation program (ICU-TPP) as an adequate preparatory program for transfer is confined to elimination or modification of potential reasons of transfer anxiety, uncertainty control, enhancing coping resources, and providing quality and continuity of care. By receiving the ICU-TPP, patients would have more desire to reduce transfer anxiety.

Research Question

Can the ICU-TPP reduce transfer-anxiety of the open-heart surgical patient?

Research objectives

1. To compare the mean anxiety score of the open-heart surgical patient between the control and the experimental group before discharge from ICU.
2. To compare the mean anxiety score of the open-heart surgical patient between the control and the experimental group after discharge from ICU.
3. To compare the mean anxiety score of the open-heart surgical patient between prior to and after discharge from ICU in the experimental group.

Research Hypotheses

1. Before discharge from ICU, patients in the experimental group who participate in the ICU-TPP would be significantly lower mean transfer anxiety scores than those in the control group who do not participate in the program.
2. After discharge from ICU, patients in the experimental group who participate in the ICU-TPP would be significantly lower mean transfer anxiety scores than those in the control group who do not participate in the program.
3. In experimental group, mean transfer anxiety score of the open-heart surgical patient after discharge from ICU would be significantly lower than the mean score before discharge from ICU.

Definition of Terms

ICU Transfer Preparation Program (ICU-TPP) refers to the nursing care pertaining to preparing the patient before discharge from ICU, which was developed based on integrating discharge planning (which has informational content and activities to manage the anticipation of transfer anxiety in Leith's concept analysis) into the part of discharge planning of critical pathway. This program is composed of informational contents and activities for 3 sessions, Post-operative day0 (PO day0 or surgery day), PO day1, and PO day2.

The contents and activities in PO day0 include: (1) the results of the surgery and limitations after surgery; (2) a list of invasive devices and their effects; (3) notification from admission to ICU to present stay in ICU as temporary; (4) introducing the nurse who care for the patients; (5) the time for patient visitation in ICU; (6) admission procedures and routine; and (7) instruction pamphlet to family

about patient's operation and transfer process. The contents and activities in PO day1 include: (1) keeping patient up to date with clinical data after extubation; (2) encouraging patient's verbalization and inquiries after extubation; (3) encourage breathing exercises with incentive spirometry; (4) presenting transfer as a sign of progress; (5) informing patient and family about transfer plan on the critical pathway; (6) explaining rationale, function and weaning of monitor and equipment; (7) weaning patient from nurse-patient relationship before transfer; (8) informing patient and family of events on next step about activity, pain management, medication and diet, lab tests/treatment; (9) encouraging patients' self-esteem; and (10) providing an instruction pamphlet to patient about the transfer from ICU to general ward.

The contents and activities in PO day2 were divided into two phases, transferring phase and visitation phase. Transferring phase has the contents and activities include: (1) Weaning patient from use of monitors and equipments before transfer; (2) disconnection cardiac monitor at least 60 minutes ; (3) comparing and contrasting ICU and general ward; (4) involving patient's family with transfer; (5) building the patient's chance to meet the ward nurse; (6) transferring during day time and avoiding transfer during routine time or time of nurse shift rotation; (7) having ICU nurse care for the patient during transfer and (8) introducing patient to receiving nurse. Visitation phase has the contents and activities include: (1) ICU nurse visiting the patient after transfer and (2) giving an instruction booklet to the patient about the recovery and preparation for hospital discharge. This program places an emphasis on the continuing care that nurses would provide to patients in order to enhance and promote rehabilitation and coping after their operation. This program should be utilized from the day the patients were admitted to the ICU until transfer out of the ICU, also during visits by the ICU nurse after transfer.

Usual care is that the nursing care provided information and activities of postoperative routines care to patients include: ICU postoperative routines care, ICU; transferred routine care, and postoperative routine care at ward, but not structural information and document depend on individual nursing personnel. The usual care focusing on physical care was given to the control group. The contents and activities in the usual care includes: (1) instruction pamphlet to family about introducing the ICU; (2) encouraging breathing exercises after extubation; (3) notification about

transfer to patient and family and transferring all time when receive order of transfer back to ward from doctor; (4) explaining rationale, function and weaning of monitor and equipment when the patients ask; (5) disconnection cardiac monitor on transfer time; (6) notification of ICU length of stay about 3-5 day by doctor and (7) having ICU nursing personnel who are not graduated nurse care the patient from the ICU to general ward. Information and activities of the usual care were provided by individual nursing personnel that based on her background, knowledge, and experience, but not structural information and document.

Open-heart surgical (OHS) patient refers to the patients who undergo cardiac operations using cardio pulmonary bypass. This study also includes the operation of coronary bypass, valvular heart surgery, and closure atrial septum defect (ASD) / ventricular septum defect (VSD). And after operation, the patient needs to be in the surgical ICU before transfer to the general ward.

Transfer anxiety refers to the reaction to the stressful situation due to the uncertainty resulting from moving out of ICU. This reaction cannot be identified as the actual cause but it is the negative perception rooted from the transferring from place to place and will create the anxiety. This anxiety occurs before or after the transfer within 8 hours and can be measured by the transfer anxiety scale that is developed by the researcher through concept analysis of the transfer anxiety from the ICU study of Leith (Leith, 1998: 24-32).

Expected Research Outcome and Benefits

1. The ICU-TPP will be used or applied as a guideline to provide preparation of transfer from ICU to general ward for open-heart surgery patients.
2. The ICU-TPP will be useful to nurses in order to care for and help in decreasing transfer anxiety in other patients in the future.
3. Enhance nursing knowledge regarding using critical pathway combined with discharge planning for the patients undergoing open heart surgery that facilitate positive outcomes. This knowledge will be useful for improving quality of nursing service.

CHAPTER 2
LITERATURE REVIEW

This research study investigates the effects of the transferred preparation program in relation to the transfer anxiety of open-heart surgery patients who are transferred out of ICU. The major independent variable is ICU-TPP, which includes information and activities to decrease transfer anxiety, critical pathway and discharge planning. The additional stresses of transfer out of ICU will be explained further in relation to three prominent theories: separation anxiety theory; appraisal and coping theory; and uncertainty in illness theory. The major dependent variable is transfer anxiety, which refers to anxiety from Leith's concept analysis. Thus, in this chapter, the review of literature on anxiety and anxiety of critical patients, transfer anxiety and factors contributing to transfer anxiety, and patient responses to transfer will be presented first, followed by a review of literature on reducing patient anxiety, which includes interventions for transfer anxiety reduction, critical pathway and discharge planning.

Anxiety

Anxiety is one type of feeling and emotion experienced by human beings. It is very complex since there are many factors related to anxiety. Therefore, the meaning of anxiety varies depending upon perspectives and beliefs. Anxiety has been defined as a universal sense of uncertainty or as a feeling in which uncertainty is one component (Whitley, 1992; Williams & Power, 1991). Robert (1986:78) described anxiety as the emotional experience of human beings when one encounters uncertainty, and that uncertain situation makes the person feel fear for what might happen to them in the future.

The terminology used in earlier research varies to some extent: some authors refer to anxiety as personal experience indicated by the imbalance of the mind and emotions, and the need to be balanced. It also could be the stimulus for the persons to adjust themselves to live their lives (Taylor, 1994: 201). Dubovsky (1994:101)

viewed anxiety as the abnormal fear that is out of proportion to any external stimulus. It is the psycho-sociological response to the internal and external stressor.

Anxiety will occur once one appraises the situation as threatening. Anxiety can occur to anyone, but people who have had surgery or treatment may get anxious more easily than others (Ting-Ting Kuo & Fung-Chi Ma, 2002). It is also stress from the fear or fright of the possible harm that may happen to oneself in the future with unknown actual causes (Graham & Conley, 1971: 114). However, it could be a sign of a threat. Lader & Mark (1971: 25) reported that anxiety would be presented with stress or a threatening feeling. It is the feeling that stems from the fear of the harmful future of an unknown cause. This appraisal leads to anxiety. Some researchers, such as Molloy (1996: 227-228), state that the anxiety is the strain, fear, or consequences that have just happened which resulted from the perception of threatening feelings from external influences. This is a cue of harm that one needs to manage whether by avoidance, control, or overlooking it before using a defense mechanism to protect oneself later on. Peplau (1979) considered that any treat to an individual's security produces anxiety. Spielberger (1966: 11) stated that anxiety arises from the feeling of threat to one's safety. The threat may be real or may result from one's own prediction.

In addition to describing anxiety by meaning, anxiety also is differentiated by types.

Types of Anxiety

Spielberger, et al. (1983: 1) divided anxiety into two types:

1. Trait anxiety is a characteristic of the person. It results from 1) genes; 2) past experience; and 3) present situations that include thoughts, needs, and feelings. These three factors are related and lead to trait anxiety (Lader & Mark, 1971: 155). Molloy (1996: 228) stated that trait anxiety is a function of personality structure. As a part of developmental process or events, some individuals have more traumatic experiences or have less success in coping with them, resulting in unresolved conflict or confusion.

2. State anxiety refers to the anxiety that occurs due to certain situations. It is an emotion that makes one distressed and frightened (Anatasi, 1982: 530) based on one's appraisal whether that situation is threatening or harmful to oneself (Lazarus & Folkman, 1984). When there is external stimuli combined with the trait anxiety that

one has had, one will have consequential reactions; state anxiety when one encounter with the situation, physical changes (i.e., palpation and sweating) due to the Central Nervous System (CNS) stimulus through reticular formation and use of coping mechanism to decrease anxiety. Molloy (1996: 229) considered that state anxiety develops in a situation identified as stressful or conflictual, and in which the individual experiences limited control.

These three reactions are related and one could be a basis for another. When anxiety happens, one will try to keep equilibrium by decreasing the CNS stimulus by either resorting to a body mechanism or mobilizing a defense mechanism and changing the environment. If one of the previous coping strategies is effective, that person may tend to use it at a future time; but if not, that person will try to change to other strategies until they have found the most effective one. If the anxiety still exists, it might lead to a crisis state.

Anxiety is related to stress in that it is a consequence of stress. Anxiety is the most prominent symptom involved in stress reactions (Lachman, 1983: 37). Lazarus and Averill (cited by Lamontagne et al., 1985: 289) examined anxiety as the consequence of appraisal when individuals perceive a situation as harmful or threatening. This appraisal continues until one can deal with that situation effectively. Moreover, anxiety can cause physical changes. Endler and Edward (1982: 36-44) combined the concept of anxiety as explicated by Speilberger and the concept of stress as addressed by Lazarus to explain these two phenomena. They stated that stress and anxiety is the consequence from the interaction between people and their environment. A person appraises the situation as stressful depending on a triad and the severity of the situation, which affects the state anxiety. When a person perceives the situation as stressful, they will experience a state of anxiety, which leads to the coping response or defense mechanism.

Anxiety could lead to restlessness and also to some physical symptoms such as tremors, headaches, and frequent urination. High anxiety can lead to panic symptoms (Zung, 1971: 371). All these symptoms are psychological reaction responses to the physical illness. Anxiety has many levels and can affect the work performance of the person. High and minimal anxiety can decrease the efficacy of the person. Moderate anxiety leads to more effective performance.

Level of Anxiety

The level of anxiety is varied and affects people differently. Moderate anxiety can lead to motivation; whereas, a high level of anxiety will decrease the efficacy of people (Stuart & Sundeen, 1983). Moreover, the levels of anxiety can be divided as follows: Luckman & Sorensen (1981) divided anxiety into three levels -- mild anxiety, moderate anxiety, and severe anxiety. Peplau (1952 cited in Molloy, 1996:228) divided anxiety into 4 levels -- mild anxiety, moderate anxiety, severe anxiety, and panic anxiety.

The level of anxiety affecting the nervous system of human beings could be divided into four levels (Johnson, 1986: 267; Peplau, 1979: 82; Stuart & Sundeen, 1983: 208-209) and the reaction to each level will vary as stated in the following discussion (Fortinash & Holoday-Worret, 1995 cited in Molloy, 1996:229):

1. **Mild anxiety**: this level of anxiety occurs in the routine experiences of everyday living. During the mild anxiety stage, the person is alert and the perceptual field is increased. Reactions to this level include: (a) physical responses such as normal vital signs, minor muscle strain, and normal pupil reaction; (b) heightened cognitive ability and perception leading to a broadened perceptual field, a greater awareness of environmental and internal stimuli, and random, but controllable thoughts; and (c) emotional and behavioral changes in which feelings will be related to the well-being and safety of the person. Therefore, at this level, the person will feel relaxed and peaceful. This level of anxiety can motivate learning, create good decision-making, and build more effective problem-solving skills.

2. **Moderate anxiety**: as anxiety escalates, the perceptual field narrows. The reaction to this level includes: (a) physical response such as normal vital signs or minor change thereof, and feelings of nervous tension or inconvenience; (b) higher cognitive process and perception producing an elevated alertness, a narrower perception and an intensified attention level; (c) emotional and behavioral changes which produce an enthusiasm for competitive activities and learning new skills.

3. **Severe anxiety**: the perceptual field is greatly reduced. The reaction to this level includes: (a) physical response in which the CNS is highly stimulated (i.e., vital sign levels increase, sweating, urination and bowel movement is more frequent, dry mouth, loss of appetite, pupil dilatation, and muscle strain); (b) change in cognitive

ability and perception leading to a narrower perception, difficulty in problem-solving, focus on specific detail, ignoring stimulus, disorientation, and partial behavior analysis; and (c) emotional and behavioral changes displayed by feelings of being threatened or frightened, being highly aroused, having either increased or decreased movement (e.g., walking slowly or running away, hand-twisting, whining, shaking, uttering unintelligibly, staying in the same position, being withdrawn, or ignoring the environment). A person in severe anxiety is unable to focus on the event generating the anxiety, but may focus on only one specific detail of the situation.

4. **Panic anxiety**: the person is not able to process what is going on in the environment and may lose touch with reality. The reactions to this level are as follows: (a) physical response of having all previous symptoms but in increased frequency or degree until the sympathetic nervous system is decreased which leads to paleness, blood pressure drop, muscle coordination disturbance, pain, and hearing impairment; (b) cognitive process and perception leading to periodical or complete loss of perception, no response to stimulus, decreased problem-solving ability and logical thinking, a distorted perception of self, of the environment, and of reality; (c) emotional and behavioral changes displayed by a sense of helplessness, loss of control, anger, agitation, avoidance, shouting, and increased or decreased body movement.

Lachman (1983) noticed that a person is more attentive, sensitive, and perceptive to a situation when moderately anxious. The key is that the anxiety must not be too intense or last too long. Therefore, this is an important factor in measurement of anxiety of the patient who is studied as related to anxiety.

The Measurement of Anxiety

Anxiety can be measured by three strategies (Lader and Marks, 1971: 82-94):

1. **Physiological measure of anxiety**: This can measure anxiety through physical changes, such as heart rate, respiratory rate, blood pressure, muscle strain, and Electro-enchepalogram. An expert applying the respective specific technology in order to analyze the results could perform the measure. This type of measure might not be accurate since physical changes could be involved with many factors and will differ from one to another in terms of the degree of change. Therefore, the level of anxiety might not relate to the physical change according to the limit of this measure.

2. **Self-report measure of anxiety**: Self-report measure of anxiety could be done by completing a questionnaire. There are many questionnaires measuring anxiety such as state-trait anxiety of Spieberger. This questionnaire measures the feeling when a person responds both to the questions and in general. The self-rating scale by Zung, is used to measure anxiety in present and recent situations. Another self-rating scale of anxiety is Myocardial infarct stress-of-transfer inventory. The Myocardial Infarct Stress-of-Transfer Inventory developed by Minckley et al (1979) is the measure of transfer anxiety when a patient has been transferred from coronary care unit (CCU). In summary, to be a scientific measure, all these measures need to maintain reliability and validity.

3. **Behavioral measure of anxiety**: This measure can be done by observing behavior such as movement, speech, nonverbal communication, body coordination, memory, and learning ability. This measure is based on the belief that behavior resulted from internal emotion that can be observed by others. For example, restlessness, moodiness, shaking, crying, tempers insomnia, low appetite, sighing, and pressure speech.

Measurement tools are primarily based on the use of self-report and ask the client to rate his present and common states of feeling and to identify the descriptive aspect of being anxious. Measures have been developed to identify fears associated with death, physical pain, surgery, aggression, and interpersonal events.

Causes of Anxiety

The causes of psychological health problems such as anxiety is complex and is not due to a single cause but often the result of a matrix of interacting factors (Antai-Otong, 1995; Bourne, 1995; Shives, 1994); there is still so much to learn about the causes of these health problems. There are differing views among psychological health professionals concerning the causes of anxiety. Some believe that psychological health problems are caused by biological problems; others believe they are due to psychological factors. It is probably more accurate to say that biological, psychological, genetic and lifestyle factors are all involved in the causes of anxiety (Bourne, 1995: 31-33). Anxiety is a state in which the individual feels uneasy and apprehensive and the autonomic nervous system activates in response to a nonspecific

threat. The source is generally unknown or unrecognized, because anxiety has its origins in a complex interaction of environmental, psychological, and biological events and processes (Shives, 1994). The most critical are stress and life events requiring adaptation or change and early familial and school experiences. Critically ill patients have a complex interaction of environmental, psychological, and biological events and processes. The critically ill have many situations that can be an anxiety-provoking event for both patients and family members. Thus, healthcare personnel have to identify and meet the psychological needs of the patients of critical care area.

Anxiety of Critically ill Patients

Anxiety is a problem in critical care that may interfere with healing and recovery (Bone et al., 1995: 293). Critically ill patients in ICU experience a loss of control. And a fear of the unknown can produce a cycle of anxiety and depression (Jones & O' Donnell, 1994: 89). Anxiety leading to fear and panic was a commonly expressed emotion by ICU patients (DeKeyser, 2003: 29). ICUs are often reported as being a highly stressful environment for patients (Bone et al., 1995; Mackellaig, 1987; Pearce, 1988). Simini (1999: 571-572) interviewed patients within 3 days of their discharge from the ICU. They reported experiences of fear or anxiety (62%), and feelings of isolation or loneliness (46%). Granberg et al (1998: 294) stated that patients in ICU realize that there is an immediate danger of death. This realization can lead to a response ranging from anxiety to severe panic.

Anxiety in critical patients is unique and can be categorized into three types (Robert, 1976: 228-230): primary anxiety, fright anxiety, and expectant anxiety.

Primary anxiety refers to basic anxiety when a patient encounters a crisis such as encountering a new situation. The new situation leads to feelings of fright and insecurity. Persons will feel fear of harm that may happen to them. They feel helpless, and separate themselves from intimate relationships. When a patient's condition becomes critical, this anxiety will happen instantaneously. The reaction to anxiety involves physical, psychological, and emotional aspects. The anxiety will diminish once one feels safe (Livitt, 1980 cited by Chorladda Pansena, B.E.2536: 63).

Fright anxiety is the anxiety that results from encountering a fearful situation. The reaction is a basic instinct of readiness to fight and flight or withdrawal. The

critical patients have to stay with an unknown or unfamiliar machine. They can hear the machine working when they lie down on the bed. They cannot help themselves and just wait anxiously for care from the health care provider. This circumstance causes them to have fear; and therefore, leads to fright anxiety.

Expectant anxiety refers to the anxiety that results from the prediction of harm in the future. This can be found in critical patients who need to transfer from ICU. These patients do not know what will happen to them after transfer; this fear of the unknown leads to expectant anxiety.

These categories were initially developed by Freud (1963 cite by Robert, 1976: 227) to describe the anxiety experienced by children separated from their mothers; in this instance, the theory is useful in explaining the experiences of critically ill patients who experience severe anxiety prior to and following transfer to a new environment. Bowlby (1961: 89-113) stated that critical care patients might experience one or three types of anxiety depending on personal factors and individual differences. These anxieties are triggered in patients who have been critically ill, as a result of the loss of close relationships formed and or the termination of emotional and psychological support by medical and nursing personnel in the critical care area (Coyle, 2001: 139). The care of critically ill patients remains incomplete if the psychological impact of critical illness is not considered (Jones & O'Donnell, 1994). This psychological dysfunction in the early stages after discharge from the critical care area can be associated or attributed to psychological problems in the long-term and physical problems in the critical phase of heart surgery. The heart surgery represents a moment of high critical state for the patients (Tiraterra, et al., 2002: 7-16).

Anxiety of Open-Heart Surgery Patients

Anxiety is one importance of psychological problems in open-heart surgery patients (Shih, et al., 1997: 99). They were reported as having experiences of anxiety, fear, stress, and life-threatening feelings (U-ma Junwisaed, B.E. 2539: 67). Open-heart surgery is a factor triggering specific emotional and physiological responses of a patient **(**Rymaszewska et al., 2003**)**. Heart surgery correlates with increased perioperative stress and anxiety (Bergmann, 2001: 1093). McCrone et al., (2001:155) reported that patients confronting heart surgery demonstrate a high level of stress and

anxiety even beginning 2 to 3 days after surgery. In spite of positive somatic effects of surgery, depression and anxiety can persist or appear for the first time after the operation worsening the patient's psychosocial functioning and quality of life **(**Rymaszewska et al., 2003**)**. The anxiety may precipitate complications which cause a rise in the stress hormones, the sympathetic stimulation on patient, and/or the ventricular ectopic beat of the patients (Deva et al., 2000; Sharp, 1996). Deva et al. (2000) stated that anxiety can increase myocardial oxygen consumption and exacerbate cardiac stress. There is one study which has found that 6 of 12 heart disease patients were readmitted to the ICU, and 5 of those 6 patients reported experiencing severe transfer anxiety (Houser, 1974: 43). Furthermore, the patients undergoing open-heart surgery tend to be anxious; this has been linked to sudden cardiac death. Especially, an open-heart surgery patient who has undergone an operation to the most important organ of the human body is considered a critically ill patient. It is a life-crisis for the person undergoing this operation in which heart and lung functions are stopped and cardio-pulmonary bypass is performed during the operation procedure. For them, it is life threatening.

Open-heart surgery patients have many situations that can be an anxiety-provoking event for both patients and family members, such as admission in ICU and transfer from ICU to the general ward. Especially transfer out of ICU can be a change of environmental, psychological, and biological events and processes related to the critically ill patient. Thus, this state provokes anxiety in them, who are already frightened of his/her illness, is then faced with what would appear to be a transfer and an emotionally unresponsive environment. Reactions are predictable; initial anxiety increases. The physiological consequences of those emotions are usually undesired. Almost all open-heart surgery patients must be patients in ICU, who experience a loss of control and fear. They need to be transferred several times during one hospitalization and are prone to experience anxiety after transfer from ICU (Saarman, 1993:78). Although the transfer from ICU to a ward is mainly viewed as a positive step, some patients and relatives can become quite anxious due to removal of monitoring, changes in routine and reduced surveillance and observation (Coyle, 2001). These changes can lead to relocation stress or transfer anxiety, which can affect the patient’s recovery and may also create distress for relatives (McKinney &

Melby, 2002; Whittaker & Ball, 2000). Add separation into the equation and it appears that the process of transfer out of ICU is ripe with negative stressful outcomes for the patient (Odell, 2000: 323).

Transfer Anxiety

Transfer anxiety has similar meaning and is interchangeable with many terms since it related to the feelings of the person. This anxiety is a specific form of separation anxiety that occurs when patients are required to relocate from an environment that is known and secure to an unfamiliar environment (Robert, 1976: 227-228; Robinson, 2002: 7). Critical attributes of transfer anxiety include a negative perception of an impending or recent transfer from one environment to another, psychological or physical signs or symptom of anxiety, and the occurrence of signs or symptoms shortly before or after transfer (Leith, 1998: 25). The literature of transfer anxiety has tended to refer to problems associated with relocation in numerous ways such as transfer stress, translocation syndrome, relocation stress, post relocation crisis, relocation crisis, relocation shock, relocation syndrome, relocation trauma, and separate anxiety (Leith, 1998: 24). More recently, the North American Nursing Diagnosis Association (NANDA) formally approved the nursing diagnosis 'relocation stress' as a new nursing diagnosis to describe this phenomenon. The major defining characteristics include loneliness, depression, anger, apprehension and anxiety. Minor characteristics include changes in former eating and sleeping habits, dependency, insecurity, lack of trust and need for excessive reassurance (Carpenito, 2000: 715). Thus, relocation stress may be defined as a state in which an individual experiences physiologic and/or psychological disturbances as a result of transfer from one environment to another (Carpenito, 2000: 715). The nursing diagnosis of relocation stress has been used to describe the experience of patients transferred from ICU to general hospital wards, geriatric patients transferred from home or hospital to a long-term care facility, and families who move from one city to another. This includes all types of relocation, but there are specific references to critical care units. Most of the critical care literature on anxiety after transfer from ICU refers to the condition as transfer anxiety or transfer stress (Leith, 1998: 24).

Because of many definitions and perspectives regarding transfer anxiety, Leith (1998: 24-32) was the one who tried to integrate the similar meanings and perspectives of this concept. Based on this concept analysis of Leith, transfer anxiety has the following characteristics:

1. The critical attributes of transfer anxiety consist of the perception of transfer in a negative way that leads to physical and psychological signs and symptoms. These signs and symptoms will appear shortly before transfer.

2. Antecedents refer to anything that happens before transfer anxiety. This includes two aspects: physical and situational. The physical aspect includes a change in the state of health, the perception of stress before transfer, depression, and low self-confidence. The situational aspect includes a change in the situation such as the problem of the prior transfer, loss of either the past or recent interpersonal relationship, the length of stay in the ICU, and finally, the unstableness of a physical condition. These two aspects lead to stress and transfer anxiety.

3. Consequence is related to the perception of the decrease of the quality of life and the quality of nursing care, which increase stress and anxiety and lower coping ability.

4. Empirical referent refers to the phenomena that can be measured such as stress, anxiety, and alteration of vital signs after transfer from ICU.

Transfer anxiety not only is experienced by the person transferring but also may affect the family and significant others. This anxiety can affect the patient's recovery and may also create distress for relatives (McKinney & Melby 2002; Whittaker & Ball, 2000). The transfer from the ICU to ward also appears to be a traumatic event for the patient's family (Bokinskie, 1992; Mills, 1995; Mitchell, Courtney & Coyer, 2003: 207). Leith (1999: 210) found that over 75% of patients and family members experienced moderate to severe level of anxiety and stress after transfer from ICU. Furthermore, family members' anxiety can affect patient recovery (Mendonca & Warren, 1998).

Theories Explaining Transfer Anxiety

Leith (1998: 24-25) combined three theories to suggest that transfer anxiety appears to be related to uncertainty caused by the separation from a familiar environment and personnel, which leads to an onset of stress and a potential decrease in coping abilities. Three prominent theories that support the concept of transfer

anxiety in the critically ill patient and family including: separation anxiety theory; uncertainty in illness theory; and stress, appraisal, and coping theory

Separation Anxiety Theory

Transfer anxiety concept is based on Freud's theory of separation anxiety. This theory suggests that patient's experience anxiety because of the loss of a close relationship with their nurse and doctors in the critical care area when the patients are transferred to another area (Leith, 1998: 24). Robert (1986) and Bowlby (1961) identified three separate components of transfer anxiety including: primary transfer anxiety; expectant transfer anxiety, and fright after transfer. In discussing primary transfer anxiety, it relates to type and timing of transfer (Bowlby, 1961; Coyle, 2001: 140; Jenkins & Rogers, 1995; Robert, 1986) and disruption of interpersonal relationships (Bowlby, 1961; McKinney & Melby, 2002; Robert, 1986). This anxiety arises from the untimely termination of dependent relationships and occurs when the patient is transferred abruptly due to emergency admission of other patients and/or without adequate preparation for transfer (Coyle, 2001: 140; McKinney & Melby, 2002: 151). Saarman (1993) reports the feelings of abandonment, loss and insecurity experienced by patients in these circumstances. To lose the relationship with the health care provider at the ICU leads to feelings of both being unsafe and inadequate nursing in the eyes of the patient (Hackett, Cassem, &Wishine, 1968; Lethbridge, Somboon & Shea, 1976). Many patients continue to perceive themselves as critically ill following transfer, expecting care to continue as before. Thus, the termination process becomes blocked and transfer anxiety develops. In discussing expectant transfer anxiety, it relates to the type and quality of preparation. This anxiety occurs when patients are poorly prepared for transfer out of ICU (Leith, 1998: 25) and/or the patients are able to predict the event as insecure (Roberts, 1986) and still perceive that their condition is critical and needs closed nursing care the same as in the ICU. Consequently, this fear of the unknown creates internal anxiety (Jenkins & Rogers, 1995). In discussing fright transfer anxiety, it relates to the expectations following transfer (Coyle, 2001: 140). Feelings of fright on transfer occur when patients do not know what to expect in a strange and unfamiliar environment where monitoring procedures and routines vary greatly (Coyle, 2001: 140; McKinney & Melby, 2002:

151). Patients experience fright initially from the implications of their illness and secondly from anticipation of leaving the security of the critical care unit (Saarman, 1993). This can give rise to two behavioral responses, one leading to escape behaviors and the other to immobility or emotional freezing (McKinney & Melby, 2002: 151). Whichever the response, both arise as a result of not knowing what to expect in a given situation (Jenkins & Rogers, 1995). In the ICU, the physical condition of patients is monitored continuously during their stay. However, once transferred to the ward, monitoring is suddenly discontinued and this may lead to fears that any deterioration in their condition may go undetected.

Uncertainty in Illness Theory

The uncertainty in illness theory of Mishel (1988: 225) is defined as "the inability to determine the meaning of an illness related event. It is the cognitive state created when the person cannot adequately structure or categorize an event because of the lack of sufficient cues." When patients do not construct a cognitive meaning for illness-related events, uncertainty develops (Leith, 1998: 25). Experiencing uncertainty restricts one's ability to decipher and interpret the situation (Mishel, 1981; Mitchell et al., 2003). Mishel et al. (2003: 211) considers that this reduced ability to make sense of the situation may impair adaptation, leading to the perception that the illness related event is appraised as a negative experience which limits coping strategies. She hypothesizes that this may be the result of receiving mixed messages relating to the illness, multiple intricate treatments, and inadequate knowledge regarding the seriousness and prognosis of the illness. Uncertainty is associated with stress that can adversely affect patient ability to cope and adapt (Mishel, 1988: 225). When patients are transferred out of ICU to the general ward, they may experience uncertainty because of the change in environment, change in routine, and/or the lack of monitoring devices.

Once the definition of transfer stress was developed, the definition of transfer anxiety followed and was addressed after many studies were done. For example, one that refers to the personal experience of a person who was transferred from a familiar environment to a new environment (Robert, 1976: 227-228), which leads to the uncertainty (Mishel, 1988: 225). This decreases the coping ability of the person and

leads to stress. This stress could be observed from the symptoms of transfer anxiety (Leith, 1998: 25); that is, the decrease of coping ability and adjustment (Hilton, 1986: 70-73; Mishel, 1988: 225-232). Therefore, stress or stressful experience within the meaning of anxiety could be explained by stress theory and coping ability (Saaman, 1993: 78-85). Moreover, fear transfer is associated with anxiety when a person cannot predict what would happen to them (Bowlby, 1961: 251-269). It is the phenomena when one encounters a life-threatening situation, never before felt feelings, and beliefs (Robert, 1976: 226).

Stress, Appraisal, and Coping Theory

The theory of stress and coping of Lazarus and Folkman (1984: 157-164) explains that stress occurs when a person appraises a situation as taxing or threatening to his/her well-being. The process of appraisal is influenced by a number of factors related to both the person and situation. Personal factors include knowledge (or lack of knowledge), beliefs, values, goals, commitment, coping resources, and coping constraints such as pain and fatigue (Byers & Smyth, 1997; Leith, 1998). These personal factors will help to determine how an individual experiences an event. Minckley et al (1979: 8) found that women appeared to experience more physiological signs of stress of transfer than men. He stated that women may be at a higher risk for transfer effects than men. Situational factors encompass the event, physical environment and the support available. Event novelty such as timing, duration of the event and factors such as uncertainty, and ambiguity all support an appraisal of stress (Saarman, 1993: 79). The appraisal process itself consists of two phases: primary appraisal and secondary appraisal. In primary appraisal, the individual categorizes a given situation with respect to whether it holds any potential negative implications for him or her. The secondary appraisal then follows, and involves the individual's determination of whether his or her own abilities are sufficient to overcome the threat.

Transfer anxiety can happen to anyone and under any cultural context and to any age group (Capenito, 1995: 728; Minckley, et al., 1979: 8-9). For patients moving out of ICU, transfer anxiety involves separation not only from a familiar environment, but also from the intense personal surveillance of medical and nursing staff and the

machines that monitored their physiological status so closely (Bouley et al., 1994: 218; Saarmann, 1993: 78-79). Moreover, patients who were transferred in the evening reported higher anxiety than those who were transferred in the morning (Cassem & Hackett, 1973; Lethbridge et al., 1976). Transfer anxiety is a transcultural phenomenon that can occur in all age groups (Capenito, 1995: 728). Griffiths (1992: 114) discovered a "gap" in nursing care that begins when the patient is transferred from the ICU to a general ward. Even before transfer, as a patient's physical status improves, anxiety may increase as the patient perceives that they are in competition with sickly patients for nursing time and attention (Jone et al, 1994). Although transfer to a ward is a positive step in terms of physical recovery, many patients exhibit stress associated with relocation from ICU to a ward (Culter & Garner, 1995: 334).

The transaction approach to stress based on the value of cognitive appraisal by an individual facilities understanding of the dissimilar responses of different patients to similar stressors (Byers & Smyth, 1997). Various factors may lead to transfer anxiety.

Factors Contributing to Transfer Stress or Transfer Anxiety

According to Lazarus and Folkman's (1984) transaction model of stress, both personal and environment factors can lead to the development of potential stressors.

Personal factors such as the individual's coping strategies, present coping constrains and available coping resources (Byers & Smyth, 1997). Coping constrains include pain and fatigue. These factors, if not addressed, may diminish the individual's ability to cope with a potentially stressful situation such as transfer (Bokinskie, 1992; Wesson, 1997). Patients' perceived coping resource might also be impaired by the process of transfer. Roberts (1986) stated that it is not unusual for patients to place their entire trust in the knowledge and judgment of the medical and staff in critical care. Thus, transfer may create a disruption of the patients' interpersonal relationships and remove their main coping resource. Suddenly, patients find themselves in an environment where there is less nursing and medical surveillance. They may experience feelings of abandonment or insecurity, not only because of the new environment, but also due to the loss of the staff they have come to

rely on (Jenkin & Rogers, 1995). Furthermore, the anxiety happening to each patient is different. All depend on the following personal factors such as gender, age, past experience, type of the operation (Wanvimol Kongsuwan, 2001: 22), and severity of illness (Brugler et al., 1991 cited by Carpenito, 1995: 591). Rukholm and colleagues (1983 cited by Leske, 1993: 1092) found that females had more anxiety than males. Women had more physiologic indicators of stress with the relocation than men (Minckley, et al., 1979). Age is one of the factors that effect anxiety. The study of Bell (1977) found that the patients of different ages differently selected their own ways to face the problem of stressful condition. Chatier and Wakulczyk (1989) indicated that the elder ones accepted an examination and an analysis of violation diseases more calmly and better than the younger ones. Past experiences results in an adjustment to happening situations that the patients used to see and face before by the time of their operation. Wanvimol (2001: 22) stated that past experiences was related to anxiety of the patients. The type of operation is also a factor that influences anxiety, as each case of operation has its own different violation level or risk of life (Wanvimol (2001; Uma Junwisaed, B.E.2539).

Environmental factors include a moderate to high degree of environment change, sudden reduction in monitoring equipment and lack of predictability in the ward environment (Capenito, 2000; Culter & Gardner, 1995; Daffurn et al., 1994; Leith, 1998). Leith (1998: 24-25) stated that a moderate to high degree of environment change in the new environment includes a history of problems with previous transfers and concurrent, recent, or past interpersonal losses. These risk factors are further intensified if the patient does not have the opportunity to transfer gradually (McKinney & Melby, 2002: 152). Sudden removal of monitoring devices, such as mechanical ventilation, may also provoke feelings of stress or anxiety (Roberts, 1986). Patients may feel insecure and fearful about their ability to manage without the supportive equipment and may feel anxious that a vital change in their condition will go unnoticed. Indeed, such feelings may not have been resolved before the patient transferred back to the ward (Cutler & Garner, 1995). Thus, these environmental factors may lead to the development of transfer anxiety.

According to Leith's (1998: 25) concept analysis of transfer anxiety about antecedent, both physiological and situational causes can lead to the development of

potential stressors. Antecedent of transfer anxiety are those events or incidents that must occur before transfer from the ICU promotes transfer anxiety. Physiological causes include change in physical health status, a perception of stress before transfer, depression, or decreased self-esteem. Situational causes include moderate to high levels of environment change in the new environment such as a history of problems with previous transfers and concurrent, recent, or past interpersonal losses. Patients having longer periods of stay in ICU or a greater physiological instability also have higher stress after transfer (Dunbar, 1982). The most prominent antecedent of transfer anxiety is the lack of preparatory information before transfer (Leith, 1998: 26). Leith (1998: 25) cites a number of contributing factors to transfer anxiety, including: (1) inadequate psychological preparation for transfer; (2) abrupt transfer or transfer during change-of-shift rotations; (3) sudden reduction in monitoring at time of transfer; (4) loss of security from lack of monitors; (5) unfamiliarity with the new environment; (6) lack of predictability of the new environment; (7) lack of explanation of difference between the ICU and the general hospital unit; and (8) sudden change in staff caring for the patient. Potential reasons to transfer from the ICU can occur in isolation or in combination. Nursing care providers must ensure that not only are personal and environment factors assessed as contributing to relocation stress, but also that an individual's coping appraisal of the transfer process is also considered.

Patient Response to Transfer

Transfer from a critical care unit to a general ward creates different changes in each individual patient. This transfer is deemed a sign of improvement because the patient's physical condition no longer warrants intensive monitoring and treatment (McKinney & Melby 2002: 154). However, the literature suggested that there might be a gap between the biological and psychological recovery of acutely ill patients (Schactman, 1989).

Compton (1991) carried out a small-scale study investigating patients' perceptions of their critical care experience. The findings revealed that patients did not report movement in or out of ICU as being particularly significant to them. Patients were simply unconcerned about transfer out of the ICU. Transfer anxiety did not occur at all. Thus, these findings suggest that perhaps relocation is not as stressful

as one would think. However, since only 10 respondents were interviewed, these results cannot be generalized.

Other studies have produced quite different results. Smith (1976) looked at a large number of patient transfers within a hospital, including, but not limited to, transfers out of critical care unit. The findings revealed that, except for moves that occurred at the patient's request, most transfers were viewed as a negative experience by patients, and almost 80 % of patients transferred out of the coronary care unit had negative reactions to the move.

The transfer can create acute feelings of primary anxiety, fright, and expectant anxiety (Robert, 1976: 241). The patients' response to transfer according to their reaction from transfer from ICU includes physiological and psychological responses (Daffurn et al., 1994; Hall-Smith et al., 1997).

In one study, almost three-fourths of the patients had positive responses to transfer, perceiving it as direct evidence of improved health. The remaining twenty-five percent who apprised transfer negatively either missed the constant attention of the coronary care unit or were concerned about not being monitored (Hackett et al., 1968).

Some studies supported these findings. Marshall (1987) and Kolotylo et al. (1991) revealed that families felt frightened on leaving the intensive care unit and were fearful of the unknown, and thus viewed the transfer as a negative experience. Both studies focused on families' perceptions of in-hospital transfers from the neonatal intensive care unit and, while they support the view that transfer can be a stressful process, the findings may not necessarily correlated with those from adult critical care units.

Odell (2000: 326) carried out a small-scale qualitative study to find out how patients felt about being transferred from ICU to a general ward. Findings revealed a mixture of contradictory emotions. Most of the patients expressed ambivalent feelings toward their transfer out of ICU. The majority of patients interviewed initially expressed feelings of indifference towards their transfer and some even expressed it in quite positive terms, sensing it meant that they must have been getting better. However, these same individuals also described feelings about their transfer using negative expressions of emotion. Similar findings were reported in an exploratory

study by Green (1996) and Hackett and colleagues (1968). An exploratory study by Green (1996) explored patients' memory recall of their stay in ICU. Thirteen patients (52%) expressed that they had been pleased about their return to the general ward. However, 24% also commented on how difficult it was to adjust from a one-to-one relationship in intensive care to the circumstances of a general ward. Hackett and colleagues (1968) found that almost three-fourths of the patients had positive responses to transfer, perceiving it as direct evidence of improved health. The remaining twenty-five percent who appraised transfer negatively either missed the constant attention of the coronary care unit or were concerned about not being monitored.

There are several studies documenting patients' health status following transfer from ICU. The patients' response to transfer according to their reaction from transfer from ICU includes physiological and psychological responses. Exploratory studies by Daffurn et al. (1994) and Hall-Smith et al. (1997) supported these findings. They revealed that patients experience a variety of psychological and physical symptoms following transfer. Daffurn et al. (1994) found that, while many patients were close to returning to normal general health, they reported suffering mild to moderate physical and psychological problems. Physical complaints included sleeping difficulties, tiredness and breathlessness. The predominant psychological complaints were feelings of depression, irritability or loneliness. Furthermore, similar findings were reported in a study by Hall-Smith et al. (1997). The findings suggested that psychological experiences consisted of vivid dreams and flashbacks, while physical symptoms included profound tiredness and weakness. Five respondents also specifically identified relocation to the ward as being a particularly traumatic experience.

Klein et al. (1968) and Minckly et al. (1979) have demonstrated stress when transferring patients. They used physiological measurement to demonstrate a stress response. Using urine catecholamine level as a measure of stress, Klein et al. (1968) concluded that patients experience stress when transferred from coronary care units. They studied both emotional and physiologic responses to transfer out of coronary care units. Although the sample size was too small to allow for generalization, 70% not only had negative emotional reactions, but also experienced increases in catecholamine excretion and some cardiovascular complications. The patients in this study experienced abrupt transfers, with little or no warning. The transfers were

accompanied by sudden changes in activity level, medications, and staff attention. Minckly et al. (1979) also developed a tool to assess physiological response to transfer out of coronary care units. This entailed obtaining an average reading of vital signs, including blood pressure and pulse, for the 8 hours prior to and after transfer periods. The findings revealed that instability was most likely to occur in the first 2-hour period following transfer. They found a high correlation between unexpected transfer and need for reassurance by the patient. Women reported having more physical changes due to transfer anxiety than men did. All of these studies appear to indicate that stress occurs after transfer.

From this review, it is clear that transfer anxiety can be and often is a problem for critical care patients. It has shown that the resulting stress may have both physiological and psychological consequences. Critical care nurses can do much to reduce transfer anxiety experienced by the patient.

In helping the open-heart surgical patients with transfer anxiety, it is important that critical care nurses must recognize the potential for transfer anxiety in both patients and families. Critical care nurses can minimize this anxiety by beginning preparation for transfer early in the patient's stay (Minckley et al., 1979: 6; Toth, 1980: 30). Preparation should encompass more than just information. The nurses can provide information and a plan to promote continuity of care for patients and families, and that may decrease psychological morbidity. These modalities can occur in the transfer preparation program which making discharge planning part of the standard procedure when patients are transferred from ICU, by developing structured teaching plans for transfer of patients from the ICU, and by integrating ICU discharge planning in critical pathways (Leith, 1998: 32).

Method of Helping in Open-heart Surgical Patients for Transfer Anxiety Reduction

Since the treatment results from the various aspects of both the open-heart surgical experience and the transfer experience from ICU may reduce patients' ability to function in ways that minimize the negative impact on their psychological and physical well-being. Thus, nursing interventions discussed in the literature often are based on the assumption that the patients' emotional response is an important factor in

coping with the separation, uncertainty and stress of transfer. The interventions that reduce fear and anxiety are expected to present patients a positive perception of an impending or recent transfer from one environment to another.

Patients' positive perception of an impending or recent transfer from ICU to general ward is necessary for the open-heart surgery patients in order to reduce transfer anxiety. Besides this, the prevention for antecedents of transfer anxiety and control potential reasons for transfer is important to limit transfer anxiety. Thus, providing the patients with the information they need, preventing antecedents of transfer anxiety and managing of potential reasons for transfer to improve their perception, understanding, and practice to promote their coping and rehabilitation. The literature, although sparse in this area, appears to support the view that good preparation and early intervention would help ease the transition from critical care to the next environment (Saarman, 1993).

Various types of interventions have been investigated and various methods were used for presenting the interventions to patients in the study. These interventions can be categorized into the following three groups: nursing interventions for transfer anxiety, critical pathway, and discharge planning.

Nursing Interventions for Transfer Anxiety

These interventions were described as preparation that reduces situational uncertainty and increases personal knowledge, thus reducing the probability the patient will arrive at stress appraisal. Transfer anxiety was alleviate by specific interventions such as the prevention of antecedents for transfer anxiety and potential reasons controllable for transfer. These interventions are effective and aim to reduce anxiety when patients are transferred from the ICU (Based on the review literatures from 12 research studies from 1973 – 1995). Nursing care interventions for transfer anxiety reduction which will be discussed as follows:

In preparation for transfer, critical care nurses should help patients interpret the meaning of transfer as a sign of progress. Because the experience is a novelty to most people, patients need assistance in interpreting events. The nurses should give patients every opportunity to interpret the impending move as a positive step (Saarmann, 1993: 82). For example, each time a tube is removed, a treatment frequency is decreased, or

pain is more easily controlled, the nurse can use the opportunity to interpret the event as a positive sign, as a step closer to “graduation” from the critical care unit (Minckley et al., 1979: 5).

Equipment and monitors, especially machines that represent safety to the patient, should be removed before the time of transfer. Abrupt removal of the equipment and monitors just as the transfer is beginning leaves the patient feeling unprotected and fearful (Saarmann, 1993: 82). Hackett et al. (1968: 1366), in a study of 45 such transferred patients from CCU to general ward, found several who were frightened about the function of their hearts when they were no longer being monitored. Eight patients in their study expressed sense of loss; four were frightened by the disconnecting of their monitor. Thus, critical care nurses should wean patients from the use of machines and equipment before transfer. Patients need to be psychologically weaned from technology by receiving explanation and reassurance that they can be safety cared for without machines (Urden et al., 1992 cited by Saarmann, 1993: 82). Furthermore, these patients can be informed that they no longer need close observation and the prospect and imminent transfer may be presented in a positive manner (Minckley et al.,1979: 6).

Timing of transfer is also important to consider. It has been suggested that transfers that occur late in the evening or at night are generally more anxiety-provoking than daytime transfers (McKinney & Melby, 2002: 156). Daytime transfers are better tolerated than nighttime transfers are. Transfer by day allows the patients to be oriented to the new setting and to lay territorial claim to the space around them (Minckley et al., 1979: 6). Transfer at nighttime makes it harder to cope with unfamiliar surroundings and become acquainted with the new environment (Saarmann, 1993: 82). Nighttime transfer, which does not permit adequate patient orientation to his environment, should be avoided (Robert, 1976: 248). Family members are more likely to accompany or visit the patient during the day. When transfers occur at night, the patient is left in an unfamiliar room in a darkened environment. In a transfer out of ICU situation, controlling anxiety is important, not only the well-being of the patient, but also from the perspective of the family member.

Family member’s anxiety can affect patient recovery (Mendonca & Warren, 1998: 60) through their inability to understand the significance of events. Schwartz

and Brenner (1979 cited by Leith, 1998: 28) found that patients' stress as related to transfer was significantly reduced if the patients' relatives were present and involved in the transfer. Encouraging the family to be present and involvement in the transfer is important to decrease patients' stress as related to transfer. When transfer approaches, the family should be notified and encouraged to accompany the patient to the new unit and to stay with the patient while he or she settles in. Some family members need guidance on how to behave in the presence of the patient and in knowing which attitudes are helpful or harmful to the patient. When families were taught about transfer and were with the patient during transfer, patients experienced less stress, fewer complications, and shorter hospital stay than patients whose families were not so involved (Schwartz and Brenner 1979 cited by Saarmann, 1993: 83).

The introduction of the receiving nurse for the patient in the general ward is important to building or enhancing the trust in the nursing staff. One study found that patients who were able to establish a relationship with the receiving nurse before transfer had less stress and fewer cardiovascular complications during and after transfer (Schwartz & Brenner 1979 cited by Saarmann, 1993: 83).

Providing information structured teaching by pamphlets and manuals of transferring for patient and family is an important component of information for patient and family to know about a new environment. Several studies report that information booklets or pamphlets about transfer from the ICU to the general ward has helped both patients and their family (Culter & Garner, 1995; Jone & O'Donnell, 1994; Maillet et al., 1993). The use of a written informational pamphlet is therefore advocated as a more useful and practical alternative (McKinney and Melby, 2002: 155). Patient and family need to know what to expect on a general ward. Thus, the purposes of the booklets or pamphlets are to educate and inform patients on what to expect on a general ward and make the transfer out of ICU a less stressful event for patients and their family. This type of information can help patients and families adjust to the general floor.

Critical care nurses who visit patients after transfer build or enhance the continuing of care between ICU and ward. Post-transfer visits by critical care nurse to the receiving unit have been recommended as important to the patient's well-being (Saarmann, 1993: 84). One study found that patients who were regularly visited by

the coronary care unit nurse after transfer had less anxiety than those who were not visited (Klein et al., 1968 cited by Saarmann, 1993: 84).

However, the information and interventions model of transferred anxiety reduction still has some limitations. This is because of the time constraint when giving nursing care in each unit is different depending upon surgeons, rehabilitative doctors, cardiac-surgeons, anesthesia nurses, staff nurses, the division of nursing care between ICU and the general ward, and the uncertainty to the system of the patient. These factors are potential problems for nursing care. Moreover, it can increase the anxiety for the open-heart surgery patients. The researcher believes that this model is not completely understood and needs the integration from all disciplines to make the model effective, as well as to promote continuing care and quality care. Therefore, if the nursing care model was developed by integrating the critical pathway and discharge planning, it will be most effective for caring and rehabilitation, as well as reducing transfer anxiety.

A method of coaching open-heart surgery patients for transfer anxiety reduction is giving information and interventions though the use of the critical pathway and discharge planning by individual and pamphlets/booklets for the patient and family. Leith (1988: 32) suggested that reduction of transfer anxiety could be facilitated by making discharge planning part of the standard procedure when patients are transferred from the ICU, by developing structure teaching plans for transfer of patients from the ICU, and by integrating ICU discharge planning in critical pathways or managed protocols.

Critical Pathway

Critical pathway is the guideline practice for treatment and caring for patients. It is called by many names, including clinical pathway or care map. Clinical pathway refers to the standardized activities planning or treatment planning of each discipline during the patient's hospitalization. Whereas, care map is the clinical pathway, which adds more intermediate goals and outcomes (Anuwat Supachatikul, B.E. 2543: 45-62). In line with advances in cardiac surgery, critical pathways to map the expected recovery route for the patient have been introduced. These maps are used extensively as guides for treatment and care (Micik & Borbasi, 2002). It is not only health

professionals who use the pathways; patients and their relatives also refer to them as indicators of a 'normal' post-operative route. Critical pathway is the appropriate time in each step for treatment by doctors, nurses, and other related disciplines. It aims to decrease the slow service and enhance the cost effectiveness and the quality of care (Coffey et al 1996 cited by Penjan Sanprasan, B.E. 2544). The potential benefits are many, including decreasing unnecessary variation, allowing focus on potential or actual problems or variations, streamlining documentation, and decreasing charges and length of stay (Brown et al., 1998: 31).

Utilizing the critical pathway is very important. It enhances the quality of life and quality of care (Leith, 1988: 26). However, it should be agreed upon by the health care teams in order to use it and follow the time frame and the clinical guideline which are indicated there in. Therefore, if health care teams agree to use the critical pathway, it will increase the standard of care and the direction of care or the goal of treatment among the health care teams. Furthermore, it will decrease the feeling of uncertainty of patients toward the treatment regimen since every staff on the teams has the same goal and standard of care and provides the information that does not overlap or is contrary to others. At present, the hospital accredititation institute indicates the critical pathway as one criterion for the quality of care that every hospital needs to develop.

The limited research studies on nursing interventions for transfer anxiety suggest that interventions that involve providing information through structured discharge planning have the greatest potential to prevent transfer anxiety in both ICU patients and their family members (Dunstan & Riddle, 1997: 297; Leith, 1998: 32; McKinney and Melby, 2002: 156-157; Poe, 1982: 366).

Discharge Planning

American Nurses' Association (1975 cited by Schlemmer, 1989: 88B) defined discharge planning as: the part of the continuity of care process which is designed to prepare the patient for the next phase of care and to assist in making any necessary arrangements for the phase of care, whether it is self-care, care by family members, or care by an organized healthcare provider.

The purpose of discharge planning was identified as a process to provide continuity of care for the patients (Alspach, 1985: 1; Supanee Onchuenjitr, B.E. 2537: 49; Well, 1983: 45). Hartigan and Brown (1985 cite by Schlemmer, 1989: 88B) described continuity of care as a series of organized, connected patient care events or activities that occur on a continuum even as the patient's needs or desires vary, or even when healthcare is given by numerous providers. To be effective, the discharge planning process needs to be implemented systematically in order to integrate care around the goal of coordinating patient needs with available resources (Romans, 1984: 23-25).

Discharge planning leads to the confidence that patients will receive continuing care, being helped when needed, and also assist the family in dealing with the health problem effectively. It is advantageous because it reduces costs of hospital stay and permits more efficient bed utilization (Inui et al., 1981: 922). The process of discharge planning consists of four phases: assessment, planning, implementation, and evaluation. This process needs to begin upon admission and continues throughout the patient's hospital stay (Schlemmer, 1989: 88b). Discharge planning has the following characteristics (Clemen Stone et. al., 1991 cited by Supanee Oncheunjit, B.E. 2537: 50-51): (1) the needs of the patient will serve as the basis to develop discharge planning; (2) a multidisciplinary team; (3) consist of strategies and activities of treatment and care; (4) utilize community resources effectively; (5) consider the service unit being transferred to; and (6) a need evaluation and planning for discharge.

Ensuring continuity of care has also been advocated as helpful in reducing relocation stress (Daffurn et al., 1994; Miracle, 1986; Schactman, 1987). Discharge planning is a process in which care provider can reverse discontinuity of care and improve their recovery. Reiley et al. (1996: 311) found that patients discharged from ward need information to help themselves recover. Preparing recovery patient for the eventual transfer to home should begin as early as possible during their hospitalization. However, discharge planning should not be limited to transfer from the hospital but should also include planning for a patient's transfer from the ICU to another unit within the hospital (Leith, 1998: 31-32). Therefore, the researcher developed structured teaching plans for transfer of patients from the ICU, and integrated ICU-discharge planning in critical pathway.

Summary of Literature Review

In conclusion, open-heart surgical patients tend to face transfer anxiety especially when leaved from the ICU. There are many causes influent to the patient's anxiety, such as (1) inadequate psychological preparation for transfer; (2) abrupt transfer; (3) sudden reduction in monitoring at time of transfer; (4) loss of security from lack of monitors; (6) lack of predictability of the care in new environment; (7) lack of explanation of difference between the ICU and the general hospital unit; (8) sudden change in staff caring for the patient; and (9) uncertainty in illness. Without any specific assistance, their psychological health, quality of life and quality of care are seriously affected. reparation for transfer out of ICU, of course, is one of the psychological interventions to alleviate transfer anxiety and increase patients' quality of life and quality of care that critical care nurses who work closely with patients can do freely. They can investigate and inform appropriately to reduce anxiety in these anxious patients during ICU staying after open-heart surgery. While, theory or concept, such as separate anxiety theory, uncertainty illness theory, stress and coping theory, critical pathway, and discharge planning are useful to reduce transfer anxiety, they had not been integrated and examined before with critical ill patients. Furthermore, these theories and concepts had never been examined before with OHS patients in Thailand. Thus, these components are applied to determine the effects of the ICU Transfer Preparation Program for open-heart surgical patients as it pertains to transfer anxiety in this study. It is hoped to enable patients to adjust themselves well in daily life and prevent psychological illness that may otherwise occur. The results of this study will contribute to improve the nursing care of open-heart surgery and other critically ill patients that are often accompanied with transfer anxiety. It is the expansion of the critical care nurses' role to the area of psychological and physiological health care promotion and prevention that are the major objectives of the holistic care.

CHAPTER 3
MATERIALS AND METHOD

This quasi-experimental study was conducted in order to determine the effects of the ICU Transfer Preparation Program (ICU-TPP) for open-heart surgical patients as it pertains to transfer anxiety.

Population and Sample

The population in this study consists of patients who were scheduled for open-heart surgery in five settings of surgical ward in tertiary care hospitals located in metropolitan Bangkok, from July 2001 to April 2002.

The sample size was based on the principle of Polit and Hungler (1983: 426-427), which suggested that the sample size should consist of 20-30 cases. For comparison, the number of samples in each group should be no less than 10 cases, depending on the number of variables. In this study, the sample size is calculated from the ***group number*** x ***variable*** x ***constant*** (10) = 2 x 1 x 10 = 20. At the minimum, the sample size is 20. Therefore, the sample size for this study was 40 patients.

The inclusion criteria were open-heart surgical (OHS) patients who: (1) were between 20-80 years of age; (2) undergo for the first time open-heart surgery; (3) were able to communicate in Thai; (4) had no previous psychosis or neurosis; and (5) agreed to participate in the study.

The exclusion criteria were OHS patients who: (1) had complications and had to be in ICU more than 5 days; (2) had complications that effected decision-making; and (3) had died.

The purposive sampling was used to select the sample. The researcher placed the first 20 patients into a control group and placed the remaining 20 patients who were selected by matching four criteria with the control group into an experimental

group. The matching criteria were as follows: age range (20-40, 41-60, 61-80); gender (male, female); functional class (Functional class 1/2, Functional class 3/4); and types of operation (Coronary bypass, Valvular heart surgery, and Closure Atrial septum defect (ASD) / Ventricular septum defect (VSD)).

Setting

This study was conducted at the intensive care unit (ICU) and five general wards for surgical patients, in a tertiary care hospital located in metropolitan Bangkok, Thailand that served for adult surgical patients. These patients were admitted to the general ward and then they were moved to the ICU and stayed at least 3 to 5 days after open-heart surgery. Later, they were transferred back to the ward. This setting is a surgical ICU that consists of 10 beds. There are two beds for cardio-thoracic surgery patient. The number of patients who were treated for open-heart surgery averaged 10 each month (Data from Pramongkutklao Hospital between January, 1999 through December, 2000). The ICU staff nurse who was not the researcher provided information of postoperative and transfer routines, at the ICU setting. In the ward after transfer patients from the ICU, the ward nurse provided information of postoperative routines to the patients on the transferring day. The transfer routines do not organize by the critical pathway, it simply includes: the patients were told that stay in the ICU about 3-5 days by their surgeons before surgery; the patients were immediately transferred when ICU discharge order was prescribed by the surgeon; the patients were transferred without any guideline or protocol for transfer but they were checked for their vital sign before transfer; transferring out of the ICU depend on surgeon's order; the ICU staff nurse who care for them prepare paper work, patients' chart, medication, and film for transfer; during the transfer there was a non-professional health worker such as a practical nurse or nurse-aid accompanying the patients.

Instruments

The instruments of this study composed of an intervention program or ICU-TPP and instruments for data collection.

An Intervention Program or ICU-TPP

An intervention program or ICU-TPP (Appendix A) was developed by the researcher to educate and operate OHS patients on an individual basis through critical pathway and discharge plan. A Critical pathway and discharge plan for OHS patients was developed to be used as the intervention program by multidisciplinary team. The team consists of 4 cardiothoracic surgeons, 5 ICU staff nurses, 3 ward nurses, and one of cardiac-rehabilitees doctor (Appendix B). Related theories and research findings were reviewed and integrated nursing intervention for transfer anxiety into the discharge planning. This program aimed to decrease the transfer anxiety level in OHS patients by promoting the readiness of transfer. The content of the program consists of three sessions: postoperative day 0 (PO Day_0), postoperative day 1 (PO Day_1), and postoperative day 2 (PO Day_2). The sessions of PO Day_2 consists of two phases: transfer and visitation after transfer. These sessions fill in the critical pathway of the part of ICU discharge planning.

The session of PO Day_0: the period that patients were admitted to the ICU after surgery on surgery day. The content focuses on initially preparing the patient and family for the postoperative consequence. The content includes: (1) the results of the surgery and limitations after surgery; (2) a list of invasive devices and their effects; (3) notification from admission to ICU to present stay in ICU as temporary; (4) introducing the nurse who care for the patients; (5) orientation to ICU, unit routine, staff in ICU; and (6) instruction pamphlet to family about patient's operation and transfer process. All of-these contents were provided for the patients after operation on surgery day: patients were informed of 1 and 2 upon awaking from the affects of anesthesia; patients were informed of 3 through 6 after gaining full consciousness. Patients and families were informed of 1 through 6 about 15-20 minutes during the session.

The session of PO Day_1: the period that patients were prepared for transfer out of the ICU. The content focuses on maintenance patient's ability to expect situation on next, information to decrease patient's experience of uncertainty of illness, and building or enhancing the feeling of patient's safety before transferring. The content

and activities includes: (1) keeping patient up to date with clinical data after extubation; (2) encouraging patient's verbalization and inquiries after extubation; (3) encouraging breathing exercises with incentive spirometry (triflow); (4) presenting transfer as a sign of progress; (5) informing patient and family about transfer plan on the critical pathway; (6) explaining rationale, function and weaning of monitor and equipment; (7) weaning patient from nurse-patient relationship before transfer; (8) informing patient and family about activity, pain management, medication and diet, lab tests/treatment; (9) encouraging patients' self-esteem; and (10) providing an instruction pamphlet to patient about the transfer from ICU to general ward. All of-these contents were provided for the patients in post-operative day 1; patients were informed of 1 through 3 after extubation; patient and family were informed of 4 through 10 about 30-45 minutes during the time of patient visitation in ICU.

The session of PO Day_2 was divided into two phases.

Phase one: Phase of transfer; the teaching focuses on building or enhancing patient's ability to control physiological and situational causes of the antecedent for transfer anxiety, building or enhancing the feeling of safety to the patient before transfer, and building or enhancing the continuing care for the patients during transfer. The content and activities includes: (1) weaning patient from use of monitors and equipments before transfer; (2) disconnection cardiac monitor before transfer 60 minutes at lease. (3) comparing and contrasting ICU and general ward; (4) involving patient's family with transfer; (5) building the patient's chance to meet the ward nurse; (6) transferring during day time and avoiding transfer during routine time or time of nurse shift rotation; (7) having ICU nurse care for the patient during transfer; and (8) introducing patient to the ward nurse. All of-these contents in this phase were provided for the patients and family in post-operative day 2; patients were informed of 1 through 6 about 30 minutes in the morning of transfer day; the performance of 7 and 8 were provided to patients and family during transfer from the ICU to general ward. The transferring the patient out of the ICU was meet guideline criteria for ICU transfer in the ICU-TPP.

This guideline criteria for ICU transfer have several contents include: awake; able to communicate needs; intact cough & gag reflexes; extubated > 2hr; respiratory rate <

25 /min; spo2 >92% on canula 5 L/m; blood pressure within pre-op range (±< 20mmhg); heart rate 60-100 bpm; absence of symtomatic ventricular ectopy; if paced via temporary wires, underlying intrinsic rate sustains adequate blood pressure; off IV anti-dysrhythmics; off IV vasoactive drips > 2 hr; on IV anti-dysrhythmics/vasoactive with VS stable>24 hr; pain scale < 4; and absence of postural hypotension with sitting.

The second phase: visitation phase after transfer. After being transferred from ICU to general ward, the content of visitation phase focuses on continuing of care for the patients. Contents and activities includes: (1) ICU nurse visiting the patient after transfer; and (2) giving an instruction booklet to the patient about the recovery and preparation for hospital discharge. Both of contents in this phase were provided for the patients about 20 minutes within 8 hrs after transfer.

All of the content as mentioned above is designed and organized in three forms of materials: Critical pathway that includes discharge planning (Appendix C); instruction content guideline (Appendix D); and instruction pamphlet and booklet. The Critical pathway was a care map of the treatment and a frame of the ICU-TPP that provided the care in seven aspects as follow: assessment; diagnostic; intervention; nutrition; medication; activity; and information. care for open-heart surgical patients in seven aspects: assessment, diagnostics, intervention, nutrition, medication, activities, and discharge planning and information to patients and families. It was developed by multidisplinary team of patient care team of surgery department of Pramongkutkalo Hospital. The instruction content guideline was used as a guideline of all aspects of the patient information contents and intervention protocols that ensured the same instruction protocol for all the subjects. The instruction pamphlets and booklet containing the principles of booklet construction were written with sharply contrasting color, large print, and color pictures. The pamphlets and booklet corresponded to the written material for teaching, which was distributed to samples for review and practice at general ward and home. Two pamphlets and one booklet used in this study are as follows: (1) a pamphlet for the family about the patient's operation (Appendix E); (2) a pamphlet for the patients about the transfer from the ICU to general ward (Appendix F); and (3) a booklet for the patients about self-care for recovery and preparation for

hospital discharge (Appendix G). Detail of how to use the program was stated in handbook of the ICU-TPP using for program provider (Appendix H)

The content validity of the ICU-TPP was determined by five experts (Appendix I); three critical care staff nurses and two critical care nursing teachers. The ICU-TPP was revised following the experts' suggestion.

Instruments for data collection included:

1. Demographic data questionnaire was developed by the researcher to obtain the socio-demographic data regarding age, gender, material status, educational level, occupation, functional class, type of operation, and experience in ICU (Appendix J).

2. The Pre-Post Transfer Anxiety Inventory (PP-TAI) that was developed by the researcher used to determine the transfer anxiety level within 8 hours before and after transfer from the ICU. This instrument has two forms, which are Pre Transfer Anxiety Inventory (Pre-TAI) and Post Transfer Anxiety Inventory (Post-TAI) (Appendix K). Each questionnaire has 30 items. Both were designed to be self-administering and may be given either individually or in a group. This inventory has no time limits. The patients who have limitations should be interviewed by the research assistant. The content validity of the PP-TAI was established by the same five experts; three critical care staff nurses and two critical care nursing teachers. The revision was made based on the suggestion.

The PP-TAI is a moment anxiety measure. It included subjective criteria measured over two time-periods: the eight-hour period prior to transfer and the eight-hour period immediately following transfer. This inventory based on concept analysis of transfer anxiety of Leith (1998:25-26). It was developed for this study and used to evaluate level of transfer anxiety and readiness before and after transfer from ICU. Six categories in two topics were derived from critical attributes and consequences; these are described in Leith's concept analysis of transfer anxiety (Leith, 1998:25-26).

The concept analysis of transfer anxiety was used to structure the PP-TAI. Items of the PP-TAI are clustered into the following two topics: the critical attributes (21 items) and the consequences of respiratory symptoms (9 items). Critical attributes topic assess three categories: (1) negative perception of an impending or recent

transfer from one environment to another (9 items); (2) psychological or physiological signs or symptoms of anxiety (6 items); and (3) the occurrence of signs or symptoms shortly before or after transfer (6 items). The consequences topic assesses three categories: (1) uncertainty (4 items); (2) stress (2 items); and (3) anxiety (3 items). These categories were used to structure the PP-TAI, which had two forms, Pre-TAI and Post-TAI. Constructing the questions and statements having the same meaning. Each questionnaire was designed as a self-report measure; the items were accompanied by a 4-point Likert scale. Each item was given a weighed score of 1 to 4 ranging from "not at all" to "very much." The scoring of the negative items was reversed and a raw score was obtained by the sum of the weighed scores of the subjects in each item while the average rating score was obtained by rating the total raw score divided by the number of items responded to. These scores vary from a minimum of 30 to a maximum of 120. Thus, a high score indicated high transfer anxiety level.

The major steps in the construction and test development process for the PP TAI are summarized below:

The first step was an initial item pool (33 items) in each Anxiety questionnaire that includes 4 Likert-type scale items.

The second step was to check validity by following these 3 steps: (1) Validitation by the Experts: the constructed PP-TAI was validated by five experts with an expertise in critical care. They suggested and commented in detail on the test format and the clarity of item content. On the basis of their comments, any item with redundant, vague, or ambiguous content was eliminated, and the format and instructions were simplified. Five items were eliminated and two items were newly created among 33 items of the both Questionnaires. However, there were 3 items among 30 items suggested to be refined. Finally, thirty items judged to have potential for measuring both TAI were retained for further evaluation. These instruments were revised before pre-testing; (2) Validation by determination of interater agreement by the same five experts. Validity was established by expert review and scored using Waltz, Strickland and Lenz's (1991: 173) Content Validity Index (CVI). The five experts were given the objectives and items and are asked to independently rate the

relevance of each item to the objectives using a 4-point rating scale: not relevance, somewhat relevant, quite relevant, and very relevant. The CVI is defined as the proportion of items given a rating of quite/very relevant by the raters involved. Index is obtained by calculating the percentage of items that experts rate as either a 3 or 4. In this study, five experts were asked to judge the content validity of each item, and to score the overall instrument for validity. The relevance of each of the 30 items on Pre-TAI and Post-TAI to the particular objective is independently rated by experts using a 4-point scale, and an item on questionnaires had to have an agreement ratio of .90 and .87 to be considered valid; and (3) Pre-testing of the revised Instruments: the revised PP- TAI was pre-tested with a pilot study of six OHS patients. These questionnaires were self-administered questionnaires used as samples to determine which patients were at high risk for transfer anxiety before and after transfer. And then data were analyzed for reliability. A pilot study of 6 OHS patients was conducted to examine the reliability of the instrument. Pre-transfer reliability coefficient and post-transfer reliability coefficient are .87 and .90, respectively.

Reliability of the Pre-TAI and the Post-TAI were tested among 40 patients who were consistent with the inclusion criteria. Cronbach measured the reliability of the scale alpha. Reliability coefficient, Cronbach's alpha was .80 for Pre-TAI and .93 for Post-TAI.

Data collection

Protection of Human Rights

The human rights of the samples were respected (Appendix L and M). This study was conducted after the researcher had obtained permission to conduct this research from the Human Subjects Committee of Pramongkutklao Hospital. To protect the rights of the human subjects, the researcher contacted all potential subjects to seek their participation. Then, the researcher introduced herself and explained the purpose of the study, the data collection processes, expected outcomes, and their rights in decision-making on cancellation or participating in this study, and that the samples could cancel their participation at anytime without affecting the nursing and medical care received during perioperative period. A signed agreement was considered as the

samples' consent to participate in this study. Each subject in the control group and experimental group completed consent forms before data collection and program were implemented. The samples who agreed to participate were assured that the data would be kept confidential and reported as group data.

Preparation for Research Assistants

There were 4 research assistants in this study. They were divided into two groups. Group one had a research assistant who worked as data collector, a registered nurse in surgical nursing who did not work in this setting was prepared to understand the Demographic data Questionnaire and PP-TAI (Pre-TAI and Post-TAI) by receiving an explanation of the detail of each item from the researcher. Another group contained three research assistants who provided the ICU-TPP to the patients. In addition, the researcher was one of the program providers. Thus, there were four program providers in this group. Three research assistants who provided the program were selected with this criterion: a registered nurse working in this setting, having at least 5 years experience in the SICU, completed Cardio-thoracic nursing specialty program or Critical care nursing specialty program, having been trained by the researcher to use the ICU-TPP and verified by the researcher. Three research assistants for the intervention program were prepared to understand the ICU-TPP by receiving an explanation of the details of each phase. They were explained to understand total care for the patient follow pathway in the ICU-TPP. Finally, all were verified by the researcher and assured that they were able to use the ICU-TPP exactly the same as the researcher. A printed checklist was used with spaces to check each item when research assistants taught, and a space to be checked when each sample demonstrated an understanding of the item taught by repeating the information to this researcher at the end of each teaching phase (Appendix N). Research assistants were prepared for 2 months (October 2001 and November 2001).

Procedure of data collection

Following the Faculty of Graduate Studies and the Institutional Review Board approval, data was collected by the following procedure (Figure 1):

1. The researcher contacted the Director of Pramongkutklao Hospital, the Chairman of Surgical Department, head nurses of general wards, and the head nurse of Surgical Intensive Care Unit by using a formal letter from Faculty of Graduate Studies to explain the objectives and procedures of the study, and asked for their cooperation.

2. The researcher prepared the Data collector (a registered nurse in surgical nursing who did not work in this setting) for collect Demographic data and transfer anxiety by Demographic data questionnaire and PP-TAI. (Pre-TAI and Post-TAI). To decrease bias of data, the data collector was a research assistant collecting data who approached all subjects.

3. The prospective samples who met the inclusion criteria were screened from open-heart surgical records and were approached by the researcher. The researcher introduced herself, explained the objectives, methodology, the benefits of this study and their rights in making their decision to cancel or participate in the study, and that they would be able to withdraw from the study any time if they needed. Each sample of the control group and the experimental group completed the consent forms before program implementation and data collection.

4. After the samples completed consent forms for the study, the control group was selected first for data collection.

5. The research assistants who provided the intervention program were trained by the researcher for providing the ICU-TPP. The research assistants had duty to provide the intervention program in every session. Patients in the experimental group were provided the program from only researcher and the research assistants on every day in the program. The assistant was trained for 2 months before acting as the researcher to provide the program.

6. Data collection and program implementation for the experimental group was conducted later, after the research assistant was trained by the researcher. The researcher or assistant have to provided the program by the using of instruction content guideline.

Figure 1 Procedure of Data Collection

Control group	Experimental group
(Based on the usual care, with unstructured information plan, by individual nursing personnel)	(Based on the ICU-TPP (follow critical pathway and discharge planning), with instruction content guideline by researcher or assistant)
➢ **Post-op day0 (Surgery day)** Beginning awake from anesth. ⇨Patients who scheduled OHS and admitted to ICU received the unstructured information of ICU postoperative routines care such as operation have finished and do not self remove invasive devices. After gaining full consciousness ⇨These patients continue received the unstructured information of ICU postoperative routines care include: invasive devices; and instruction pamphlet to family about introducing the ICU during family visit the patient in ICU.	➢ **Post-op day0 (Surgery day)** Beginning awake from anesth. (2 contents / 5-10 min.) ⇨ Patients who scheduled OHS and admitted to ICU received the information and activities: (1) results of the surgery and limitations after surgery; and (2) list of invasive devices and their effects. After gaining full consciousness (4 contents/10-15 min.) ⇨ These patients continue received: introducing the provider; (3) introducing the nurse who care the patients; (4) orientation to ICU, unit routine, staff in ICU; (5) notification from admission to ICU to present stay in ICU as temporary; and (6)instruction pamphlet to family about patient's operation and transfer process during family visit the patient in ICU.
➢ **Post-op day1** After extubation ⇨ The patients received the unstructured information and activities of ICU post-op routines care such as information of extubation and information to breathing exercise. (notification of ICU length of stay about 3-5 day by doctor before surgery) During visitation time in ICU ⇨ The patients received the unstructured information and activities of ICU post-op routines care such as information of activity and pain control, patients' clinical data, answer to the family's question, and explaining rationale, function and weaning of monitor and equipment when the patients ask;	➢ **Post-op day1** After extubation (3 contents / 10-15 min.) ⇨ The patients received the information and activities include: (1) keeping patient up to date with clinical data; (2) encouraging patient's verbalization and inquiries; (3) encourage breathing exercises with triflow. During visitation time in ICU (7 contents / 20-30 min.) ⇨ The patients& their families received the information and activities include: (4) Presenting transfer as a sign of progress; (5) informing patient and family about transfer plan on the critical pathway; (6) explaining rationale, function and weaning of monitor and equipment; (7) weaning patient from nurse-patient relationship before transfer; (8) informing patient and family of events on next step about activity, pain management, medication and diet, lab tests/treatment; (9) encouraging patients' self-esteem; (10) providing an instruction pamphlet to patient about the transfer from ICU to general ward.
➢ **Post-op day2** In the morning of transfer day ⇨ The subjects received the unstructured information and activities of moving out of ICU in routine care includes: weaning patient from use of monitors and equipments before transfer; disconnection cardiac monitor on transfer time; notification about transfer to patient and family and transferring the patient all time when receive order for discharge to ward from doctor. ⇨ The patients were measured for transfer anxiety level by using the Pre-transfer anxiety inventory (Pre-TAI) within 8 hrs prior to transfer by Data collector.	➢ **Post-op day2** ***Phase of transfer*** In the morning of transfer day (6 contents / 20-30 min.) ⇨ The patients received information and activities includes: (1) Weaning patient from use of monitors and equipments before transfer; (2) disconnection cardiac monitor before transfer 60 minutes at lease. (3) comparing and contrasting ICU and general ward; (4)involving patient's family with transfer; (5)building the patient's chance to meet the ward nurse; (6) transferring during day time and avoiding transfer during routine time or time of nurse shift rotation. ⇨ The patients were measured for transfer anxiety level by using the Pre-transfer anxiety inventory (Post-TAI) within 8 hrs prior to transfer by Data collector.

Figure 1 (continue) Procedure of Data Collection

Control group	Experimental group
(Based on the usual care, with unstructured information plan, by individual nursing personnel) During transfer from the ICU to general ward. ⇨ The subjects received the care during transfer by practical nurse (PN) or nurse. At ward after discharge from ICU Within 8 hrs after transfer. ⇨ The subjects received information and activities in ward routine and researcher visited the subjects, which was asked only general questions.. ⇨ The patients were measured for transfer anxiety level by using the Post-transfer anxiety questionnaire (Post-TAI) within 8 hrs prior to transfer by Data collector.	(Based on the ICU-TPP (follow critical care and discharge planning), with instruction content guideline by researcher or assistant) During transfer from the ICU to general ward. (2 contents / 10-20 min.) ⇨ The subjects received information and activities includes: (7) having ICU nurse care for the patient during transfer and (8) introducing patient to receiving nurse. ***Visitation phase*** *(At ward after discharge from ICU)* (2 contents / 20-30 min.) Within 8 hrs after transfer. ⇨ The subjects received information and activities includes: (1) ICU nurse (researcher) visiting the subjects after transfer; (2) giving an instruction booklet to the patient about the recovery and preparation for hospital discharge. ⇨ The patients were measured for transfer anxiety level by using the Post-transfer anxiety questionnaire (Post-TAI) within 8 hrs after transfer by Data collector. (Time between pre-post transfer measure about 4 hrs. at lease)

The first twenty samples who met the criteria were assigned as a control group to receive usual care. Then, another twenty samples were selected by matching four criteria (age, gender, functional class, and types of operation) with the control group and were assigned as an experimental group to complete the ICU-Transfer Preparation Program.

Control group

After the samples completed consent forms with the researcher, they were interviewed by the Data collector (research assistant who collect data only) and demographic data was gathered with the Demographic Data Questionnaire. The teaching content for the group included topics concerning current care. The samples in the control group received usual care from the nursing personnel (without the researcher) until PO day2, and then anxiety levels were measured with the Pre-TAI by the Data collector in the eight-hour period prior to transfer. Afterwards, these samples

were transferred from the ICU to general ward and they were visit by researcher who asked only general questions. The samples completed Post-TAI on PO day2 after visiting, and completed Post-TAI in the eight-hour period following transfer. Time between collecting data of Pre-TAI and Post-TAI had to differ at least four hours.

The data was collected from July to September 2001, until completion, to prevent contamination of the nursing care between the two groups, and to prevent feelings of unequal or unfair comparison being induced. Then, program implementation was conducted.

Experimental group

After the samples completed consent forms with the researcher, the samples were interviewed by the Data collector gathering demographic data in the same manner as with the control group. The ICU-TPP was implemented when the samples were admitted to the ICU. All contents in the program were provided based on instruction contents guideline. This program was initiated when the samples awakened from anesthesia and continued until PO day2. Before transfer time, the Data collector used the Pre-TAI to evaluate the anxiety level in the eight-hour period prior to transfer. The ICU-TPP was provided continuing through the critical pathway until the visiting phase was finished. Duration of each visit was based on the potential discharge need, which ranged from 20 to 30 minutes. After that, the anxiety level was evaluated with the Post-TAI by the Data collector. This evaluation was completed within 8 hours following transfer. Time between the measurement by Pre-TAI and Post-TAI differed at least 4 hours.

The samples in the experimental group were selected by the match-paired technique considering their gender, age, functional class, and type of operation, along with this data in the control group. Data collection in this group was conducted from December 2001 to May 2002.

Data Analysis

All data was analyzed using SPSS/FW (Statistical Package for Social Science/For Window) Version 9:

1. Descriptive statistics were used to describe demographic data such as age, marital status, educational level, occupation, experience in admit to ICU, financial problems in receiving treatment. Frequency, percentages and means were used to analyze the demographic data.

2. Independent t-test, Chi-square test, and Fisher's Exact test were used for comparison of demographic data between the experimental and control groups.

3. Independent t-test was used for comparison of the mean anxiety scores before discharge from ICU between control and experimental groups.

4. Independent t-test was used for comparison of the mean anxiety scores after discharge from ICU between control and experimental groups.

5. Dependent t-test was used for comparison of the mean anxiety score of the open-heart surgical patient between prior to and after discharge from ICU in the experimental group.

CHAPTER 4

RESULTS

This research was conducted to determine the effects of the ICU Transfer-Preparation Program (ICU TPP) on transfer anxiety for open-heart surgery patients. In this chapter the results of data analysis will be presented. The sample characteristics will be presented first, followed by the results of hypotheses testing.

Characteristics of the sample

Thirty-one eligible samples participated in the control group at the beginning of the program; however after matching four variables (age, gender, functional class, and type of operation), eleven samples from the control group were dropped out. Eight of them were not matched with the samples in the experimental group, and three subjects had complications and had to be in the ICU more than 5 days. Only one subject from the experimental group was excluded because of neurodeficit complications that effected decision-making. The main reason for patients dropping out was non-matching. A total of 40 samples remained throughout for data analysis. There were 20 samples for each experimental and control group.

Demographic Data

All samples were Thai and going through their first open-heart operation. The characteristics that influenced to anxiety were controlled to similar in both groups by matching technique. These characteristics include: age, gender, functional class (Fc), and types of operation. They were presented in Table 1 and Table 2.

Table 1. Frequency, mean, and standard deviation of the age (years) characteristics of the sample.

Age	Control group			Experimental group		
	n	Mean	SD	n	Mean	SD
20-40	4	36.00	1.41	5	30.80	8.90
41-60	7	51.86	8.75	7	52.29	8.64
61-80	9	63.89	3.55	8	65.63	4.03
20-80	20	54.10	12.08	20	52.25	15.58

Table2. Number and percentage of sample groups classified by gender, functional class, and type of surgery

Variables	Control group		Experimental group	
	number	%	number	%
Gender				
Male	13	65	13	65
Female	7	35	7	35
Functional class				
Fc I-II	15	75	15	75
Fc III-IV	5	25	5	25
Type of surgery				
Coronary	10	50	10	50
Valvular	6	30	6	30
Clousure ASD/VSD	4	20	4	20

Age, gender, functional class, and type of surgery were exactly the same for the two groups by matching technique. These characteristics are presented in Table 1 and Table 2. The mean ages for the control group and experimental group were 54.10 years and 52.25 years, respectively. The majority of samples in both groups were in an older group (61-80 years), 9 samples of the control group and 8 samples of the experimental group. Majority samples were male, constituting 65% in both groups. Most samples were Fc I-II, 75% of each group. For the type of surgery, half of the samples in control and experimental group had coronary surgery. There were equal subtypes in both groups because of the effectiveness of matching between groups. The other characteristics for the total sample and for each group were presented in Table 3 and Table 4.

Table 3. Comparison of education (years) characteristics of the sample by Independent t-test (n=20)

Group	Range	Mean	SD	t
Control	3-16	9.00	4.94	.68^{ns}
Experimental	4-16	8.00	4.40	

ns = non significant (p>.05)

The mean score of years in education for the control group and experimental group were 9.00 years and 8.00 years, respectively. The standard deviation of years in education for the control group and experimental group were 4.94 and 4.40, respectively.

Table 4. Comparison of the characteristics of the sample by Chi-square and Fisher exact test.

Variables	Control group n=20	Experimental group n=20	p
Religion[1]			
Buddhism	19	19	1.00[ns]
Islam	1	1	
Marital status[2]			
Single	1	2	.55[ns]
Couple	16	17	
Widowed/divorced	3	1	
Occupation[2]			
Government officer	3	2	.97[ns]
Agriculturist	1	2	
Employee	7	6	
Business owner	1	1	
House worker	3	5	
Retired	5	4	
Financial problem during course of care[1]			
Yes	7	2	.25[ns]
No	13	18	
Experience in being admitted to ICU[1]			
Yes	7	5	.51[ns]
No	13	15	

[ns]p > .05 1 = Fisher's exact test 2 = Chi-square test

For religion, the sample consisted of 38 Buddhists and 2 Islams; there was a majority of 19 Buddhists samples and one Islam samples in each group. The majority of the samples were married, 19 samples of the control group and 18 samples of the experimental group; 16 samples of the control group and 17 samples of the experimental group lived with their spouse. As for occupation, seven samples in the

control group and 6 samples of the experimental group worked as employees and the rest were retirees, house workers, agriculturists, government officers, and business owners. Most samples in both groups reimbursed their financial course of care from health insurance/social insurance, and the Thai Government. Accordingly, most of them had no financial problems in the course of care; thirteen samples of the control group and 18 samples of the experimental group. As for experience in being admitted to ICU, about 13 samples in the control group and 15 samples in the experimental group had no experience in being admitted to ICU. The years in education was analyzed by Independent t-test as shown in Table 3. The result showed no statistically significant difference. As indicated in Table 4, religion, financial problem during course of care, and experience in being admitted to ICU were analyzed by Chi-square test. Marital status and occupation were analyzed by Fisher's Exact test. All of them were no statistically significant differences between the control and experimental group in these parameters.

In summary, the characteristics of the experimental group and the control group were very similar. The variables which affect the transfer anxiety of the patients are age, gender, functional class, and type of surgery, all of which were controlled by matching technique. Besides that, the relevant variables which may affect the transfer anxiety of the patients are years in education, religion, marital status, occupation, financial problems during course of care, and experience in being admitted to ICU, were not significantly different between the two groups.

Transfer anxiety scores and related data of Transfer anxiety scores

The transfer anxiety scores and related data of transfer anxiety scores are presented in Table 5 and Table 6.

Table 5. The Transfer anxiety scores of the patients before and after discharged from the ICU in control and experimental groups.

Group	n	Before			After		
		Range	Mean	SD	Range	Mean	SD
Control	20	34-71	49.58	10.28	38-78	52.20	11.35
Experimental	20	33-56	42.85	6.16	34-56	41.25	5.43

The range, mean, and standard deviation of transfer anxiety scores were presented Table 5. The actual range of transfer anxiety scores before and after transfer from the ICU for the control group were 34-71 and 38-78, while those of the experimental group were 33-59 and 34-56, respectively. The mean transfer anxiety scores before and after transfers of the control group were 49.58 and 52.20. The mean transfer anxiety scores before and after transfers of the experimental group were 42.85 and 41.25.

Table 6. Frequency and percentage of the transfer anxiety scores change of patients in control and experimental groups after receiving nursing care (n=20)

Group	Decreased		Increased	
	n	%	n	%
Control	10	50	10	50
Experimental	16	80	4	20

As indicated in Table 6, the transfer-anxiety score of the patients change to decreased and increased in both groups after receiving nursing care. The transfer-anxiety scores were 50% decreased and 50% increased in control group after receiving usual nursing care, whereas 80% decreased and 20% increased in experimental group after receiving the ICU-TPP.

Table 7. Time between Transfer anxiety of the patients before and after discharged from the ICU in control and experimental groups.

Group	n	Range	Mean	SD
Control	20	4-12	7.95	2.09
Experimental	20	4-9	5.40	1.27

The range, mean, and standard deviation of time between Transfer anxiety of the patients before and after discharged from the ICU in control and experimental groups were presented Table 7. The actual range of time between Transfer anxiety of the patients before and after discharged from the ICU in control and experimental groups were 4-12 and 4-9, respectively. The mean of the time between Transfer anxiety of the patients before and after discharged in control and experimental groups were 7.95 and 5.40. The standard deviation of time between Transfer anxiety of them before and after discharged from the ICU in control and experimental groups were 2.09 and 1.27, respectively.

Hypothesis Testing

Hypothesis 1. The first hypothesis stated that before discharge from ICU, the patients in the experimental group who participate in the ICU-TPP would be lower mean transfer anxiety scores than those in the control group who do not participate in the program.

Table 8. Comparison of the mean scores of the transfer anxiety before discharge from ICU between control and experimental groups by Independent t-test. (n=20)

Group	Range	Mean	SD	t
Control	34-71	49.58	10.28	2.42*
Experimental	33-59	42.85	6.16	

*p< 05

The actual range of transfer anxiety scores before transfer out of ICU for the control group were 34-71; while for the experimental group they were 33-59, respectively. The mean scores of transfer anxiety before discharge from the ICU of the control group and experimental group were 49.58 and 42.85. The standard deviation of transfer anxiety before discharge from the ICU of the control group and experimental group were 10.28 and 6.16, respectively. Normal distribution was found when tested by Kolmogorov Smirnov Test of Normality ($p > .05$). Independent t-test as showed in Table 8 showed that the mean score of transfer anxiety scores for the experimental group was significantly lower than that of the control group before discharge from the ICU. Therefore, the hypothesis 1 was supported.

Hypothesis 2. The second hypothesis stated that after discharge from ICU, the patients in the experimental group who participate in the ICU-TPP would be lower mean transfer anxiety scores than those in the control group who do not participate in the program.

Table 9. Comparison of the mean scores of the transfer anxiety after discharge from ICU between control and experimental groups by Wilcoxon Signed Rank test (n=20).

Group	Range	Mean	SD	T
Control	38-78	52.20	11.35	18.00*
Experimental	34-56	41.25	5.43	

*p<.05

The actual range of transfer anxiety scores after discharge from the ICU for the control group were 38-78; while for the experimental group they were 34-56, respectively. The mean scores of transfer anxiety before discharge from the ICU of the control group and experimental group were 52.20 and 41.25. The standard deviation of transfer anxiety before discharge from the ICU of the control group and experimental group were 11.13 and 5.43, respectively. Kolmogorov Smirnov Test of normality ($p < .05$) was used to examine the baseline characteristics of transfer anxiety scores after discharge from ICU of the samples in both groups, and they showed non-normally distributed data. Therefore, Wilcoxon Signed Rank test as shown in Table 9 was used to test the mean transfer anxiety scores after discharge from ICU between two groups. The result reveals that the mean transfer anxiety scores after discharge from ICU for the experimental group was significantly lower than those of the control group ($p<.05$). In conclusion, the hypothesis 2 was supported.

Hypothesis 3. The third hypothesis stated that in experimental group, mean transfer anxiety score of the open-heart surgical patient after discharge from ICU is lower than the mean score before discharge from ICU.

Table 10. Comparison of the mean scores of the transfer anxiety between before and after discharge from the ICU in experimental group by Dependent t-test (n=20)

Experimental Group	Range	Mean	SD	t
Before discharge from ICU	33-59	42.85	6.16	1.75^{ns}
After discharge from ICU	34-56	41.25	5.43	

$^{ns}p > .05$

In the experimental group, the actual range of transfer anxiety scores before discharge from ICU were 33-59; while the transfer anxiety scores after discharge from ICU were 34-56, respectively. The mean scores of transfer anxiety scores before and after discharge from the ICU of the experimental group were 42.85 and 41.25, respectively. The standard deviation of transfer anxiety scores before and after discharge from the ICU of the experimental group were 6.16 and 5.43, respectively. Normal distribution was found when tested by Kolmogorov Smirnov Test of Normality ($p > .05$). Dependent t-test as shown in Table 10 was used to test the mean transfer anxiety scores between before and after discharge from ICU in experimental group. The result revealed that the mean transfer anxiety scores after discharge from ICU were not significantly lower than those before discharge from ICU in the experimental group. In conclusion, the hypothesis 3 was not supported.

The Addition Finding

In the addition finding, samples in both groups had variety day of transfer and removable invasive equipments. These days are not purposed in this study.

As show in Table 10, majority of samples in the experimental group had the day of transfer as PO day2, the day of extubation as PO day1, and the day of discharge chest drain as PO day2. Seventy-five percent for the experimental group had the day of transfer as PO day2, while the control group had only 40%. Ninety-five percent for the experimental group had the day of extubation as PO day1, while the control group had only 5%. Moreover, 80 % for the experimental group had the day of discharge chest drain as PO day2, while the control group had only 20%.

Table 11. Frequency and percentage of the Transfer day, the day of extubation, and the day of discharge Chest drain in both groups.

Day	Control group		Experimental group	
	n	%	n	%
Day of transfer (PO day2)	8	40	15	75
Day of transfer (PO day 3-5)	12	60	5	25
Day of extubation (PO day1)	13	65	19	95
Day of extubation (PO day 2-5)	7	35	1	5
Day of discharge chest drain (PO day2)	6	30	16	80
Day of discharge chest drain (PO day 3-5)	14	70	4	20

n = 20 for each group

CHAPTER 5
DISCUSSION

The objective of this study was to test effects of the ICU transfer preparation program (ICU-TPP) on reducing transfer anxiety in open-heart surgery patients. The results of the study showed the favorable effects of ICU-TPP on patients' transfer anxiety. This chapter will present the details of the discussion related to characteristics of the sample and the effects of the ICU-TPP.

Characteristics of the Sample

This present study found that the majority of samples in both groups were male. This is similar to reports in other studies (Bergmann et al., 2000; Cupples, 1990; Pennock et all., 1994; Pignay-Demaria, 2003). The evidence leads us to believe that a high proportion of males had heart diseases. Statistics Department of Pramongkutklao (2003) reported that males have 4 times more of open-heart surgery (OHS) than females. The mean age was 51.80 years in the control group and 52.20 years in the experimental group. The largest group of samples in this study was in an older group (61-80 years). This result is similar to reports in some studies (Kalmar & Irrgang, 2000; Parry, 1994; Thulin & Sjogren, 1998), which reported that the OHS patients were in elderly groups. Their reports stated that the proportion of older patients in cardiac surgery who were transfer from ICU is continuously increasing because of demographic changes and new developments in heart surgical technology.

Effects of the ICU transferred preparation program

The evidence from this study has shown that the patients' anxiety before and after discharge from ICU to general ward significantly decreased after implementation of the ICU-TPP, and there was directional (but not significant) support that the patients' anxiety after discharge from ICU lower than before discharge in experimental group. These findings are consistent with study result of Poe (1982) found that subjects who received structured teaching program for transfer from ICU reported statistically

significant decrease in stress level as less anxious as measured by psychological parameter of perceived stress, than subjects who did not received the program. Similarly finding, De-Wit et al. (1996) reported that subjects undergoing heart surgery who received extensive preparation for cardiac surgery had a positive effect on physical well being and anxiety, and Toth (1980: 32), who found that subjects who received structured preparation program for transfer from coronary care unit (CCU) reported less anxious as measured by heart rate and blood pressure the day of transfer, than subjects who did not received structured preparation program. The finding of the directional (but not significant) support that the patients' anxiety after discharge from ICU lower than before discharge in experimental group is confirms earlier findings by MaKellaig (1987) and Anderson (1982), that patients who are specifically prepared before transfer respond better following transfer. These findings can be explained as follow:

On the transferring day, the patients were discharged from the ICU to general ward, the patients had to confront with many stressful experiences or antecedent of transfer anxiety such as, little or no preparation for transfer, disruption interpersonal relationship, lack of monitoring devices, change in care routine, lack of monitoring devices, and lack of predictability of the new environment. These experiences may increase patients' anxiety. Some studies (McKinney and Deeny, 2002; Odell, 2000) have shown that patients who transfer from the ICU are perceived in a mixture of positive and negative feelings. All of patient was admitted to ICU and required specialty intensive care for life saving. Some patients think the ICU as a place of safety that brings a sense of security (Compton 1991; Robert, 1976). They considered their discharge from ICU as stimuli which confronted with the stressful experiences of transfer. It was perceived as threatening for them. In contrast, many patients think discharge from the ICU as a positive step in terms of physical well being. This confirms earlier findings by Green (1996) and Leith (1999) for many individuals perceived that transfer from the ICU as a positive step and a welcome sign towards recovery. Patients' anxiety became less and their physical ability improved after discharge from the ICU. These patients stated that they felt better and trusted their physicians and nurses who cared for them. However, there were some patients develop

negative perception if inadequate preparation for discharge from ICU. Many patients may have psychological and physiological problems after ICU, which can affect their recovery and physical ability. Several studies (Casem & Hackett, 1973; Culter & Gardner, 1995; Daffurn et al., 1994; Hall-Smith et al., 1997; Klein et al., 1968; Minckley et al., 1979; Owen et al., 1992; Saarman, 1993) have shown that patients transferring from ICU to general ward reported a variety of suffering physical (e.g., sleeping difficulties, tiredness, and breathlessness) and psychological problem (e.g., stress, anxiety, depression, irritability or loneliness). Patients might be in a state of disequilibrium caused by transfer anxiety.

Moreover transfer anxiety appears to be related to uncertainty caused by transferring from familiar environment and personnel, in the ICU which leads to onset of stress and a potential decrease in coping abilities. Those stressful experiences consist of personal and environmental factors which can lead to potential stress, such as little or no preparation for transfer, lack of opportunity for closure with the ICU staff, sudden reduction in monitors at the time of transfer, lack of explanation of differences between the ICU and general ward, and sudden change care-providers. These factors can occur in isolation or in combination and lead to the patients' experiencing an uncertainty of the change in environment, change in routine, and/or lack of monitoring devices. Based on Lazarus's Model (1984), the patients perceived the uncertain event as stressful. The patients' anxiety does occur. They begin thinking about and focusing on how to alleviate their stress by emotionally-focused coping and problem-focused coping. After that, they place the demands on themselves based on their responses to their attempts to cope with these stresses on uncertainty. This involves a continuous process of appraisal and coping with stress. In this process, the patients must continually seek new ways of coping and re-appraisal until they find effective ways of coping that reduce their anxiety levels. In the transfer process, the appraisal and coping is a dynamic process while the continuity and consistencies of care were broken by the transfer from ICU. These are negative effect for the patients who were discharge from ICU. Thus, the patients' anxiety and the affects of such still remain if the transfer process cannot be redesigned in order to reduce the patients stress.

This research was aimed to decrease the transfer anxiety in OHS patients by promoting the readiness of transfer. This promoting were designed in order to reduce the anxiety by limitation of antecedent for transfer anxiety, helping the patients to construct a cognitive meaning for illness-related transfer events, and enhancement of patients' ability to appraise the transfer situation sufficient to overcome the threat. According to the stress and coping of Lazarus Model (Lazarus & Cohen, 1977; Lazarus & Folkman, 1984), the goals are to improved potential stressors and patients' coping mechanism. Altering personal and environment factors can enhances the ability of the person's coping mechanisms to respond positively, and the result is benign positive. Opened-heart surgery patients who have critical state and discharge from ICU required considerable readiness of transfer both physical and psychological aspects. Several demands include helping the patients to perform physical ambulation, control the antecedent for transfer anxiety (potential reasons or stressful experiences for transfer), decrease the experience of uncertainty of illness, build or enhance the feeling of patient's safety before transferring, and continuity care for the patients during and after transfer.

The ICU-TPP was developed based on literature review about nursing interventions for transfer anxiety and adds up with the continuity of care (critical pathway and discharge planning) and primarily aimed to decrease the transfer anxiety in OHS patients who discharge from ICU. It was developed to promote positive responses and to convert negative perception of the patients for transfer out of ICU. The content of the ICU-TPP consisted of information and interventions in three sessions (PO Day_0, PO Day_1, and PO $Day_{2)}$ through the use of the critical pathway and discharge planning following instruction content guideline by means of pamphlets and booklet. The patients and family members received information and interventions continuously following sequences in critical pathway. The patients and family members were prepared the readiness of transfer by information and intervention given to build or enhance the trust for the nursing staff, the ability to control self and environment, the ability to expect the next situation, the difference of care between the ICU and ward, and the feeling of safety for the patient in transfer process. Providing information pamphlets and booklets was one component in the pathway. From

previous research, it has been found that the preparatory information before transfer is an important instrument for transfer anxiety reduction (Anderson, 1982: 185). The information and intervention relating to potential ICU discharge needs of the OHS group were developed and were also in discharge planning which was used to prepare the patients' physical and psychological for the next phase -- giving information and intervention through the critical pathway, as well as decreasing the gap of care between the ICU and ward. The findings of this study lead us to believe that this program would lead to an improvement in patients' anxiety before and after discharge from the ICU. The program promotes the readiness of transfer both physical and psychological aspects, while usual care focus on physical aspect.

Usual care focusing on physical care was given to the control group. In this group, the patients also received conventional nursing care similarly to the experimental group. They were given the routine information when underwent OHS by staff nurses that was usually focused on physical care, but the provision of rehabilitation and postoperative information was unstructured format. Each nurse provided the information based on her own background, knowledge, and experience, so the patients might not have been received comprehensive information. The family also received the pamphlet for introducing the ICU after the patients were admitted in ICU. In addition, with shortened ICU length of stay in this study, the patients' staying in the ICU ranged from 3-5 day (approximately 4 days), the patients may not be complete recovery and ICU nurse have limited time to prepare the patients for transferring from the ICU. Thus, the patients may have many problems in process of transfer.

Additionally, for those receiving only usual nursing care, the evidence have shown that the subjects in the control group were reported the highest anxiety scores before discharge from the ICU (Max = 71) and after discharge from the ICU (Max = 78) (Table 5). The data also showed that the transfer-anxiety score in the control group were 50% decreased and 50% increased, whereas those in the experimental group were 80% decreased and 20% increased (Table 6). One possible explanation is that the patients in the control group had potential stress to transfer and received ineffective information and intervention to reduce their anxiety for transfer from the ICU. Thus,

some of them were developed high anxiety score. The increasing anxiety decreased learning and problem-solving abilities. Thus, the patients needed further support from others. It was considered that ten subjects (50%) in the control group had increasing anxiety scores, such that their learning capacity was greatly diminished. They were unable to focus on the event generating the anxiety. Their physiological and psychological integrity were seriously affected. Increasing anxiety scores and prolonged anxiety can prove lethal to the human system (Sharon, In Taylor, Ed., 1994: 204). The OHS patients had clinically relevant level of anxiety and suffer cognitive dysfunction after surgery. Several studies (Allen, 1990; Gillis et al., 1993; King, 1985; Moore, 1994) have reported that physiological and psychological distress of both patients and family members after open-heart surgery. Therefore, it might be confirmed that besides the appropriate psychological care, the patients tended to have psychological morbidity as the result of postoperative escalating anxiety. Thus, the patients needed further support from others.

In the experimental group, the patients confronted similar conditions in the control group. The program was given to each patient by the researcher continuously during stay in the ICU and once after transfer out of ICU. Throughout this period, three sessions of giving information and interventions were provided for the patients and their family members. The first session, which was on surgery day (PO day 0), was provided when patients began to awake and after full consciousness. The second session, which was on PO day1, was provided after extubation. And the third session, which was on PO day2, was provided in the morning of transfer day, during transfer, and finally after transfer to ward. In the morning of transfer day, once the patients received information and intervention, transfer-anxiety before transfer was assessed. Therefore, transfer-anxiety was assessed after ending the visiting phase. The information and intervention in each session involved the progress of each stage and made the patients understand the steps and duration of maintenance. After the patients awoke, they received introduction from the provider to develop trust. Having faith and trust in the providers of the information is crucial to reducing feelings of uncertainty. After that, the patients received information about the next upcoming situation, self and environmental control, and transfer plan in advance, ICU and ward

comparison; thus appraised that safe for them. Every patient expressed appreciation to engage in the program. The majority of them said that this program is useful for understanding about the environment and situations around them and predict which situations will occur next.

One possible explanation is that the patients in the experimental group also received conventional had potential stress to transfer similarly to the control group and received effective the ICU-TPP to reduce the anxiety before and after discharge from the ICU. Thus, majority of them had decreased anxiety score and expressed positive feeling about transfer. Thus, the patient's anxiety would decrease because: (1) their antecedent or potential factors that may lead the anxiety were eliminated or controlled; (2) their experience of uncertainty was managed; (3) their coping resources were enhanced; and (4) patients received quality and continuing of care.

In the current study, the finding that subjects who participated in the ICU-TPP had lower transfer anxiety scores both before and after discharge from the ICU. Moreover, sixteen subjects (80%) in the experimental group had decreasing anxiety scores (Table 6), such that their learning and problem-solving ability was greatly increases. Furthermore, the evidence have shown that the subjects in this group were reported the lowest anxiety scores before discharge from the ICU (Min = 33) and after discharge from the ICU (Min = 34) (Table 5). Patients with a mild anxiety level can make logical connections between events and feel safe and comfortable (Konenberger, In Carson & Arnold, Eds., 1996: 695; Molloy, in Fortinash & Holoday-Worret, EDS., 2000: 232). Furthermore, the evidence have shown that the subjects in this group were reported the lowest anxiety scores before discharge from the ICU (Min = 33) and after discharge from the ICU (Min = 34) (Table 5). These effects of the program can be explained based on four reasons as follow.

The first reason, the most prominent antecedent or the great potential reasons that may lead to the patients' anxiety were eliminated by receiving adequate preparatory information before transfer. Moreover, the other potential stressors for anxiety related to transfer from the ICU were eliminated and/or modified in order to prevent these stressors. The various factors that may lead to relocation stress need to be addressed in order to prevent or reduce this experience (Mackinney & Melby, 2002:

152). The information contents on the first were informed by early and format teaching about weaning patients from nurse-patient relationship, up dates of clinical data, transfer plan on the critical pathway, comparing and contrasting ICU and the ward, transfer during day time, and avoiding transfer during change-of-shift rotations. Transfer anxiety can be reduced by early and adequate preparation for transfer (Bouve et al., 1999).

The second reason, experience of uncertainty, was clarified by consistent information and intervention following instruction contents guideline, such as: informing the patient about the results of the surgery and limitations after surgery; a list of invasive devices and their effects; new general ward; presenting staying in ICU as temporally; comparing and contrasting ICU and general ward; and weaning the patient from use of machines and equipment. Consistent information and education from a credible authority reduces uncertainty by assisting in the interpretation of the pattern of symptoms, and to understand and predict situational treatment as, or before, they arise (Mishel & Braden, 1988).

The third reason, information and intervention in the ICU-TPP that always enhanced coping resources are such as: presenting transfer as a sign of progress; encouraging patients ' verbalization and questions; encouraging patients' self esteem; encouraging breathing exercises; involving patient's family with transfer; having ICU nurse care for the patient during transfer; introducing patient to receiving nurse; and building the patient's chance to meet the ward nurse. Coping resources help determine how the patients experience an event (Mackinney & Melby, 2002: 152) and useful coping resources help them effectively cope. In other words, improvement in their problem-solving skills, positive beliefs, and social support made their coping behavior more effective (Lazarus & Folkman, 1984: 157-164). Moreover, after patients were extubated, the researcher had an opportunity to share the patients' feelings and actively listen to them by encouraging their verbalization and questions. The patients were able to raise problems and understand the correct situations that decrease an uncertainty experience and anxiety.

The contents in this part of the program should be appropriate, correct, and precise, and should serve the patients' needs by enabling them to receive knowledge

and understand the real situation before and after discharge from the ICU. This method decreases the imagination or the prediction that is not corrected and decreases the sense of insecurity or uncertainty in some patients. Furthermore, the information and intervention helped patients learn, and identify problem-solving more effectively, which can lead to positive behavioral change, personal growth and development, and effective coping. These contents helped the patients' and their family members cope successfully by enhancing feelings of safety, enhancing the ability to expect in new event, enhancing the ability to control self and environment, and to establish continuance of care between ICU and ward. Similarly, Thoits (1986: 417-419) suggested that information support can help a person cope with problem-focused coping to change or manage the crisis situation and attempt to alter meaningful aspects or to enhance the understanding of the situation. The information related to real situation forces and uncertain feelings decrease. This information and intervention to decrease patients' anxiety after transfer can be shared in a variety of methods.

In addition, the information pamphlet or booklets could help the patients and family to understand and remember verbal information from teaching in a short time. The information pamphlet inform patients for the family about patient's operation, for the patient about the transfer from the ICU to general ward, and the booklet for the patients about self-care recovery and preparing for hospital discharge. Patients and their families could to know what to expect on a general ward. Written information that is readily available to patients and their families helps resolve the problem about transfer out of the ICU. Some studies (Maillet et al., 1993; Paul, 2004) revealed that information booklet was one strategy for decreasing anxiety in ICU transfer patients and their families and one study showed that booklet designed to inform patients and their families about activity and rehabilitation following cardiac surgery made helpful in answering their questions on the topic (Waitkoff & Imburgia, 1990).

And the fourth reason, these patients had provided the quality of care by recovery of physical and psychological aspects for quality of care through critical pathway, and patients received continuing of care through ICU discharge planning implementation. Critical pathway increased quality of care, which in turn, improved physical health status. The pathway would help staff identify universal and individual

goals and assist in maintaining patients' progression at an optimal rate. It is a viable tool for enhancing patient care and optimizing resources used. Several studies revealed that using critical pathway and specific protocols improved the quality of care for OHS (Brown et al., 1998: 32; Griffith et al., 1996: 346; Josephine et al., 1997: 127). In the patient's perception, quality of life or quality of care decreased could be associated with anxiety increase (Leith, 1998: 26). ICU-discharge planning was developed for reduction of the patients' anxiety by making discharge planning part of critical pathway. The information and intervention in the program was inserted in this part. It was associated with potential discharge needs for anxiety reduction after transfer out of the ICU. Currently there is no research about ICU-discharge planning to reduce anxiety after transfer out of the ICU. However, discharge planning is a part of the continuity of care process that is designed to prepare the patient for the next phase of care and to assist in making any necessary arrangements for the phase of care (ANA, 1975:10). Ensuring continuity of care has also been advocated as helpful in reduction transfer-anxiety (Hall-Smith et al., 1997; Wesson, 1997). In this study patients' needs that were related to transfer anxiety were met by discharge planning concept.

Furthermore, having ICU nurse care during transfer, introducing patient to receiving nurse (nurse at ward), and allowing ICU nurse follow-up patients after transfer could help the patients confront with encountering the problems resulting in decreased stress and anxiety after discharge from the ICU. For three situations, the researcher and the patient had time to discuss their need about transfer. Moreover, the individual approach made the research and the patients feel closer to each other, and also the researcher could clarify stressful events of transfer to positive response. Thus, as stated by Harkulich & Brugler, (1988), introducing patient to expectations of person in new environments could help the patient to received health teaching and referrals, as their need after transfer. Visiting the patient after transfer from the ICU would ensure assessment of the patients' adjustment to transfer and would help to clarify events and promote realistic expectations about convalescing from the ICU (McKinney & Melby (1997). Some studies (Klein et al., 1968; Miracle, 1986) revealed that visiting from ICU nurse give a great psychological boost to the patients who have

been transferred to the general ward. This promotes continuity of care and reduces the effect of the transition into a strange environment.

However, the result seem inconsistent with our last hypothesis that in experimental group, mean transfer anxiety score of the patient after discharge from ICU is lower than the mean score before discharge from ICU. It was directional (but not significant) support that the patients' anxiety after discharge from ICU lower than before discharge in experimental group (Table 10).

In the current study, it was considered that information and intervention provided to subjects after discharged were ineffective in making a difference from before discharged out of ICU because not difference existed in the mean anxiety score of the patients who participated in the program before and after discharge from ICU. During data were collected in the experimental group, there was a change in situation in the general ward. The new graduate nurses were fixing the general wards in March, and some time they were receiving nurse who could not coordinated with researcher for the introducing. It might be explained that there was not effective coordination among providers. Moreover, during visiting the patient after transfer, two general surgical patients from general wards who discharged from ICU in 24 hours were readmitted in ICU for shock and required intensive treatment for life-saving. Crisis situation for resuscitate patients in general ward might be effected to another patients. The subjects in the general ward of experimental group might be in a state of disequilibrium caused by appraises these situations as threatening. These events may effect to validity of the current study.

This significant finding suggests that the value of the experimental intervention is based on the combination of theories among Separate anxiety theory, Uncertainty in illness theory, and Stress appraisal, and coping theory. Since focus of the intervention include controlled separate anxiety by eliminating or modifying potential factors for transfer anxiety, decreasing uncertainty in illness by enhancing abilities to expect in new event or predictability of symptoms related to an illness, and improving coping behavior, are more effective (with improvement in problem-solving skills, positive beliefs, and coping resources). This result could enhance the congruence of the patients' expectations and care they had received, which consequently enhance the patients' physical ambulation.

Verbatim comments from patients who were in the experimental group include, “The program is useful for me. You provided important information which I need to know.” “I worry about activities after discharge from the ICU.” “The pre-transfer teaching, instruction booklet and pamphlet were very helpful.” “I would like you to support this program for the other patients.”

In conclusion, the effectiveness of the ICU Transfer-Preparation Program on transfer anxiety reduction are consist of 3 potential factors as follows: (1) continuity of care, (2) collaboration of the care provider team, and (3) involvement of patient’s family with health care. These can decrease the patients’ transfer anxiety before and after discharge from the ICU.

Threat to validity

Throughout the collecting data, the researcher recorded historical events. The cardio-thoracic residents who practice in study setting were rotating every month. During intervention in the experimental group, there were change in situations in the ICU and general ward: the floor of ICU was repaired in February; the patients were moved to another area, two general surgical patients from general wards were readmitted in ICU and required intensive septic shock treatment for life-saving, the new graduate nurses were recruited to work in the general wards in March. These events may threat to validity of the current study.

Limitation of this study

1. The subjects of OHS patients can not assess anxiety before intervention because all of OHS patients were not reverse from anesthesia.
2. The researcher was one of the nurses who provided the ICU-TPP therefore the result bias may be occurred.

CHAPTER 6
CONCLUSION

Summary of the study

This quasi-experimental study was conducted to ascertain the effects of the Intensive care unit transfer-preparation program (ICU-TPP) on transfer anxiety for open-heart surgery patients. Stress appraisal, and coping theory were used as the conceptual framework of the study. A sample for this study included 40 open-heart surgery patients recruited from the Out-Patient Department (OPD) and In-patient Cardiothoracic ward, in a tertiary care hospital located in metropolitan Bangkok, Thailand. The data was collected from July 2001 to April 2002. A total of 40 samples were selected based on the inclusion criteria and matching technique. The inclusion criteria for sample were open-heart surgical patients who: (1) were between 20-80 years; (2) were undergoing open-heart surgery for the first time; (3) were able to communicate in Thai; (4) had no previous psychosis or neurosis; and (5) agreed to participate in the study. The sample was divided into two groups; an experimental and a control group (20 cases in each group). The subjects in the control group received only the conventional nursing care provided by staff nurses and the usual follow-up care after discharge from the hospital. On the other hand, the experimental group received ICU transfer-preparation program plus usual care. The researcher placed the first 20 patients into a control group and placed the remaining 20 patients into an experimental group to prevent contamination between groups. The samples were selected on a purposive sampling basis and divided into two groups by match pairs on criteria of age, gender, severity of disease (Functional class), and type of surgery of the patient.

Instruments

The instrument was composed of two types: the intervention program (ICU-TPP) and data collection instruments. The content validity of the ICU-TPP and data collection instruments was determined by five experts; three critical care staff nurses and two critical care nursing teachers. The instrument was revised following the experts' suggestion.

Intervention program included:

1. Intensive care unit transfer-preparation program (ICU-TPP) was developed based on the combination of theories among Separate anxiety theory, Uncertainty in illness theory, and Stress appraisal, and coping theory and a review of related literature on concept of transfer anxiety, nursing interventions for transfer anxiety, critical pathway, and discharge planning. This was a program that provided information to improve transfer anxiety on transfer event by teaching, skill training, and discussion with patients and their family.

2. Critical pathway that includes discharge planning for Open-heart surgery of Pramongkutkalo Hospital. This was a frame of the ICU-TPP that provided the care in seven aspects as follow: assessment; diagnostic; intervention; nutrition; medication; activity; and information. It was developed by multidisplinary team of patient care team of surgery department of Pramongkutkalo Hospital.

3. The instruction content guideline and handbook for the researcher and research assistant (who were a program providers) were develop by the researcher. This instruction content guideline was used as a guideline of all aspects of the patient information contents and intervention protocols that ensured the same instruction protocol for all the samples. Detail of how to use the program was stated in handbook of the ICU-TPP using for program provider

4. Pamphlet and booklet for the patients and their family about operation, transfer from the ICU to ward, and self-care after operation were developed by the researcher. The content was drawn from text books, journals, and recent studies. The pamphlets and booklet corresponded to the written material for teaching, which was distributed to samples for review and practice at general ward and home. Two pamphlets and one booklet used in this study are as follows: (1) a pamphlet for the

family about the patient's operation; (2) a pamphlet for the patients about the transfer from the ICU to general ward; and (3) a booklet for the patients about self-care for recovery and preparation for hospital discharge

Data collection instruments included:

1. Demographic data questionnaire
2. Pre-Post Transfer Anxiety Inventory (PP-TAI) was developed by the researcher was used to determine the transfer anxiety level before and after transfer from the ICU (within 8 hours). The PP-TAI has two forms: Pre Transfer Anxiety Inventory (Pre-TAI), used to determine the transfer anxiety level before transfer and Post Transfer Anxiety Inventory (Post-TAI), used to determine the transfer anxiety level after transfer. Time determined between the transfer anxiety with Pre-TAI and Post-TAI is at least 4 hours. Internal consistency reliability was measure by Cronbach's alpha. When used in this study with 40 patients before and after discharge from the ICU, Cronbach's alpha were .80 for Pre-TAI and .93 for Post-TAI.

Data collection

Data collection was first started with the control group. Afterward data were collected from the experimental group. This was designed to prevent contamination of nursing care and to avoid causing unnecessary feeling of inequality or unfairness in case a comparison between the two groups was made. All subjects in both groups were approached and explained about research objectives and data collection procedures. The protection of human rights was ensured, and the informed consent forms were read and signed by the patients prior to their participation in the study. All data were collected by direct assessment due to the set of criteria, as well as semi-structured interviewing based on the questionnaires by Data collector. Demographic questionnaires were collected first and then the PP-TAI questionnaires Forms by Data collector. The anxiety scores before and transfer were collected with the same PP-TAI form Pre -TAI, and Post-TAI on post-operative day2 (transfer day).

The usual care focusing on physical care was provided given to the control group. In this group, the patients also received the routine information when underwent OHS by staff nurses that was usually focused on physical care, but the

provision of rehabilitation and postoperative information was unstructured format. Each nurse provided the information based on her own background, knowledge, and experience, so the patients might not have been received comprehensive information. The family also received the pamphlet for introducing the ICU after the patients were admitted in ICU.

An intervention program or ICU-TPP was provided beginning at admission to the ICU and continued throughout the stay, during transfer and visiting, and after transfer. The content of the program consists of three sessions: postoperative day 0 (PO Day_0), postoperative day 1 (PO Day_1), and postoperative day 2 (PO Day_2). The sessions of PO Day_2 consists of two phases: transfer and visiting after transfer. These sessions fill in the critical pathway of the part of discharge planning. The session of PO Day_0: was the period that the patients were admitted to the ICU after surgery on surgery day. The content focuses on initially preparing the patient and family for the postoperative consequence. The content includes: (1) results of the surgery and limitations after surgery; (2) a list of invasive devices and their effects; (3) from admission in the ICU to present stay in ICU, as temporally; (4) time for patient visitation in the ICU; (5) admission procedures and routines; and (6) an instruction pamphlet for the family about patient's operation and transfer process. All of-these contents were provided for the patients after operation on surgery day (post operative day 0) and patients were informed of contents 1 to 3 when beginning to awake, and 3 to 6 were provided for patients after full consciousness.

After being admitted to ICU one day, the contents in session PO Day_1 were prepared for the patients to transfer out of the ICU. The content focuses on maintenance of patients' ability to expect situation in the next, information to decrease patients' experience of uncertainty in illness, and building or enhancing the feelings of the patients' safety before transfer. These contents and activities include: (1) keeping patient up to date with clinical data after extubation; (2) encouraging patients' verbalization and questions after extubation; (3) encouraging breathing exercises with incentive spirometry; (4) presenting transfer as a sign of progress; (5) informing patient and family about transfer plan on the critical pathway; (6) explaining rationale, function and weaning of monitor and equipment; (7) weaning patient from nurse-

patient relationship before transfer; (8) informing patient and family of events in a next step about activity, controlling pain, medication, diets, and lab test / treatment; (9) encouraging patients' self esteem; and (10) providing an instruction pamphlet for the patient about transfer from the ICU to general ward. All of-these contents were provided for the patients on post-operative day 1; patients were informed of contents of 1 to 3 after extubation, and patient and family were informed of 4 to 10 during the patients visitation in the ICU.

PO day2 session was divided into two phases: transfer and visiting phase after transfer. Phase of transfer was the first phase, the teaching focuses on building or enhancing patient's ability to control physiological and situational causes of the antecedent for transfer anxiety, building or enhancing the feelings of safety to the patient before transfer, and building or enhancing continuing care for the patients during transfer. For visiting after transfer, the content and activities include: (1) weaning patient from use of monitors and equipment before transfer; (2) comparing and contrasting ICU and general ward; (3) involving patient's family with transfer; (4) providing the chance for patient to meet ward nurse; (5) transfer during day time and avoiding transfer during routine time or time of nurse shift rotation; (6) having ICU nurse care for the patient during transfer; and (7) introducing patient to receiving nurse. All of-these contents were provided for the patients and family on post-operative day 2, patients were informed of contents 1 to 5 for about 30 minutes in the morning of transfer day, and contents 6 and 7 were provided for patients and family during transfer from the ICU to general ward.

After transfer from ICU to general ward, the contents in the visiting phase were provided for the patients. These contents focus on continuing of care for the patients. Contents and activities include: (1) ICU nurse visiting patients after transfer and informing the patients of self-care in receiving ward; and (2) Instruction booklet about recovery given to the patient and preparation for hospital discharge. ICU nurse visiting patients after transfer (every 4 hours within the first 8 hrs after transfer). Many media were utilized in the program, including: Critical pathway and discharge planning of the program, instruction content guideline, one instruction booklet and two pamphlets, and handbook for using the provider's program.

Data Analysis

Data were then analyzed by using the computer package for Window Program. The finding can be summarized as follows:

1. Before discharge from ICU, the patients who participated in the ICU-TPP would have the mean anxiety scores for experimental group significantly lower than the control ($p < .05$).

2. After discharge from ICU, the patients who participated in the ICU-TPP would have the mean anxiety scores for experimental group significantly lower than the control group after discharge from ICU ($p < .05$).

3. In experimental group, mean transfer anxiety score of the patients after discharge from ICU would not have significantly lower than the mean score before discharge from ICU ($p > .05$).

Limitations

1. In this study, data collection began with the control group before proceeding to the experimental group. This designed was selected to prevent the contamination of the intervention to the control group. During this study, the Intensive care unit was repaired and moved to another area, the new graduate nurses were fixing the general wards in March, and the cardio-thoracic residents who practice in study setting were rotating every month. However, despite such attempt, the researcher could not totally control the subjects' exposure to the information as other staff nurses may offer instructions to the subjects. It was not assured that the variables in both groups might be affected of patients' anxiety by the different situations.

2. The subjects were not selected by random sampling. As such, the results cannot be generalized for other populations. However, match pair technique and statistical test were use to proved the homogeneity of the subjects in the control and the experimental groups. The results of statistical test revealed that the subjects in the control and the experimental groups were not significantly different ($p> .05$).

3. Before providing the program, the study was unable to determine individual states of anxiety of the subjects who were not measure anxiety before intervention because they were not reverse from anesthesia.

Recommendations

The finding of this study provide several implications for the nursing profession including nursing practice, nursing administration, nursing education, and nursing research.

Implications for nursing practice and administration

The findings of this study demonstrate that ICU-transfer preparation program is an effective strategy that can reduce transfer anxiety in OHS patients. The implications of these findings are as follows:

1. Critical care nurses should provide the continuity of care such as, critical pathway, discharge planning, and case manager that manage care follow the critical pathway in order to assess and facilitate adjustment through the process of transfer.

2. The continuity of care must be collaborative among care provider team. Therefore, enhance collaborative among care provider team on the continuity of care that will bridge the current gap in care. It is the independent role that critical care nurses and receiving ward nurses have to perform in order to promote both holistic care and patients' quality of life.

3. The family involvement with transfer have shown to be beneficial in helping patients to reduce anxiety during transfer. Thus, critical care nurses should enhance family involvement with transfer in the transfer process.

4. The development of pamphlets and booklet explaining common experiences before and after discharge have shown to be beneficial in helping patients and families retain and review information given. Therefore, these pamphlets and booklet should be developed to use in the process of the transfer.

5. To implement the ICU-TPP as a guideline for practice, nurse administrator and their staff nurses should consider the possibilities and the benefit of interventions after discharge from the ICU (having ICU nurse care for the patient during transfer, introducing patient to receiving nurse, ICU nurse visits patient after transfer, and preparing patient for hospital discharge and giving an instruction booklet about the recovery). Based on these interventions, anxiety score of the patients after discharge from ICU would not have significantly lower than anxiety score before discharge.

6. The result of the comparison of the mean scores of the transfer anxiety between before and after discharge from the ICU revealed that the mean transfer anxiety scores after discharge from ICU were not significantly lower than those before discharge from ICU in the experimental group. Therefore, nursing personnel at ward should develop the specific intervention for patients after discharge from the ICU to minimize anxiety score.

The results of this study revealed that the ICU-TPP that combines information for transfer-anxiety reduction, critical pathway, and ICU discharge planning for the patients who underwent open-heart surgery provides effective outcomes. Therefore, this program should combine with the conventional nursing care. Moreover, it could make a contribution to nursing practice by serving as a instruction contents guideline for researcher and assistant to caring the OHS patients.

Implications for nursing research

1. The present study was conducted with open-heart surgery patients and was limited by sample size and purposive sampling; thus, the findings of the study might not be generalizable to other groups of the subjects. Thus, similar studies should be carried out of at other hospitals, to confirm the effectiveness of the ICU-TPP. Furthermore, time sequence design in more time should be used for collection of data from the PP-TAI

2. Longitudinal studies should be performed to determine the effects of the ICU-TPP of elderly patients undergoing open-heart surgery on patients' transfer anxiety, postoperative recovery, length of stay in hospital, and satisfaction. From this study, the researcher found that elderly patients aged 70 years or older who receive diuretic drug had difficulty in understanding the instruction contents guideline and instruction pamphlet/booklet because their hearing decrease. The researcher spent a great deal of time to clarify the instruction and the format to elderly patients. Therefore, the investigators should become aware of potential difficulties when using the program in this group.

3. It is important to identify the factors that patients perceive as causing or contributing to transfer anxiety, so that these can be more adequately addressed.

Further research on what the experience of transfer means to critical care patients and what effect it has during the immediate post-transfer period also needs to be conducted.

Implications for nursing education

The role of professional nurse has changed over the years. At present, nurses are charged with the responsibility for not only providing quality care for the patients and their family in hospital, but also performing needed continuity caring at general ward after discharge from the ICU. Moreover, an awareness of using critical pathway and discharge planning for specialty patient group that can lead to the quality and continuity of care for the patients should be emphasized to student nurses as well as staff nurses. Teaching and skill training for use critical pathway and assess potential discharge needs also should be included in continuing education for staff nurses who work with the OHS patients and their families.

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APPENDIX

Appendix A

The ICU-Transfer preparation program

Aspect of care / Day	Desired outcome	Assessment	Diagnostic	Intervention	Nutrition	Medication	Activity	**Discharge planning and Information patients&families** (The session of post-operative day0)
Post-op Day 0 (Surgery day)	■ *Hemodynamic stability* ■ *Absence of* *- Cardiac tamponade* *- Barotrauma / Pneumothorax* *- Surgical / Medical massive bleeding* ■ *Absence of Medically significant* *- Pul. Infiltrate* *- Pulmonary effusion* *- Pul. Edema* ■ *Pain well managed* ■ *Decrease vaso-active drug slowly* ■ *Tolerating liquids and diet* ■ *Swallow without aspiration* ■ *ICU Discharge preparations Pt & Family ready for Transfer off ICU*	*- General Appearance* *- VS , Urine q 2 hrs / PRN* *- Body temp q 4 hrs* *- CVP, Dias PAP, PCWP q4 hr/ PRN* *- I &O q 8 hrs* *- Record Tracing abnormal EKG / PRN* *- Assess Wound/ Line /Drain* *- Assess pain q 4 hrs / using pain scale 0-10* *- Resp. pattern* *- SpO2 q 2-4 hrs keep>92%* *- Check Lung sound* *- Side effect of drugs overdose*	*Stat post-op* *- CBC , Plt count , Coag ,CBG , BUN, Cr, Electrolyte ,Ca stat* *- CXR portable stat* *- 12 leads EKG stat* *- ABG as indicate* *Then..* *- BUN, Cr ,Electrolyte, Coag q 4 hrs x 2* *- Hct ,CBG q 6 hrs* *- ABG as indicate* *- Digoxin level as indicate* *- Cardiac enzyme as indicate*	*- Rewarm/ Keep warm (hyperthermia)* *- Ventilator&Suction per protocol* *- Ventilator support at least 4-6 hrs post-op untill stable* *- Supine until hemodynamic stable* *- Wean / Extubate within 12 ± 6 hrs post arrival to ICU* *- Chest tube to 20cmH_2o suction* *- Milking chest tube q 1 hr and PRN In 8 hrs post arrival to ICU* *- Blood/Volume replacement* *- Maintain Mean BP >70mmHg* *- NG-Tube to gravity* *- Temporary Pacer as indicate* *- Wound care* *- Foley cath. Care* *- Pain management*	*- NPO* *- 5%D/ N/2, 5%D/ W (Depends on Na in lab)*	*- IV Inotropic Drugs* *- IV Vasoactive Drugs* *- IV maintain fluid* *- IV Antibiotic x 24hrs* *- K^+ Replacement if indicate* *- IV Med. For pain: Morphine 3-5 mg IV PRN q 4 hrs*	*- Supine / Bed rest* *- Head up to 30° if hemodynamic stable* *- Sit in bed if without sitting-hypotention (BP > 100/60mmHg / Sitting position)*	**Informed upon awaking from anesthesia** Result of surgery and limitations after surgery List of invasive devices & their effects **Informed Patient after gaining full consciousness** Introducing the nurse who cares for the patients Orient to ICU, Unit routine, Staff in ICU Notification from admission to present stay in ICU as temporary Instruction pamphlet to family about patient's operation and transfer process

Aspect of care / Day		Desired outcome	Assessment	Diagnostic	Intervention	Nutrition	Medication	Activity	Discharge planning and Information patients&families (The session of post-operative day1)
Post-op Day 1	*Post extubation*	■ *Hemodynamic stability* ■ *Absence of* *- Cardiac tamponade* *- Barotrauma / Pneumothorax* *- Medical massive bleeding* ■ *Absence of Medically significant* *- Pul. Infiltrate* *- Pulmonary effusion* *- Pul. Edema* ■ *Pain well managed* ■ *Decrease vaso-active drug slowly* ■ *Tolerating liquids and diet* ■ *Swallow without aspiration* ■ *ICU Discharge preparations* *Pt & Family ready for Transfer out off ICU*	*- SpO2 Monitoring keep > 92% then q 1-2 hrs* *- Resp. pattern* *- Check Lung sound* *- Check Bowel sound* *- Record tracing abnormal EKG/ PRN* *- Assess pain q 4 hrs / Using painscale 0-10* *- Side effect of drugs overdose* *- VS & q15 min x4 , 30 min x2 then q 1-2 hrs (depends on Pt.'s status)* *- Neuro. Status q1-2 hrs until awake*	*IN AM.* *• CBC* *• Plt count* *• Coag* *• BUN, Cr* *• E' lyte* *• LFT* *• CXR portable* *• 12 leads EKG* *IN PM.* *• BUN,Cr* *• E' lyte* *- Hct ,CBG q 12 hrs*	*- Extubation as protocol* *- Fowler'sm / Semi fowler's Position* *- FM O_2 5-6 Lpm* *- Chest tube care to 20 cm H_2o suction* *- Blood / volume replacement* *- Maintain Mean BP > 70 mmHg* *- Off NG-Tube (Check positive bowel sound)* *- Pain management* *- Encourage Breathing Exercise* *- Incentive spirometry Triflo q 2hr / as tolerate*	*- NPO / Ice Chip* *- 5%D/ N/2 /5%D/ W (depends on Na in lab)*	*- IV Inotropic Drugs* *- Wean off Vasodilatation Drugs* *- IV keep vien open 40 cc/hr* *- IV Diuretic drug PRN* *- IV Antibiotic x 24 hrs* *- K^+ Replacement if indicate* *- IV Med. For pain : Morphine 3-5 mg IV PRN q 4 hrs* *- Start oral pain control drug PRN* *- Start oral cardiac drugs (ASA in CABG patient)* *- Tranquilizer* *- Stool softener*	*- Range of motion (ROM)* *- Sit in bed and / or Bed side hang feet as tolerate (BP> 100/60mmHg /Sitting osition)* *- Breathing & Cough exercise / or Breathing with intensive spirometry as torelate:(Triflow)*	- Continue Discharge planning checklist - *Assess potential discharge needs* - *Continue Discharge planning checklist* **Patient Information after Extubate** Keeping patient up to date with clinical data Encouraging patients' verbalization and inquiries Encourage breathing exercise with incentive spirometry:Triflow
	Post op following		*- Body temp q 4 hrs* *- Monitoring CVP or PAP and record CVP , DiasPAP or PCWP q 4hrs x 8 then q 8 hrs /PRN* *- Urine q 1 hr x 8 then q 2hr keep>60cc/ 2hrs* *- Assess pain q 4 hrs / Using painscale 0-10* *- Assess Wound / Line /Drain* *- Resp. pattern* *- SpO2 Monitoring keep > 92% then q 1-2 hrs* *- Check Lung sound* *- Check Cardiac tamponade sign (No drainage from chest tube, CVP/PCWP↑ BP↓)* *- Record tracing abnormal EKG/ PRN* *- Texture ,color, moisture, skin turgor* *- Side effect of drugs overdos*		*- Fowler'sm / Semi - fowler's Position* *- Canula 3-4 Lpm when have first meal after operation* *- Chest tube to 20 cm H_2o suction* *- Blood/ volume replacement* *- Maintain Mean BP> 70 mmHg* *- Pain management* *- Wound care* *- Encourage Breathing exercise* *- Incentive spirometry q 2-4 hrs / as tolerate (Triflo q 2-4 hrs)* *- Reinforce early ambulation/ Cardiac rehab.* *- Foley cath. care*	*- Clear liquid diet / Soft diet restrict salt : Na < 4 gm/d* *- Restrict Oral fluid < 800 cc* *- 5% D/N/2 or/ 5%D/W (see Na in lab)*		*- ROM* *- Breathing & Cough excercise* *- Breathing with Incentive spirometry: Triflow q 2-4 hrs / as torelate* *- Sit in bed bid as tolerate (BP>100/60 mmHg / Sitting position)* *- Out of bed OD as tolerate (BP>100/60 mmHg / Sitting position)* *- Sitting for meal >15 mins or as tolerate (BP>100/60 mmHg / Sitting position)* *- Innitiate cardiac rehab. program*	**Informed patient and family during the time of patient visitation in ICU** Presenting transfer as a sign of progress Informing patient and family about transfer plan on the critical pathway Explaining rationale, function and weaning of monitor and equipment Weaning patient from nurse-patient relationship before transfer Informing patient and family Information on next phase about : ○ Activity ○ Pain manage ment ○ Medication / Diets ○ Lab test / Treatment Encouraging patients' self esteem ○ Enhancing patient's self care ○ Preparing environment for pt's self care ○ Giving individual care Providing an instruction pamphlet to the patient about the transfer from the ICU to a general ward

Aspect of care / Day	Desired outcome	Assessment	Diagnostic	Intervention	Nutrition	Medication	Activity	Discharge planning and Information patients&families (The session of post-operative day2)
Post-op Day 2	■ *Hemodynamic stability* ■ *Absence of medically significant* *- Pul. Infiltrate* *- Pul. effusion* *- Pul. Edema* ■ *Decrease vaso-active drug until stop* ■ *Pain controlled with p.o. medication* ■ *Mobility increased* ■ *Pulmonary complications prevented* ■ *ICU Discharge preparations completed* ■ *Discharge preparation initiated* ■ *Transfer out off ICU in this day or Tomorrow**	*- General Appearance* *- VS , Urine q 2 hrs / PRN* *- Body temp q 4 hrs* *- CVP,Dias PAP, PCWP q4 hrs / PRN* *- I &O q 8 hrs* *- Rec. Tracing abnormal EKG / PRN* *- Assess Wound / Line /Drain* *- Assess pain q 4 hrs / Using 0-10 painscale* *- SpO2 q 2-4 hrs keep>92%* *- Resp. pattern* *- Check Lung sound* *- Check Bowel sound* *- Side effect of drugs overdose*	*- BUN , Cr ,Electrolyte q 12 hr* *- CXR portable after Chest drain removal (If remove chest drain in this day*	*- Cannula 3-4 Lpm* *- D/C Chest drain** *- Wound care/ change dressing* *- D/C Art line* *- D/C Central line* *- Encourage Breathing exercise* *- Incentive spirometry q 4 hrs* *- D/C Foley catheter / Check void* *- Reinforce early ambulation / Cardiac rehab.*	*- Soft diet (restrict salt : Na<4 gm/d)* *- Restrict Oral fluid < 1000 cc* *- 5% D/N/2 / or 5%D/W*	*- Wean off IV Inotropic Drugs* *- IV fluid keep vein open* *- Maintain oral Diuretic drugs* *- Start oral Diuretic drug* *- IV Diuretic drug PRN* *- IV Antibiotic x 24hrs* *- K^+ Replacement if indicate* *- Start oral anticoagulant (Coumadin/Warfarin in Valve patient)* *- Maintain oral cardiac drugs* *- Maintain oral pain control drug PRN* *- Tranquilizer Stool softener*	*- ROM* *- Breathing & Cough excercise* *- Breathing with Incentive spirometry : Triflow q 4hrs/ as torelate* *- Out of bed / Sit and stand at side of bed as tolerate (BP> 100/60 mmHg / Sitting position)* *- Sit in chair bid 15 mins or as tolerate (BP> 100/60 mmHg / Sitting position) Cardiac rehab*	*- Assess potential discharge needs (D/C from ICU)* *- Continue Discharge planning checklist* *- Transfer with Guide line for ICU Transfer* **Transferring phase** Informed patient and family in the morning of transfer day Weaning patient from use of monitor and equipment before transfer Disconnecting cardiac monitor at least 60 minutes before transfer Comparing and contrasting ICU and general ward Involving patient's family with transfer Building the patient's chance to meet the ward nurse Transferring during day time and avoid transfer during routine time or time of nurse shift rotation **Transfer time** **10.30-11.30 / 13.00-13.30** **During transfer** Having ICU nurse care for the patient during transfer Introducing patient to receiving nurse **Visiting phase** within 8 hrs after transfer **After transfer from ICU to general ward** ICU nurse visits patient after transfer Preparing patient for hospital discharge and giving Booklet about the recovery.

Guide line for ICU Transfer

- *Awake*
- *Able to communicate needs*
- *Intact cough & gag reflexes*
- *Extubated > 2hr*
- *RR < 25 /min*
- *SpO2 >92% on Canula 5 Lpm*
- *BP within pre-op range (± < 20mmHg)*
- *HR 60-100 bpm*
- *Absence of symtomatic ventricular ectopy*
- *If paced via temporary wires, underlying intrinsic rate sustains adequate BP*
- *Off IV anti-dysrhythmics*
- *Off IV vasoactive drips > 2 hrs*
- *On IV anti-dysrhythmics / Vasoactive with VS stable > 24 hrs*
- *Pain scale < 4*
- *Absence of postural hypotension with sitting*

Appendix B

List of Experts who developed the critical pathway for open-heart surgery of Pramongkutkalo Hospital.

The critical pathway for open-heart surgery of Pramongkutkalo Hospital was developed before the intervention program by multidisciplinary team. The multidisciplinary team consists of 4 cardiothoracic surgeons, 5 ICU staff nurses, 3 ward staff nurses, and one of cardiac-rehabilitees doctor. The thirteen experts who developed the pathway included:

Cardiothoracic surgeons

1. Colonel Vorasin Gatanon M.D.
   Department of Surgery, Pramongkutkalo Hospital.
2. Colonel Terachat Sirarat M.D.
   Department of Surgery, Pramongkutkalo Hospital.
3. Colonel Chatchai Temyod M.D.
   Department of Surgery, Pramongkutkalo Hospital.
4. Lt. Colonel Chacrit Kongthai M.D.
   Department of Surgery, Pramongkutkalo Hospital.

ICU staff nurses

3. Major Apinun Kumsiri B.N.S (Nursing)
   Head nurse of Surgery Intensive Care Unit,
   Department of Surgery, Pramongkutkalo Hospital.
4. Major Suntree Yamyim B.N.S (Nursing)
   Senior staff nurse of Surgery Intensive Care Unit,
   Department of Surgery, Pramongkutkalo Hospital.
5. Major Kunya Paninthorn B.N.S (Nursing)
   Senior staff nurse of Surgery Intensive Care Unit,
   Department of Surgery, Pramongkutkalo Hospital.

6. Captain Kanokwon Boonchai B.N.S (Nursing)
   Senior staff nurse of Surgery Intensive Care Unit,
   Department of Surgery, Pramongkutkalo Hospital.
7. Captain Wattakorn Rak-issara B.N.S (Nursing)
   Senior staff nurse of Surgery Intensive Care Unit,
   Department of Surgery, Pramongkutkalo Hospital.

Ward staff nurses

1. Major Pudsadee Rodsawad B.N.S (Nursing)
   Senior staff nurse of General ward
   Department of Surgery, Pramongkutkalo Hospital.
2. Major Chaleeporn Boonvichai B.N.S (Nursing)
   Senior staff nurse of General ward
   Department of Surgery, Pramongkutkalo Hospital.
3. Captain Pornyanee Chalermseema B.N.S (Nursing)
   Senior staff nurse of General ward
   Department of Surgery, Pramongkutkalo Hospital.

Cardiac-rehabilitees doctor

1. Lt. Colonel Patrawut Intrakomheang M.D.
   Department of Rehabilitation, Pramongkutkalo Hospital.

Appendix C

Critical pathway for open-heart surgery (discharge planning was design into one part of the pathway)

Aspect Of Care	WARD		ICU				WARD				
	Pre-op		**Post-op day0** (Surgery day)	**Post-op day1**		**Post-op day2**	**Post-op day3**	**Post-op day4**	**Post-op day5**	**Post-op day6**	**Post-op day7**
	Before surgery day	*Surgery day*	*Immediate post-op*	*Post extubation*	*Post op following*						
Desired outcome	■ *Patient and family received the preparing physiological and psychological aspects for open-heart surgery patients*		■ *Hemodynamic stability* ■ *Absence of* *- Cardiac tamponade* *- Barotrauma Pneumothorax* *- Medical massive bleeding* ■ *Absence of Medically significant* *- Pul. Infiltrate* *- Pulmonary effusion* *- Pul. Edema* ■ *Pain well managed* ■ *Decrease vaso-active drug slowly* ■ *Tolerating liquids & diet* ■ *ICU Discharge preparations* ■ *Pt & Family ready for Transfer out off ICU*	■ *Hemodynamic stability* ■ *Absence of* *- Cardiac tamponade* *- Barotrauma / Pneumothorax* *- Medical massive bleeding* ■ *Absence of Medically significant* *- Pul.ilnfiltrate* *- Pulmonary effusion* *- Pul. Edema* ■ *Pain well managed* ■ *Decrease vaso-active drug slowly* ■ *Tolerating liquids & diet Swallow without aspiration* ■ *ICU Discharge preparations* ■ *Pt & Family ready for Transfer out off ICU*		■ *Hemodynamic stability* ■ *Absence of Medically significant* *- Pul. infiltrate* *- Pulmonary effusion* *- Pul. Edema* ■ *Decrease vaso-active drug until stop* ■ *Pain controlled with oral med.* ■ *Mobility increased* ■ *Pulmonary complications prevented* ■ *ICU Discharge preparations completed* ■ *Discharge preparation initiated* ■ *Transfer out off ICU* in this day Or Tomorrow*	■ *Hemodynamic stability* ■ *Pain controlled with oral med* ■ *Mobility increased* ■ *Pulmonary complications prevented* ■ *Discharge planning to Home initiate* *Pt. Verbalizes knowledge of...* *- Incisional care* *- Activity /limitation* *- Diet* *- Sign of Complication* *- Medication* *- Risk factor Modification* *Endocarditis prophylaxis for valve patients* *- Anticoagulant protocol if on wafarin / coumadin* *- follow up care*	■ *Hemodynamic stability* ■ *Pain controlled with oral med* ■ *Mobility increased* ■ *Pulmonary complications prevented*	■ *Hemodynamic stability* ■ *Pain controlled with oral med* ■ *Mobility increased* ■ *Pulmonary complications prevented* ■ *Discharge preparation*	■ *Pain controlled with oral med* ■ *Discharge preparation*	■ *Discharge preparation completed* ■ *Discharge Home*
Assessment	*- General Appearance* *- Pre-op check list* *- Underlying di... (t... di... DM,HT)* *- Body weigh, Height* *- Medical allergic history*	*- General Appearance* *- Complete Pre-op check list*	*- General Appearance* *- VS , Urine q 2 hr / PRN* *- Body temp q 4 hr* *- CVP,Dias PAP, PCWP q4 hr/ PRN* *- I &O q 8 hr* *- Record Tracing abnormal EKG* *- Assess Wound / Line /Drain* *- Assess pain q 4 hr / Using painscale 0-10* *- Resp. pattern* *- SpO2 q 2-4 hr keep>92%* *- Check Lung sound* *- Side effect of drugs overdose*	*- SpO2 Monitoring keep > 92%* *- Resp. pattern* *- Check Lung sound* *- Check Bowel sound* *- Record tracing abnormal EKG* *- Assess pain q 4 hr / Using painscale 0-10* *- Side effect of drugs oerdose*	*- General Appearance* *- VS & q15 min x4 , 30 min x2 thenq1-2 hr (depends on Pt.'s status)* *- Neuro. Status q1-2 hr until awake* *- Body temp q4 hr* *- CVP,DiasPAP, PCWP q 2hr x 8 then q 4 hr /PRN* *- Urine q1 hr x 8-12 hr then q 2hr keep> 60cc / hr* *- Assess pain q 4 hr /Using painscale 0-10* *- Assess Wound / Line /Drain* *- Resp. pattern* *- SpO2 Monitoring keep>92% in 8 hrs then Monitoring prn as indicate* *- Check Lung sound* *- Check Cardiac tamponade sign (No drainage from chest tube suddenly, CVP/PCWP↑ BP↓)* *- Record tracing abnormal EKG/ PRN* *- Check Bowel sound* *- Texture ,color moisture,skin turgor* *- Side effect of drugs overdos*	*- General Appearance* *- VS , Urine q 2 hr / PRN* *- Body temp q 4 hr* *- CVP,Dias PAP, PCWP q4 hr* *- I &O q 8 hr* *- Rec. Tracing abnormal EKG* *- Assess Wound /Line /Drain* *- Assess pain q 4 hr Using painscale 0-10* *- SpO2 q 2-4 hr keep>92%* *- Resp. pattern* *- Check Lung sound* *- Check Bowel sound* *- Side effect of drugs overdose*	*- General Appearance* *- VS , Urine q 4 hr / PRN* *- Body temp q12 hr* *- I &O q 12 hr* *- Assess wound* *- Assess Drain if not removed* *- I &O q 8 hr* *- Assess pain q 4 hr Using painscale 0-10* *- Respiration pattern* *- Check Lung sound*	*- General Appearance* *- VS q 4hr/ PRN* *- Body temp q12 hr* *- I &O q 12 hr* *- Assess pain scale q 8 hr and PRN / Using pain scale 0-10* *- Assess wound* *- Resp. pattern*	*- General Appearance* *- VS , Urine q 8 hr* *- Body temp q12 hr* *- I &O q 12 hr* *- Assess wound* *- Assess Drain if not removed* *- I &O q 8 hr* *- Assess pain q 4 hr / Using pain scale 0-10* *- Respiration pattern* *- Check Lung sound*	*- General Appearance* *- VS q 8hr* *- Body temp q12 hr* *- I&O q 12 hr* *- Assess pain scale q 8 hrand / Using pain scale 0-10* *- Assess wound* *- Resp. pattern*	*- General Appearance* *- VS q 8 hr* *- Body temp q12 hr* *- I &O q 12 hr* *- Assess pain scale q 8 hr and Using pain scale 0-10* *- Assess wound* *- Resp .pattern*

Aspect Of Care	WARD		ICU				WARD				
	Pre-op		**Post-op day0** (Surgery day)	**Post-op day1**		**Post-op day2**	**Post-op day3**	**Post-op day4**	**Post-op day5**	**Post-op day6**	**Post-op day7**
	Before surgery day	*Surgery day*	*Immediate post-op*	*Post extubation*	*Post op following*						
Diagnostic	- *CBC , Plt count* - *BUN , Cr ,Electrolyte* - *FBS , Coag* - *LFT* - *Anti-HIV* - *X- match* - *CXR portable* - *12 leads EKG* - *Carotid Dropler U/S if indicate*		- *CBC , Plt count , Coag ,CBG , BUN, Cr, Electrolyte ,Ca stat* - *BUN , Cr ,Electrolyte, Ca , Coag q 4 hrs x 2* - *Hct ,CBG q 6 hrs* - *ABG stat or prn if indicate* - *CXR portable stat* - *12 leads EKG stat as PRN* - *Digoxin level as PRN* - *Cardiac -enzyme as PRN*	- *IN AM. CBC , Plt count , Coag ,BUN , Cr ,Electrolyte ,Ca ,M g,LFT* - *CXR portable in am.* - *12 leads EKG in am.* - *IN PM. BUN , Cr ,Electrolyte,* - *Hct ,CBG q 12 hrs*		- *BUN , Cr ,Electrolyte q 12 hr* - *CXR portable after Chest drain removal (If remove chest drain in this day* - *Lab / Invesigate PRN as Clinical status*	- *Lab / Invesigate PRN as Clinical status*	- *Lab / Invesigate PRN as Clinical status*	- *IN AM. CBC , Plt count , Coag ,BUN , Cr ,Electrolyte* - *CXR portable (PA)*	- *Lab / Invesigate PRN as Clinical status*
Intervention	- *Informed consent* - *Dental consult as ordered* - *Social service consult as PRN* - *Pre-op checklist* - *Skin prep.* - *Bowel prep.*	- *Mental support*	- *Rewarm / Keep warm (Hyperthermia)* - *Ventilator & Suction per protocol* - *Ventilator support at least 4-6 hrs post-op untill stable* - *Supine until hemodynamic stable* - *Wean / Extubate within 12+ 6 hr post arrival to ICU* - *Chest tube to 20cmH_2o suction* - *Milking chest tube q 1 hr and PRN In 8 hr post arrival to ICU* - *Blood/Volume replacement* - *Maintain MeanBP > 70mmHg* - *NG-Tube to gravity* - *Temporary Pacer PRN* - *Wound care* - *Foley cath. Care* - *Pain management*	- *Extubation as protocol* - *Fowler'sm / Semi - fowler's Position* - *FM O_2 5-6 Lpm* - *Chest tube care to 20 cm H_2o suction* - *Blood / volume replacement* - *Maintain Mean BP > 70 mmHg* - *Off NG-Tube (Check positive bowel sound)* - *Pain management* - *Encourage Breathing Exercise* - *Incentive spirometry: Triflo q 2hr / as tolerate*	- *Fowler'sm / Semi -fowler's Position* - *FM O2 5-6 Lpm (Or Canula 3-4 Lpm while have meal)* - *Chest tube care/ to 20 cm H_2o suction* - *Blood/volume replacement* - *Maintain Mean BP>70 mmHg* - *Pain management* - *Wound care* - *Encourage Breathing exercise Incentive spirometry q 2-4 hr/ as tolerate (Triflo q 2-4 hr)* - *Reinforce early ambulation / Cardiac rehab.* - *Foley cath. care*	- *Cannula 3-4 Lpm* - *D/C Chest drain** - *Wound care/ change dressing* - *D/C Art line* - *D/C Central line* - *Encourage Breathing exercise Incentive spirometry q4hr (Triflo)* - *D/C Foley catheter /Check void* - *Reinforce early ambulation / Cardiac rehab.*	- *Cannula 3-4 L* - *D/C Central line* - *Peripheral keep vein open / or IV lock* - *Wound care/change dressing* - *Encourage Breathing exercise* - *Incentive spirometry q 4 hr(Triflow q 4 hr)*	- *Room air / Cannula 3-4 L* - *D/C Peripheral IV or IV lock* - *Wound care / change dressing* - *Encourage Breathing exercise* - *Incentive spirometry PRN (Triflow)*	- *Room air / Cannula 3-4 L* - *Wound care / change dressing as PRN* - *Open Wound if dry* - *Encourage Breathing exercise* - *Incentive spirometry PRN (Triflo)*	- *Room air* - *Wound care / change dressing as PRN* - *Open Wound if dry* - *Encourage Breathing exercise*	- *Room air* - *Wound care / change dressing as PRN* - *Open Wound if dry* - *Encourage Breathing exercise*
Nutrition	- *Social service consult as PRN* - *Soft low residual diet* - *NPO after mid night or breakfast (surgery in a.m or in p.m.)*	- *NPO* - *5%D/ N/2*	- *NPO* - *5%D/ N/2 / 5%D/ W (Depends on Na in lab)*	- *NPO / Ice Chip* - *5%D/ N/2/ 5%D/ W (Depends on Na in lab)*	- *Clear liquid diet / Soft diet restrict salt : Na < 4 gm/d* - *Restrict Oral fluid < 800 cc* - *5% D/N/2 / 5%D/W (Depends on Na in lab)*	- *Soft diet (restrict salt : Na<4 gm/d)* - *Restrict Oral fluid < 1000 cc* - *5% D/N/2 / 5%D/W (Depends on Na in lab)*	- *Soft / Regular diet (restrict salt : Na<4 gm/d)* - *Restrict Oral fluid<1000 cc* - *5% D/N/2 / 5%D/W (Depends on Na in lab)*	- *Soft / Regular diet (restrict salt : Na<4 gm/d)* - *Restrict Oral fluid <1500 cc*	*Same as Po day 4*	*Same as Po day 4*	*Same as Po day 4*

Aspect Of Care	WARD		ICU				WARD				
	Pre-op		**Post-op day0** (Surgery day)	**Post-op day1**		**Post-op day2**	**Post-op day3**	**Post-op day4**	**Post-op day5**	**Post-op day6**	**Post-op day7**
	Before surgery day	*Surgery day*	*Immediate post-op*	*Post extubation*	*Post op following*						
Nutrition	- *Social service consult as PRN* - *Soft low residual diet* - *NPO after mid night or breskfast (surgery in a.m or in p.m.)*	- *NPO* - *5%D/ N/2*	- *NPO* - *5%D/ N/2 / 5%D/ W (Depends on Na in lab)*	- *NPO / Ice Chip* - *5%D/ N/2 / 5%D/ W (Depends on Na in lab)*	- *Clear liquid diet / Soft diet restrict salt : Na < 4 gm/d* - *Restrict Oral fluid < 800 cc* - *5% D/N/2 / 5%D/W (Depends on Na in lab)*	- *Soft diet (restrict salt : Na<4 gm/d)* - *Restrict Oral fluid < 1000 cc* - *5% D/N/2 / 5%D/W (Depends on Na in lab)*	- *Soft / Regular diet (restrict salt : Na<4 gm/d)* - *Restrict Oral fluid<1000 cc* - *5% D/N/2 / 5%D/W (Depends on Na in lab)*	- *Soft / Regular diet (restrict salt : Na<4 gm/d)* - *Restrict Oral fluid<1500 cc*	*Same as po day 4*	*Same as po day 4*	*Same as po day 4*
Medication	- *Discontinue ASA products & Coumadin / warfarin(1 wk beforesurgery)* - *Continue card drugs* - *Pre-op Anesthesia Medications*		- *IV Inotropic Drugs* - *IV Vasodilatation Drugs* - *IV maintain fluid* - *IV Antibiotic x 48-72 hrs* - *K^+ Replacement if indicate* - *IV Med. For pain: Morphine 5 mg IV PRN q 4 hrs*	- *IV Inotropic Drugs* - *Wean off Vasodilatation Drugs* - *IV maintain fluid* - *IV Diuretic drug PRN* - *IV Antibiotic x 48-72hrs* - *K^+ Replacement if indicate* - *IV Med. For pain : Morphine 5 mg IV PRN q 4 hrs* - *Start oral pain control drug PRN* - *Start oral cardiac drugs (ASA in CABG patient)* - *Tranquilizer* - *Stool softener*		- *Wean off IV Inotropic Drugs* - *IV fluid keep vein open* - *Maintain oral Diuretic drugs* - *Start oral Diuretic drug* - *IV Diuretic drug PRN* - *IV Antibiotic x 48-72hrs* - *K^+ Replacement if indicate* - *Start oral anticoagulant (Coumadin/Warfarin in Valve patient)* - *Maintain oral cardiac drugs* - *Maintain oral pain control drug PRN* - *Tranquilizer* - *Stool softener*	- *IV fluid keep vein open* - *IV Diuretic drug PRN* - *Maintain oral Diuretic drug* - *Maintain oral cardiac drugs* - *Maintain oral pain control drug PRN* - *Tranquilizer* - *Stool softener*	- *D/C IV keep vein open* - *IV Diuretic drug PRN* - *Maintain oral Diuretic drug* - *Maintain oral cardiac drugs* - *Maintain oral pain control drug PRN* - *Tranquilizer* - *Stool softener*	- *IV Diuretic drug PRN* - *Maintain oral Diuretic drug* - *Maintain oral cardiac drugs* - *Maintain oral pain control drug PRN* - *Tranquilizer* - *Stool softener*	- *IV Diuretic drug PRN* - *Maintain oral Diuretic drug* - *Maintain oral cardiac drugs* - *Maintain oral pain control drug PRN* - *Tranquilizer* - *Stool softener*	- *IV Diuretic drug PRN* - *Maintain oral Diuretic drug* - *Maintain oral cardiac drugs* - *Maintain oral pain control drug PRN* - *Tranquilizer* - *Stool softener*
Activity	- *Activity tolerated* - *Breathing & Cough Training* - *Training of Breathing with Incentive spirometry as torelate (Triflow)*	- *Rest*	- *Supine / Bed rest* - *Head up to 30° if hemodynamic stable* - *Sit in bed if without sitting hypotention (BP > 100/60mmHg / Sitting position)*	- *Range of motion(ROM)* - *Sit in bed and / or Bed side hang feet as tolerate (BP> 100/60mmHg /Sitting position)* - *Breathing & Cough excercise* - *Breathing with intensive -spirometry as torelate :(Triflow)*	- *ROM* - *Breath.&Cough excercise* - *Breathing with Incentive spirometry: Triflow q 2-4 hrs / as torelate* - *Sit in bed bid as tolerate (BP> 100/60 mmHg / Sitting position)* - *Out of bed OD as tolerate (BP> 100/60 mmHg / Sitting position)* - *Sitting for meal >15 min or as tolerate (BP>100/60 mmHg / Sitting position)* - *Innitiate cardiac rehab. program*	- *ROM* - *Breath. & Cough excercise* - *Breathing with Incentive spirometry : Triflow q 4hrs/ as torelate* - *Out of bed / Sit and stand at side of bed as tolerate (BP>100/60 mmHg / Sitting position)* - *Sit in chair bid 15 min or as tolerate (BP>100/60 mmHg / Sitting position)* - *Cardiac rehab*	- *Breathing & Cough excercise* - *Breathing with Incentive spirometry : Triflow q 4hrs/ as torelate* - *Out of bed / Sit and stand at side of bed as tolerate (BP>100/60 mmHg / Sitting position)* - *Sit in chair bid 15 min or as tolerate (BP>100/60 mmHg / Sitting position)* - *Walk around a bed as -tolerate (BP> 100/60 mmHg / Standing position)* - *Cardiac rehab*	- *Breathing with Incentive spirometry :Triflow PRN* - *Walk in room* - *Cardiac rehab*	- *Breathing with Incentive -spirometry :Triflow PRN* - *Walk in room / ward* - *Cardiac rehab*	- *Walk in room / ward* - *Cardiac rehab*	- *Walk in room / ward* - *Cardiac rehab* - *Ambulate as torelate*

Aspect Of Care	WARD		ICU				WARD				
	Pre-op		**Post-op day0** (Surgery day)	**Post-op day1**		**Post-op day2**	**Post-op day3**	**Post-op day4**	**Post-op day5**	**Post-op day6**	**Post-op day7**
	Before surgery day	*Surgery day*	*Immediate post-op*	*Post extubation*	*Post op following*						
Information to patients & Families	- *Assess potential discharge needs* - *Pre admittion teaching to Patients& Families at OPD-CVT* - *Disease & Operation* - *Breathing exercise* - *Diets* - *No smoking* - *Initiate Discharge planning checklist* - *Pre-op teaching to patients* - *Disease & Operation* - *Breathing exercise with Intensive spirometry breathing (Triflow)* - *Activity to release pain* - *ICU & Routine ward (ICU) Care* - *Invasive devices* - *Family visit time* - *Discuss to Pt.& Families about Operation and Mental support*		- *Assess potential discharge needs* **Informed upon awaking from anesthesia** Result of surgery and limitations after surgery Invasive devices & effect of them **Informed Patient after gaining full consciousness** Introducing the nurse who care the patients Orient to ICU, Unit routine,Staff in ICU Present staying in ICU as temporary Pamphlet to family about patient's operation	- *Assess potential discharge needs* - *Continue Discharge planning checklist* **Patient Information after Extubate** Up to date clinical data after extubate (or change intervention or treatment) Encourages verbalization & inquiries Encourage breathing exercise with incentive spirometry:Triflow	- *Assess potential discharge needs* - *Continue Discharge planning checklist* **Informed patient and family during the time of patient visitation in ICU** Present transfer as a sign of progress Informs patient transfer plan on the critical pathway Explain rationale, function and weaning of monitor and equipment Wean patient from nurse-patient relationship before transfer Patient and family Information on next phase . Activity Control pain Medications Diets Lab test / Treatment Encourage patients' self esteem Enhancing patient's self care Preparing environment for patient's self care Giving individual care Pamphlet to the patient about the transfer from the ICU to general ward	- *Assess potential discharge needs (D/C from ICU)* - *Continue Discharge planning checklist* **Transferring phase** **Informed patient and family in the morning of transferred day** Wean patient from use of monitor and equipment before transfer Disconnection cardiac monitor before transfer 60 minutes at lease. Compare and contrast ICU and general ward Involving patient's family with transfer Building the patient's chance to meet the ward nurse Transferring during day time and avoid transfer during routine time or time of shift rotate of general ward **Transfer time** **10.30-11.30 / 13.00-13.30** **During transfer** Have ICU nurse caring the patient during transfer Introduce patient to receiving nurse	- *Assess potential discharge needs* - *Continue Discharge planning checklist* - *Patient Information event in a next step about...* • *Activity* • *Control pain* • *Medications/ Diets* • *Lab test / Treatment* - *Patient Information or Teaching about...* • *Incisional care* • *Activity/limitation* • *Diet* • *Sign of complication* - *Endocarditis* - *Prophylaxis for valve patients* - *Anticoagulant protocol if on coumadin / wafarin* - *Follow up care* **Visiting phase** within 8 hrs after transfer After transfer from ICU to general ward ICU nurse visit patient after transfer Booklet to the patient about the recovery and preparing for hospital discharge	- *Assess potential discharge needs* - *Continue Discharge planning checklist* - *Patient Information event in a next step about...* • *Activity* • *Control pain* • *Medications* • *Diets* • *Lab test / Rx* - *Home care plan*	- *Assess potential discharge needs* - *Continue Discharge planning checklist* - *Patient Information event in a next step about...* • *Activity* • *Control pain* • *Medica-tions* • *Diets* • *Lab test / Treatment* - *Home care plan*	- *Continue Discharge planning checklist* - *Discuss to Pt & families for D/C Home* - *Review Patient 's & Familes' knowlege about...* • *Incisional care* • *Activity / limiitation* • *Diet* • *Sign of complication* • *Medication* • *Risk factor* - *Endocarditis* - *Prophylaxis for valve patients* - *Anticoagulant protocol if on oumadin / wafarin* - *Follow up care* - *Home care plan* - *Plan Day for D/C from hospital*	- *Complete Discharge planning checklist* - *Information & focus medication and follow up* - *Discharge Home*

Appendix D

แนวทางปฏิบัติและให้ข้อมูลเพื่อลดความวิตกกังวลจากการย้ายออกจากไอซียู ของผู้ป่วยผ่าตัดหัวใจ (Instruction content guideline)

Time	Period	Information & Activities	วัตถุประสงค์	เนื้อหาของ การให้ข้อมูลและกิจกรรม	*ประเมินผลโดยสรุป*
Post operative day O (Surgery day)	Informed upon awaking from anesthesia	Result of surgery and limitations after surgery	เพื่อให้ผู้ป่วยได้คาดการณ์ในเหตุการณ์ที่จะเกิดขึ้นต่อไปได้ใกล้เคียง ความจริง	- การผ่าตัดเสร็จแล้ว ...(ผ่าตัด...อะไร ทำอย่างไร และผลเป็นอย่างไร) ..... มีภาวะแทรกซ้อนระหว่างการผ่าตัด หรือไม่ อย่างไร ..... ขณะนี้มีเครื่องมือและอุปกรณ์หลายอย่างที่อยู่ในตัวผู้ป่วย ห้ามดึง หรือถอดออกเด็ดขาด โดยเฉพาะห้ามดึงท่อช่วยหายใจที่ใส่อยู่ในปากขณะนี้ผู้ป่วยจะพูดไม่มีเสียงเพราะท่อช่วยหายใจแต่ไม่ต้องตกใจ ถ้าแพทย์ถอดออกให้แล้วจะพูดได้ตามปรกติ ขณะนี้ท่านจะรู้สึกเพลียจากการผ่าตัดและฤทธิ์ยาสลบ หลังจากนี้ให้ท่านนอนหลับให้เต็มที่ แต่ถ้าตื่นแล้วต้องการอะไรก็ให้กวักมือเรียกดิฉัน หรือเจ้าหน้าที่อื่นๆได้ *(การให้ ข้อมูลในระยะนี้ ให้กระชับ สั้นๆ เพราะระดับความรู้สึกตัวยังไม่มีเต็มที่)*	- *สังเกตจากกริยา ท่าทางของผู้ป่วย ซึ่งมีการพยักหน้าตอบรับและหลับตานอนต่อ*
		Invasive devices & effect of them	เพื่อให้ผู้ป่วยได้มีความรู้เกี่ยวกับเครื่องมือและอุปกรณ์ที่เกี่ยวกับตนเองและสามารถคาดการณ์เกี่ยวกับเครื่องมือได้อย่างถูกต้องสัมพันธ์กับอาการของตน	- ตอนนี้คุณจะมีเครื่องมือหรือสายต่างๆอยู่ในตัวคุณ เช่นสายน้ำเกลือ สายยางจากจมูกต่อลงกระเพาะอาหาร สายวัดความดันโลหิตแบบต่อเนื่องที่ข้อมือ ท่อระบายทรวงอก และสายสวนปัสสาวะ สายต่าง ๆ เหล่านี้จะเป็นประโยชน์กับคุณ และเมื่อแพทย์พิจารณาไม่จำเป็นต้องใช้เครื่องมือเหล่านี้อีก แพทย์หรือเจ้าหน้าที่จะเป็นผู้ถอดออกให้ ห้ามถอดออกเองเพราะการถอดไม่ถูกวิธีจะทำให้เกิดภาวะแทรกซ้อน ท่อช่วยหายใจ ช่วยให้คุณหายใจได้ดีขึ้นหลังการผ่าตัดหัวใจ เพราะแผลหลังผ่าตัดจะทำให้หายใจเองได้ไม่เต็มที่ และขณะที่คุณใส่ท่อช่วยหายใจจะพูดไม่มีเสียงเพราะท่อกดหลอดเสียง เมื่อถอดท่อช่วยหายใจจะพูดมีเสียงตามปรกติและอาจจะมีอาการเจ็บคอบ้างเล็กน้อย ท่อช่วยหายใจจะถูกถอดออกในวันรุ่งขึ้นหลังผ่าตัด สายยางใส่ทางจมูกลงกระเพาะอาหาร จะช่วยป้องกันอาการแน่นอึดอัดจากอาการท้องอืดหลังผ่าตัด สายจะถูกถอดออกเมื่อกระเพาะอาหารหรือลำไส้เริ่มทำงาน (เรอหรือผายลม) และถอดออกพร้อมท่อช่วยหายใจในวันรุ่งขึ้น สายน้ำเกลือ ในระยะ 24 ชม.แรกต้องมีการให้น้ำเกลือและยาที่จำเป็นต้องให้ทางหลอดเลือด และเมื่อร่างกายและหัวใจมีการทำงานดีขึ้นน้ำเกลือและยาจะค่อยลดขนาดลงจน เหลือน้ำเกลือเส้นเดียว ท่อระบายทรวงอก ใส่ไว้เพื่อระบายเลือดบางส่วนที่คั่งค้างหรือออกหลังการผ่าตัดและเมื่อสิ่งที่คั่งค้างไหลออกหมดท่อนี้จะถูกถอดออกประมาณวันที่ สองหลังการผ่าตัด	– *สังเกตจากกริยาท่าทางของผู้ป่วย ซึ่งมีการพยักหน้าตอบรับด้วยท่าทางสนใจ*

Time	Period	Information & Activities	วัตถุประสงค์	เนื้อหาของ การให้ข้อมูลและกิจกรรม	*ประเมินผลโดยสรุป*
Post operative day 0 (Surgery day)				<u>สายสวนปัสสาวะ</u> ใส่ไว้เพื่อบันทึกปริมาณน้ำที่ออกจากร่างกาย และการทำงานของไต ซึ่งขณะใส่อยู่นี้ท่านจะมีอาการเจ็บที่ท่อปัสสาวะ บางครั้งจะรู้สึกคล้ายปัสสาวะไม่ออก ซึ่งความจริงจะมีปัสสาวะออกมาตามท่อแล้ว และเมื่อถอดสายนี้ออกอาการเหล่านี้จะหายไป และสายสวนนี้จะถูกถอดออกประมาณวันที่สองหลังการผ่าตัด	
	Informed Patient after gaining full consciousness	□ Introducing the nurse who care the patients	เพื่อให้ผู้ป่วยเกิดสัมพันธภาพที่ดี และไว้วางใจในตัวผู้ดูแล	- แนะนำตัวพยาบาลไอซียูผู้ดูแล (ผู้วิจัยหรือผู้ช่วยผู้วิจัย) โดยการเข้าไปหาผู้ป่วยที่เตียงเมื่อผู้ป่วยรู้ตัวดี โดยแนะนำตนเองด้วยท่าทีที่เป็นมิตร สวัสดีค่ะ ดิฉันเป็นพยาบาล ไอซียู ที่ช่วยดูแลคุณในระหว่างอยู่ในไอซียู ขณะนี้ถ้าคุณมีอาการเปลี่ยนแปลง หรือต้องการอะไร สามารถเขียนสื่อสารได้ในกระดานเขียนข้อความนี้ (กระดานเขียนข้อความสำหรับผู้ป่วยเขียนสื่อสารกับเจ้าหน้าที่ ขณะที่ใส่ท่อช่วยหายใจพูดไม่ได้) เรายินดีที่จะร่วมกันช่วยดูแลท่านให้ปลอดภัย	- *ผู้ป่วยยิ้มและพยักหน้าเป็นการตอบรับ บางคนขอกระดานเขียนขอบคุณ*
		Orient to ICU, Unit routine, Staff in ICU	เพื่อให้ผู้ป่วยมีความรู้และข้อมูลในที่ที่ผู้ป่วยอยู่ เพื่อการประเมินสถานการณ์ได้ถูกต้อง	- ที่นี่เป็น ไอซียูรวมที่มีผู้ป่วยหลังผ่าตัดหลายประเภทอยู่รวมกันเช่นผู้ป่วยผ่าหัวใจ สมองหรือช่องท้อง และไม่มีห้องแยกเสียงจึงอาจจะดัง ระหว่างที่อยู่ที่นี่จะมีเจ้าหน้าที่มาวัดสัญญาณชีพเช่นวัดความดัน วัดการหายใจ หรือวัดไข้ ตวงปัสสาวะ ทุก 1-2 ช.ม. ซึ่งเป็นการดูแลเพื่อให้ท่านปลอดภัย และภายในไอซียูจะมีเจ้าหน้าที่ทำงานอยู่หลายระดับ ตามป้ายชื่อที่ติดอยู่กับเจ้าหน้าที่แต่ละคน ตั้งแต่แพทย์ พยาบาล ผู้ช่วยพยาบาล ท่านสามารถบอกความต้องการท่านได้กับเจ้าหน้าที่ทุกคน ชุดสีต่างๆในไอซียูหมายถึงเจ้าหน้าที่ในกลุ่มต่างๆ ชุดเขียวคือแพทย์ ชุดสีฟ้าคอขาวคือพยาบาล ชุดฟ้าคอน้ำเงินคือผู้ช่วยพยาบาล และชุดฟ้าคอเหลืองคือพนักงานช่วยการพยาบาล - แพทย์จะเฝ้าดูแลหลังการผ่าตัดระยะแรกในไอซียูหลังจากนั้นจะมาดูแลท่านเป็นระยะ โดยแพทย์เวรที่ดูแลท่านจะพักในไอซียู ซึ่งสามารถเรียกได้ตลอดเวลาที่ผู้ป่วยมีอาการเปลี่ยนแปลงที่ต้องช่วยเหลือ ส่วนพยาบาลและเจ้าหน้าที่ระดับอื่นจะผลัดเวรทุก 8 ช.ม เพื่อดูแลท่านอย่างต่อเนื่องตลอด 24 ชม.	- *ผู้ป่วยยิ้มและพยักหน้าตอบรับ*
		Present staying in ICU as temporary	เพื่อให้ผู้ป่วยได้คาดการณ์ในเหตุการณ์ว่าต้องอยู่ในไอซียูในช่วงหนึ่ง	- การพักรักษาตัวในไอซียู หลังการผ่าตัดหัวใจ จะเป็นการอยู่แบบชั่วคราว ประมาณ 3 วัน และสำหรับผู้ที่ฟื้นตัวช้า หรือค่อยๆฟื้นตัวจะอยู่ไม่เกิน 5 วัน ในรายที่อยู่ในจำนวนวันที่มากกว่านี้ส่วนใหญ่จะมีภาวะแทรกซ้อนซึ่งจะพบบ้างแต่น้อย	- *ผู้ป่วยส่วนใหญ่พยักหน้ารับทราบ มีบางรายใช้กระดานสื่อสารถามถึงอาการแทรกซ้อน*

	Period	Information & Activities	วัตถุประสงค์	เนื้อหาของ การให้ข้อมูลและกิจกรรม	*ประเมินผลโดยสรุป*
		Pamphlet to family about patient's operation	เพื่อให้ ญาติได้รับข้อมูลเกี่ยวกับอาการเจ็บป่วยและการผ่าตัด และสามารถนำกลับไปอ่านต่อได้ที่อื่นที่สะดวกการเพื่อประเมินสถานการณ์ได้ถูกต้อง ไม่ทำให้เกิดความวิตกกังวลกับญาติและส่งผลถึงผู้ป่วย	- แจกแผ่นพับ *: ทำอย่างไรเมื่อญาติของท่านต้องรับการผ่าตัดหัวใจ* และชี้แจงหัวข้อที่อยู่ในแผ่นพับ (ชี้แจงตามหัวข้อในแผ่นพับ) เป็นการให้ข้อมูล ที่ญาติสามารถทำความเข้าใจเพิ่มเติมได้ด้วยตนเองจากการอ่านเอกสารความรู้เกี่ยวกับการผ่าตัดและการปฏิบัติตัวของญาติ เมื่อผู้ป่วยต้องอยู่ในไอซียู *(ขณะที่ผู้ป่วยเริ่มตื่นรู้สึกตัวดีจะอยู่ในช่วงประมาณระยะเวลาญาติเยี่ยม อย่างไรก็ดีกรณีที่ผู้ป่วยยังไม่ตื่น ก็ ให้แจกแผ่นพับให้กับญาติในเวลาญาติเยี่ยมในวันผ่าตัด ช่วงเย็นได้เลย)*	- *ญาติตั้งใจฟังและถามข้อคำถามต่างๆที่เกี่ยวกับอาการของผู้ป่วย และสนใจในแผ่นพับ*
Post operative day 1	Patient Information after Extubate	Up to date clinical data after extubate (or change intervention or treatment)	เพื่อให้ผู้ป่วยได้รับรู้ข้อมูลให้ทันต่อเหตุการณ์ และให้สามารถคาดการณ์ในเหตุการณ์ที่จะเกิดขึ้นต่อไป ได้ใกล้เคียงความจริง	- ขณะนี้ท่านสามารถหายใจได้เองอย่างมีประสิทธิภาพ แล้วจึงสามารถถอดท่อช่วยหายใจออกได้ แต่ยังต้องใส่หน้ากากออกซิเจนไว้ก่อนในระยะแรก เพื่อช่วยเพิ่มระดับออกซิเจนในเลือด ขณะเดียวกันสายยางระบายแก๊สและลม ทีสอดใส่ในจมูกถึงกระเพาะ ถูกถอดออกไปเพราะอาการท้องอืดเนื่องจากลมในท้องจะลดลงไปเพราะกระเพาะอาหารและลำไส้จะเริ่มกลับมาทำงาน และวันนี้คุณสามารถออกกำลังโดยการขยับแขน ขา ให้มีการเคลื่อนไหว ลุกนั่งบนเตียงหรือนั่งห้อยเท้าข้างเตียงได้ และสามารถฝึกการบริหารการหายใจได้ และวันนี้จะได้เริ่ม อมน้ำแข็ง จิบน้ำ และเริ่มรับอาหารเหลวได้ตามลำดับซึ่งถ้าไม่มีปัญหาคลื่นไส้อาเจียน มื้อเย็นวันนี้จะได้เริ่มอาหารอ่อน ซึ่งอาหารในมื้อแรกต้องกินช้าๆ เคี้ยวให้ละเอียด ไม่ควรรับประทานมากเพราะ กระเพาะกับลำไส้พึ่งเริ่มย่อยและดูดซึมได้ ถ้ารับประทานมากอาจจะทำให้มีอาการท้องอืด แน่นท้องได้	- *ผู้ป่วยส่วนใหญ่พยักหน้ารับ*
		Encourages verbalization and inquiries	เพื่อกระตุ้นให้ผู้ป่วยได้ระบายความรู้สึกและบอกความต้องการได้	- หลังการถอดท่อหายใจ จะมีอาการเจ็บคอ หรือเสียงแหบในระยะ สั้น ๆ อาจเป็น 1-2 วัน หลังจากนั้นจะเป็นปรกติ ระหว่างใส่ท่อช่วยหายใจรู้สึกอย่างไรบ้าง..... - พรุ่งนี้ จะได้ย้ายออกจากไอซียูได้ คุณคิดว่าการย้ายจากไอซียู มีผลอย่างไรกับคุณ.....และต้องการให้ช่วยอะไรเพิ่มเติมหรือไม่....อย่างไร.....	- *ผู้ป่วยส่วนมาระบายความรู้สึกอึดอัดกับการใส่ท่อช่วยหายใจ การสื่อสาร และแสดงความเห็นเกี่ยวกับการย้ายออกจากไอซียู*

Time	Period	Information & Activities	วัตถุประสงค์	เนื้อหาของ การให้ข้อมูลและกิจกรรม	*ประเมินผลโดยสรุป*
Post operative day 1		Encourage breathing exercise with incentive spirometry:Triflow	เพื่อให้ผู้ป่วยได้รับรู้ข้อมูลและการปฏิบัติตนที่ถูกต้องเหมาะสมกับอาการเจ็บป่วยของตน และช่วยให้ผู้ป่วยได้คาดการณ์ในอาการเจ็บป่วยได้ตรงกับความจริง	- หลังการผ่าตัดหัวใจปัญหาแทรกซ้อนที่อาจพบได้คือ ภาวะปอดแฟบ และปอดอักเสบ ซึ่งสามารถป้องกันได้คือหลังถอดท่อช่วยหายใจแล้วต้องมีการบริหารการไอและการหายใจอย่างมีประสิทธิภาพ โดยการหายใจเข้าออกลึกๆช้าๆ หรือใช้เครื่องช่วยบริหารการหายใจ (ไตรโฟล/Triflow) โดยเมื่อหงาย ให้ใช้วิธีดูด เมื่อคว่ำให้ใช้การเป่า ก่อนการดูดหรือเป่าทุกครั้งต้องหายใจเข้าออก ลึกๆช้าๆ ก่อน 2-3 ครั้ง และเมื่อจะดูดต้องหายใจออกทางจมูกให้เต็มที่ลึกๆช้าๆ แล้วพักไว้สักครู่ จากนั้นค่อยๆดูดเครื่องเป่าโดยค่อยๆดูดลมช้าๆต่อเนื่องให้ลูกลอยค่อยๆลอยเพิ่มขึ้น จนกระทั่งลูกบอลลอยได้ทั้ง 3 ลูก แสดงว่าปอดและการหายใจมีประสิทธิภาพดี ในกรณีเดียวกันสำหรับการเป่า ก่อนเป่าให้หายใจลึกๆช้าๆ แล้วทำคล้ายกันแต่ถ้าเป่าให้คว่ำเครื่องเป่า และหลังหายใจเข้าเต็มที่แล้วค่อยๆเป่าให้ลูกลอยค้างไว้ให้ได้จำนวนลูกบอลลอยให้ได้ทั้ง 3 ลูก ในระยะแรกๆ อาจจะเป่าหรือดูดลูกลอยได้ครั้งละ 1 หรือ 2 ลูก ไม่เป็นไร ให้ค่อยๆบริหารการหายใจด้วยเครื่องเป่าไปเรื่อยๆ จนกระทั่งการเป่าหรือดูดนั้นจะได้ลูกบอลลอยได้มากขึ้น เมื่อเหนื่อยให้พัก การบริหารควรค่อยๆทำ ทุก 2ชม. (หรือ ทุก 4 ชม. ถ้าทำแล้วเหนื่อย)	- *ผู้ป่วยสนใจและบริหารการหายใจด้วยเครื่องเป่า ได้อย่างถูกต้อง*
	<u>Informed patient and family during the time of patient visitation in ICU</u>	Present transfer as a sign of progress	เพื่อให้ผู้ป่วยเกิดความรู้สึกปลอดภัยก่อนการย้าย	- ผู้ป่วยที่แพทย์ให้ย้ายออกจากไอซียูได้ หมายถึงผู้ป่วยที่มีอาการดีขึ้น และได้รับการพิจารณาว่าพร้อมที่จะย้ายออก จากไอซียูได้อย่างปลอดภัย - ก่อนย้ายจะได้รับตรวจผ่านตามเกณฑ์การย้าย ซึ่งแสดงว่าร่างกายแข็งแรงพร้อมที่จะย้ายออกจากไอซียูได้	- *ผู้ป่วยพยักหน้าแสดงการรับทราบและเข้าใจ*
		Informs patient transfer plan on the critical pathway	เพื่อให้ผู้ป่วยได้คาดการณ์ในเหตุการณ์ที่จะเกิดขึ้นต่อไป ได้ใกล้เคียงความจริง	- เมื่อถอดอุปกรณ์ต่าง ๆ ในตัว พร้อมการหยุดยาที่หยดให้ทางงหลอดเลือดดำได้ นั่นแสดงว่ามีอาการดีขึ้นเรื่อย ๆ จนถึงหลังวันผ่าตัดวันที่ 2 เมื่อไม่มีภาวะแทรกซ้อนใดๆ และอาการเป็นไปตามเกณฑ์การย้าย แพทย์จะเป็นผู้พิจารณาให้ได้ย้าย และพยาบาลไอซียู จะประสานงานกับ หอผู้ป่วยที่จะย้ายไปให้มีการเตรียมการรับ พร้อมกันนั้น เราจะติดต่อกับญาติของคุณให้ทราบว่าจะได้ย้ายออก เพื่อให้ญาติได้มารับและช่วยย้ายไปยังหอผู้ป่วย ระหว่างการย้ายจะมีพยาบาลผู้ดูแลในวันนั้นไปส่งกลับหอผู้ป่วยและแนะนำพยาบาลหอผู้ป่วยผู้ดูแลให้ท่านรู้จัก และจะมีพยาบาลจากไอซียู ไปเยี่ยมท่านภายใน 8 ชม.หลังการย้าย ระหว่างนี้ถ้าท่านมีปัญหาให้ท่านปรึกษาพยาบาลไอซียูผู้ไปส่ง พยาบาลที่หอผู้ป่วย หรือพยาบาลไอซียูที่ไปเยี่ยมหลังย้ายได้	- *ผู้ป่วยสนใจและซักถามในขั้นตอนการย้าย*

	Period	Information & Activities	วัตถุประสงค์	เนื้อหาของ การให้ข้อมูลและกิจกรรม	*ประเมินผลโดยสรุป*
Post operative day 1		Explain rationale, function and weaning of monitor and equipment	เพื่อให้ผู้ป่วยได้รู้และเข้าใจเกี่ยวกับเครื่องมืออุปกรณ์ ที่ใช้กับตน เพื่อช่วยในการคาดเดาเหตุการณ์ที่จะเกิดขึ้นต่อไป ได้ใกล้เคียงความจริง	- เครื่องวัดคลื่นไฟฟ้าหัวใจ (EKG Monitor) เป็นเครื่องเฝ้าดูการเต้นของหัวใจ เหมาะสำหรับการเฝ้าดูการเต้นของหัวใจ ผู้ป่วยที่ได้รับการผ่าตัดหัวใจในระยะแรก หรือผู้ป่วยที่มีอาการหนัก ซึ่งอาจจะมีภาวะหัวใจเต้นผิดปรกติได้ในบางเวลา ถ้าผู้ป่วยมีหัวใจเต้นปรกติแล้วก็ไม่จำเป็นต้องใช้อีก - เครื่องวัดความดันอัตโนมัติ ที่สามารถตั้งเวลาให้ทำงานได้เอง เหมาะสำหรับผู้ป่วยในไอซียูที่มีระดับความดันโลหิตเปลี่ยนแปลงได้ตลอดเวลา สำหรับผู้ป่วยที่ความดันคงที่แล้วไม่จำเป็นต้องวัดความดันโลหิตบ่อยๆ หรือตลอดเวลา ซึ่งเป็นการรบกวนการพักผ่อนได้ - เครื่องควบคุมการหยดของน้ำเกลือ (Infusion pump) เป็นเครื่องควบคุมปริมาณน้ำเกลือ หรือยาเข้าทางเส้นเลือด เครื่องนี้จะทำให้ผู้ป่วยได้รับยาอย่างสม่ำเสมอตามแผนการรักษา เมื่อผู้ป่วยลดยาลงได้และไม่ต้องการยาแล้ว ก็ไม่จำเป็นต้องใช้เครื่องนี้อีก - หน้ากากออกซิเจน (O_2 Face mask) หรือสายให้ออกซิเจนแบบใส่จมูก (O2 Canula) หลังการผ่าตัดผู้ป่วยจำเป็นต้องได้รับออกซิเจนเพื่อช่วยการทำงานของหัวใจ ดังนั้นต้องให้ออกซิเจนระหว่างที่อยู่ในไอซียู แต่ในระยะแรกที่ถอดท่อช่วยหายใจ ทางเดินหายใจของผู้ป่วยจะแห้งจำเป็นต้องใช้ หน้ากากออกซิเจนเพราะจะช่วยให้ความชื้นต่อทางเดินหายใจ และเมื่อผ่านไปประมาณ 4-6 ชม. ถ้าผู้ป่วยมีค่า O_2 ในเลือดปรกติออกซิเจนจะถูกเปลี่ยนเป็นแบบสายเล็กใส่ทางจมูก - เครื่องวัดออกซิเจนในเลือด (Pulse Oximetry) เป็นเครื่องที่วัดโดยการหนีบนิ้ว และเครื่องจะแปรสัญญาณคำนวณออกมาเป็นค่าออกซิเจนในเลือดใช้วัดออกซิเจนในระยะแรกที่ถอดท่อช่วยหายใจ - เครื่องดูดต่อกับท่อระบายทรวงอก (Thoracic suction) เป็นเครื่องที่ใช้ดูดน้ำหรือเลือดที่ออกหลังการผ่าตัด เพื่อไม่ให้เกิดการคั่งค้าง จะใช้เครื่องช่วยดูด 2 วัน และจะหยุดใช้เมื่อถอดท่อระบายทรวงอกออกในวันที่ 2 หลังวันผ่าตัด	- *ผู้ป่วยตั้งใจและสนใจฟังและมีข้อซักถามในเครื่องมือบางอย่าง*
		Wean patient from nurse-patient relationship before transfer	เพื่อให้ผู้ป่วยได้คาดการณ์ในสัมพันธภาพและการดูแลจากพยาบาลไอซียูอย่างถูกต้องและเข้าใจ	- การดูแลแบบใกล้ชิดของไอซียู นั้นจะทำในผู้ป่วยที่มีอาการไม่คงที่ สำหรับผู้ป่วยที่มีอาการคงที่แล้วก็จะย้ายออกไปได้รับการดูแลต่อจากพยาบาลที่หอผู้ป่วย ดังนั้นพยาบาลไอซียูจะดูแลท่านประมาณ 3 วันหลังการผ่าตัด ในวันแรกๆพยาบาลไอซียูจะดูแลอย่างใกล้ชิด และถัดมาเมื่อคุณเริ่มฟื้นหาย ช่วยเหลือตนเองได้บ้าง การดูแลจะค่อยๆเปลี่ยนเป็นแบบช่วยเหลือบางส่วน และค่อยๆให้คุณได้พยายามทำกิจกรรมต่างๆด้วยตนเองให้มากขึ้น และรับการดูแลต่อจากพยาบาล ที่หอผู้ป่วยเดิมได้	- *สังเกตท่าทางของผู้ป่วยซึ่งพยักหน้าตอบรับ*

	Period	Information & Activities	วัตถุประสงค์	เนื้อหาของ การให้ข้อมูลและกิจกรรม	*ประเมินผลโดยสรุป*
Post operative day 1		Patient and family Information on next phase . Activity Control pain Medications Diets Lab test / Treatment	เพื่อให้ผู้ป่วยได้คาดการณ์ในเหตุการณ์ที่จะเกิดขึ้นต่อไป ได้ใกล้เคียงความจริง	Activity วันนี้คุณสามารถออกกำลังโดยการขยับแขน ขา ให้มีการเคลื่อนไหว ถ้าความดันปรกติ คุณสามารถลุกนั่งบนเตียงได้วันละ 2 ครั้ง หรือระหว่างรับประทานอาหารควรนั่ง ประมาณ 15 นาที หรือลงมานั่งข้างเตียงได้ สามารถฝึกการบริหารการหายใจด้วยเครื่องเป่าไตรโฟลได้ ทุกๆ 2 หรือ 4 ชม. และสามารถออกกำลังตามโปรแกรมตามการฟื้นฟูสภาพหัวใจที่ แพทย์ฟื้นฟูหัวใจสอนไว้ได้ ส่วนวันพรุ่งนี้ คุณสามารถทำกิจกรรมต่างๆนี้ได้ ซึ่งอาจจะทำได้มากขึ้นและนานขึ้น และเมื่อได้ย้ายออกจากไอซียู คุณจะได้เริ่มลุกเดินในห้อง เข้าห้องน้ำและอื่นๆได้เพิ่มมากขึ้นตามลำดับ Control pain จะมีการประเมินความเจ็บปวดแผลผ่าตัดทุก 4 ชม. (คะแนนประเมิน 0-10) ถ้าคุณเจ็บแผลผ่าตัดมากกว่า 3 จะได้รับยาฉีดแก้ปวด และวันนี้จะเริ่มได้รับประทานยาแก้ปวดเพื่อป้องกันปวดแผล ส่วนวันพรุ่งนี้อาการเจ็บแผลผ่าตัดอาจจะน้อยลง ยาแก้ปวดจะเป็นยารับประทานทั้งหมด ซึ่งจะมีทั้งยา(พอนแสตน) ที่ให้เพื่อป้องกันความเจ็บปวดตามเวลาทุก 6 ชม.และยาแก้ปวดที่ให้เมื่อปวด (พาราเซทตามอล) ซึ่งสามารถให้ได้ทุกๆ 4 ชม.เมื่อปวดเวลาไอหรือหายใจลึกๆ อาจจะรู้สึกเจ็บแผล ให้คุณใช้หมอนหรือผ้าห่มพับกอดไว้กับบอกแล้วไอหรือหายใจลึกๆ จะสามารถบรรเทาอาการเจ็บแผลได้ การไอขับเสมหะและการบริหารการหายใจโดยการหายใจลึกๆ เป็นสิ่งจำเป็น สำหรับการป้องกันภาวะปอดแฟบหลังการผ่าตัด ดังนั้นควรจำเป็นต้องทำหลังการผ่าตัด Medications ยาที่หยดให้ทางเส้นเลือดจะลดลง จะได้รับการฉีดยาเป็นระยะ ยาที่ให้เป็นยาฉีดคือยาปฏิชีวนะ ยาขับปัสสาวะ และยาแก้ปวด ยารับประทานวันนี้จะเริ่มได้รับยาแก้ปวด ยานอนหลับ และยาช่วยให้ถ่ายคล่อง ซึ่งในวันพรุ่งนี้ ยาฉีดทั้งหมดจะถูกเปลี่ยนเป็นยารับประทาน Diets หลังถอดท่อช่วยหายใจ จะได้อมน้ำแข็ง และจิบน้ำ ถ้าไม่มีสำลักอาเจียน มื้อเที่ยงเป็น อาหารเหลว เช่นน้ำผลไม้หรือโอวัลติน และมื้อเย็นจะเริ่มเป็นอาหารอ่อน เค็มน้อย จำกัดน้ำดื่ม 800 cc./ วัน ระยะแรกได้รับอาหารอ่อนเพราะย่อยง่าย การจำกัดน้ำและเกลือเพื่อไม่ให้หัวใจทำงานมาก และหลังจากย้ายออกจากไอซียู จะได้เริ่มอาหารธรรมดา น้ำดื่มต่อวันจะได้มากขึ้น Lab test / Treatment วันนี้อาจจะมีการเจาะเลือด เพื่อตรวจหาค่าเกลือแร่ ค่าเม็ดเลือด ค่าการแข็งตัวของเลือด และน้ำตาลในเลือด ซึ่งการตรวจเลือดนี้จะทำทุก 12 ชม. หรือเมื่อจำเป็น	*สังเกตจากกริยาท่าทางของผู้ป่วยซึ่งสนใจซักถามสิ่งที่อยากรู้*

	Period	Information & Activities	วัตถุประสงค์	เนื้อหาของ การให้ข้อมูลและกิจกรรม	*ประเมินผลโดยสรุป*
Post operative day 1		Encourage patients' self esteem Enhancing patient's self care Preparing environment for patient's self care Giving individual care	คงไว้และส่งเสริมความสามารถในการควบคุม กิจกรรมส่วนตัวของผู้ป่วย เพื่อให้ผู้ป่วยสามารถควบคุมสิ่งแวดล้อม ได้และเพิ่มความรู้สึกมีคุณค่าในตัวเองก่อนการย้าย เพื่อให้ผู้ป่วยมีคุณค่าในตัวเองก่อนการย้าย	Enhancing patient's self care ในขณะนี้คุณแข็งแรงขึ้นแล้ว สามารทำกิจวัตรประจำวันได้ (เช็ดหน้า แปรงฟัน รับประทานอาหาร....) และสามารถลุกจากเตียงได้ ดังนั้นถ้าคุณได้ทำกิจกรรมเหล่านี้เอง หรือสามารถลุกออกจากเตียงได้เร็ว จะเป็นการฝึกให้กำลังร่างกายฟื้นตัวได้เร็วยิ่งขึ้น Preparing environment for patient's self care จัดวาง ของใช้ที่จำเป็นต่างๆให้ผู้ป่วยสามารถหยิบใช้ได้ด้วยตนเอง เช่น กระดาษชำระ น้ำดื่ม หรือสิ่งของเครื่องใช้ข้างเตียงอื่น ๆ Giving individual care ใช้คำเรียกชื่ออย่างสุภาพ , บอกผู้ป่วยก่อนทุกครั้งก่อนที่จะปฏิบัติการพยาบาลกับผู้ป่วย, กั้นม่านทุกครั้งที่ผู้ป่วยทำกิจกรรมส่วนตัว เป็นต้น	- *สังเกตจากกริยาท่าทางของผู้ป่วย ซึ่งมีความพึงพอใจ*
		Pamphlet to the patient about the transfer from the ICU to general ward	เพื่อให้ผู้ป่วยได้คาดการณ์สิ่งที่เกิดหลังการย้ายอย่างถูกต้อง	- แจกแผ่นพับ *: การย้ายออกจาก ไอซียู มีความหมายอย่างไร* และชี้แจงหัวข้อที่อยู่ในแผ่นพับ (ชี้แจงตามหัวข้อในแผ่นพับ) เป็นการให้ข้อมูล ทีผู้ป่วยสามารถทำความเข้าใจเพิ่มเติมได้ด้วยตนเองจากการอ่านเอกสารความรู้เกี่ยวกับการย้ายออก และการปฏิบัติตัวในการย้าย	- *ผู้ป่วยรับเอกสารและแสดงความสนใจกับเอกสารและซักถามเมื่อเกิดข้อสงสัย*
Post operative day 2	**Transferring phase** Informed patient and family in the morning of transferred day	Wean patient from use of monitor and equipment before transfer	เพื่อให้ผู้ป่วยเกิดความรู้สึกว่าการที่ไม่ต้องใช้เครื่องมือและเครื่องอุปกรณ์ ไม่ได้ทำให้เกิดอันตรายต่อผู้ป่วย ผู้ป่วยจะได้รู้สึกปลอดภัยก่อนการย้าย	- ขณะนี้คุณแข็งแรงขึ้น และไม่จำเป็นต้องใช้เครื่องมือและอุปกรณ์ต่างๆที่เคยช่วยท่านอีก ต่อไป หัวใจของท่านเต้นเป็นปรกติจึงไม่จำเป็นต้องใช้เครื่องวัดคลื่นไฟฟ้าหัวใจ ความดันคงที่มากขึ้นจึงไม่ต้องวัดด้วยเครื่องวัดอัตโนมัติบ่อยๆ และคุณสามารถรับประทานอาหารเองได้เพียงพอ และอาการของท่านดีขึ้น จึงไม่จำเป็นต้องใช้ เครื่องปรับหยดน้ำเกลือหรือยา	- *สังเกตจากกริยาท่าทางของผู้ป่วย ซึ่งพยักหน้าตอบรับว่าเข้าใจ และ/หรือ ซักถามข้อสงสัย*

	Period	Information & Activities	วัตถุประสงค์	เนื้อหาของ การให้ข้อมูลและกิจกรรม	*ประเมินผลโดยสรุป*
Post operative day 2		Disconnection cardiac monitor before transfer 60 minutes at lease.	เพื่อไม่ให้ผู้ป่วยรู้สึกว่าเครื่องมือยังจำเป็นต่อความปลอดภัยของตนเอง	- ขณะนี้การทำงานของหัวใจเริ่มปกติ ไม่จำเป็นต้องใช้เครื่องเฝ้าดูลักษณะการเต้นของหัวใจแล้ว (ให้ปลดอิเลคโตรดคลื่นไฟฟ้าหัวใจก่อนการย้ายอย่างน้อย 1 ชม.)	
		Compare and contrast ICU and general ward		กำหนดเวลาญาติเยี่ยม - ไอซียูศัลยกรรม กำหนดเวลา 12.00 - 13.00 / 18.00 - 19.00 น. - หอผู้ป่วยที่จะย้ายไปคือ..... มีกำหนดเวลาเยี่ยมคือ..... สัดส่วนเจ้าหน้าที่ต่อจำนวนผู้ป่วย - ไอซียูศัลยกรรม พยาบาล : ผู้ป่วย = 1 : 2 - หอผู้ป่วยทั่วไป พยาบาล : ผู้ป่วย = 1 : 10-15 สัดส่วนของเจ้าหน้าที่ต่อผู้ป่วย จะสอดคล้องกับสภาพและอาการของผู้ป่วย คือผู้ป่วยในหอผู้ป่วยทั่วไปมีอาการที่ดีกว่าพยาบาลจึงต้องดูแลผู้ป่วยด้วยจำนวนที่มากกว่า ไอซียู การปฏิบัติการพยาบาล - ไอซียูศัลยกรรม ดูแลผู้ป่วยอย่างใกล้ชิด เพื่อป้องกันและแก้ไข อาการอันตรายที่เกิดขึ้นกับผู้ป่วย - หอผู้ป่วยทั่วไป มีการปฏิบัติการพยาบาลที่สม่ำเสมอโดยมีการปฏิบัติการพยาบาลเป็นระยะเวลาหรือตามอาการการเปลี่ยนแปลงของผู้ป่วย ซึ่งโดยทั่วไปอาการของผู้ป่วยจะเปลี่ยนแปลงน้อย การให้การดูแลจึงพิจารณาให้เหมาะสมกับผู้ป่วยแต่ละราย เครื่องมือในไอซียู / เครื่องมือในหอผู้ป่วยทั่วไป เครื่องวัดความดัน อัตโนมัติ / เครื่องวัดความดันชนิดปรอท สามารถวัดความดันโลหิตได้เหมือนกัน เครื่องวัดคลื่นไฟฟ้าหัวใจ / การจับชีพจร ใช้วัดลักษณะและจังหวะการเต้นของหัวใจ เครื่องควบคุมการหยดของน้ำเกลือ / การปรับการหยดน้ำเกลือของพยาบาลที่หอผู้ป่วย การได้รับน้ำเกลือธรรมดาไม่จำเป็นต้องใช้เครื่องควบคุมหยดน้ำเกลือ เหมือนการให้ยาทางขวด	

	Period	Information & Activities	วัตถุประสงค์	เนื้อหาของ การให้ข้อมูลและกิจกรรม	*ประเมินผลโดยสรุป*
Post operative day 2		Involving patient's family with transfer	เพื่อให้ผู้ป่วยเกิดความรู้สึกปลอดภัยก่อนการย้ายเมื่อมีญาติอยู่ด้วย และญาติจะได้เป็นห่วงกังวลต่อการย้าย	- ระหว่างการย้าย ขอให้ท่าน (ญาติ/ครอบครัว) ได้มาร่วมในการช่วยย้ายผู้ป่วยออกจากไอซียู ด้วยเพื่อเป็นกำลังใจให้กับผู้ป่วย ซึ่งจะย้ายผู้ป่วยในเวลาประมาณ.....น.	*- ญาติตอบรับและซักถามเกี่ยวกับขั้นตอนการย้าย*
		Building the patient's chance to meet the ward nurse	เพื่อป้องกันไม่ให้ผู้ป่วยรู้สึกว่าถูกทอดทิ้ง	- อธิบายให้ผู้ป่วยเข้าใจ ช่วงเวลาที่จะได้พบกับพยาบาลหอผู้ป่วย เช่นช่วงผลัดเปลี่ยนเวร ช่วงให้ยา การวัดสัญญาณชีพ - แนะนำผู้ป่วยให้ รู้วิธีได้พบกับพยาบาล เช่นการกดออดหัวเตียง หรือการออกไปพบได้ที่เคาน์เตอร์พยาบาล	*- ผู้ป่วยสีหน้าสดชื่น ไม่แสดงสีหน้ากังวลระหว่างย้าย*
		Transferring during day time and avoid transfer during routine time or time of shift rotate of general ward	เพื่อป้องกันไม่ให้ผู้ป่วยรู้สึกว่าถูกทอดทิ้ง ถ้ามีการย้ายในเวลาเย็น กลางคืน หรือเวลาเปลี่ยนเวร เพราะเจ้าหน้าที่จะน้อยลง	- ย้ายผู้ป่วยในเวลากลางวัน (Transfer time 10.30-11.30 / 13.00-13.30) ย้ายโดยต้องมีการแจ้งผู้ป่วยและญาติล่วงหน้าเพื่อการเตรียมตัวเตรียมใจก่อนการย้าย โดยการประสานงานกับทุกๆฝ่าย และหลีกเลี่ยงการย้ายในเวลากลางคืน ย้ายแบบกระทันหัน หรือการย้ายในช่วงผลัดเปลี่ยนเวร	*- สามารถย้าย ผู้ป่วยได้ในเวลาที่กำหนด*
	During transfer	Have ICU nurse caring the patient during transfer	เพื่อให้ผู้ป่วยเกิดความรู้สึกปลอดภัยระหว่างการย้ายและให้เกิดความต่อเนื่องในการดูแลผู้ป่วย	- ระหว่างการย้ายจะมีพยาบาลไอซียู ไปส่งที่ ward - พยาบาลไอซียู ส่งเวรเกี่ยวกับปัญหาของผู้ป่วยที่เกิดระหว่างการย้าย ตามความต้องการในการย้ายของผู้ป่วย	*– ผู้ป่วยสีหน้าสดชื่น ไม่แสดงสีหน้ากังวลระหว่างย้าย*
		Introduce patient to receiving nurse	เพื่อป้องกันไม่ให้ผู้ป่วยรู้สึกว่าถูกทอดทิ้ง และจะได้รับการดูแลต่อจากไอซียู	- แนะนำผู้ป่วยกับพยาบาลผู้ดูแลที่หอผู้ป่วย และให้ผู้ป่วยได้ทำความรู้จักพยาบาล โดยแนะนำชื่อ นามสกุลพยาบาลผู้ดูแล คุณ.....(ชื่อพยาบาล)..... จะเป็นผู้ดูแล .....คุณ.. (ชื่อผู้ป่วย) ซึ่งถ้ามีปัญหาสามารถปรึกษาหรือแจ้งกับพยาบาลได้	*- ผู้ป่วยยิ้มแย้มพูดคุยกับพยาบาลหอผู้ป่วย*

	Period	Information & Activities	วัตถุประสงค์	เนื้อหาของ การให้ข้อมูลและกิจกรรม	*ประเมินผลโดยสรุป*
	<u>Visitation phase</u> within 8 hrs after transfer <u>After transfer from ICU to general ward</u>	ICU nurse visit patient after transfer	เพื่อให้ผู้ป่วยได้รับการดูแลอย่างต่อเนื่องจากไอซียู	– พยาบาลไอซียู (ผู้วิจัย) เยี่ยมผู้ป่วย ภายใน 8 ชม.หลังย้าย – พูดคุย กับผู้ป่วยถึงปัญหาความต้องการที่เกี่ยวเนื่องกับการย้ายออกจากไอซียู – ช่วยประสานหรือแก้ปัญหาให้กับผู้ป่วยเมื่อพบปัญหา – ส่งต่อปัญหาที่พบให้กับพยาบาลผู้ดูแลที่หอผู้ป่วย	- *ผู้ป่วยยิ้มแย้มและทักทายกับพยาบาลไอซียู (ผู้วิจัย) ที่เยี่ยมหลังย้าย*
		Booklet to the patient about the recovery and preparing for hospital discharge	เพื่อให้ผู้ป่วยได้รับข้อมูลในการดูแลตนเองหลังผ่าตัดเมื่อกลับบ้าน และสามารถอ่านทบทวนได้ จากเอกสารความรู้	- แจกคู่มือ การปฏิบัติตัวหลังการผ่าตัดหัวใจ เมื่อเยี่ยมหลังย้าย ซึ่งเป็นการให้ข้อมูลในแบบเอกสาร ทีผู้ป่วยสามารถทำความเข้าใจเพิ่มเติมด้วยตนเองจากการอ่านคู่มือการปฏิบัติตัว หลังการผ่าตัดหัวใจ	- *ผู้ป่วยพูดคุยซักถามเกี่ยวกับการปฏิบัติตัวต่างๆหลังการผ่าตัด*

Appendix E

The Pamphlet for the family about patient's operation

The Pamphlet for the family about patient's operation เป็นแผ่นพับที่จัดทำสำหรับให้ความรู้ กับครอบครัวของผู้ป่วย เรื่อง “ทำอย่างไรเมื่อญาติของท่านต้องผ่าตัดหัวใจ” เป็นแผ่นพับที่แจกให้ญาติหรือบุคคลสำคัญของผู้ป่วย เมื่อเข้าเยี่ยมผู้ป่วยในไอซียูหลังการผ่าตัดเป็นครั้งแรก ของวันผ่าตัด

การแจกแผ่นพับนี้มีวัตถุประสงค์เพื่อให้ญาติและบุคคลสำคัญของผู้ป่วยได้รับรายละเอียดเกี่ยวกับการผ่าตัดและการปฏิบัติตัวของญาติที่ควรทำต่อผู้ป่วยหลังการผ่าตัดและหวังว่าข้อมูลและความรู้นี้จะทำให้ญาติและบุคคลสำคัญของผู้ป่วยมีความวิตกกังวลลดลง ซึ่งเป็นการป้องกันไม่ให้ผู้ป่วยวิตกกังวลร่วมไปกับญาติ

เนื้อหาของแผ่นพับเรื่อง “ทำอย่างไรเมื่อญาติของท่านต้องผ่าตัดหัวใจ” ประกอบด้วยสิ่งที่ญาติควรรู้และควรปฏิบัติดังนี้

1. โรคและการผ่าตัดหัวใจ
2. การเยี่ยมและการให้กำลังใจผู้ป่วย
3. การสนับสนุนให้ผู้ป่วยบริหารการหายใจระหว่างการผ่าตัด
4. กิจกรรมที่ผู้ป่วยปฏิบัติได้ในแต่ละวันหลังผ่าตัดเมื่ออยู่ในไอซียู
5. การดูแลขณะอยู่ไอซียูและย้ายออกจากไอซียู

(ตัวอย่างแผ่นพับจริงที่ใช้ในงานวิจัยอยู่ในซองท้ายเล่ม)

Appendix F

The Pamphlet for the patient about the transfer from the ICU to general ward

เป็นแผ่นพับที่จัดทำสำหรับให้ความรู้ กับผู้ป่วยในเรื่องการย้ายออกจากไอซียู และกิจกรรมต่างๆระหว่างย้ายและหลังการย้ายออกจากไอซียู เรื่อง “การย้ายออกจาก ไอซียู มีความหมายอย่างไร” เป็นแผ่นพับที่แจกให้ผู้ป่วยขณะที่ญาติหรือบุคคลสำคัญของผู้ป่วยเข้าเยี่ยมผู้ป่วยในไอซียู ใน Post-Operative day2 ก่อนการย้ายออกจากไอซียู

การแจกแผ่นพับนี้มีวัตถุประสงค์เพื่อ ผู้ป่วยและญาติ ได้รับรายละเอียดเกี่ยวกับการย้ายออกจากไอซียู ในความหมายของการฟื้นหาย และการปฏิบัติตัวผู้ป่วยระหว่างการย้าย เพื่อให้ผู้ป่วยได้รับทราบเหตุการณ์ต่างๆที่จะเกิดระหว่างการย้ายและหลังการย้าย

เนื้อหาของแผ่นพับเรื่อง “การย้ายออกจาก ไอซียู มีความหมายอย่างไร” ประกอบด้วย

1. การย้ายหมายถึงการฟื้นหาย มีอาการหลังผ่าตัดที่ดีขึ้น
2. เครื่องมือ อุปกรณ์การแพทย์ไม่จำเป็นต้องใช้และถูกถอดออก
3. กิจกรรมการพยาบาลจะลดลงตามความจำเป็น อัตราการดูแลผู้ป่วย จำนวนพยาบาลต่อจำนวนผู้ป่วย จะเพิ่มขึ้นเมื่อกลับหอผู้ป่วย
4. กิจกรรมที่ผู้ป่วยควรปฏิบัติหลังการผ่าตัดในระยะแรก
5. กิจกรรมระหว่างการย้าย

(ตัวอย่างแผ่นพับจริงที่ใช้ในงานวิจัยอยู่ในซองท้ายเล่ม)

Appendix G

The Booklet for the patients about self-care recovery and preparing for hospital discharge

เป็นแผ่นพับที่จัดทำสำหรับให้ความรู้ กับผู้ป่วยในเรื่องการเรื่องการดูแลตนเองหลังผ่าตัด เมื่อต้องออกจากโรงพยาบาล คือแผ่นพับชื่อ “ คำแนะนำในการปฏิบัติตัวหลังการผ่าตัดหัวใจ” เป็นแผ่นพับที่แจกให้ผู้ป่วยขณะที่ ผู้วิจัยในฐานะพยาบาลไอซียู ไปเยี่ยมผู้ป่วยหลังการย้ายออกจากไอซียูไปหอผู้ป่วยใน Post-Operative day2

การแจกแผ่นพับนี้มีวัตถุประสงค์เพื่อให้ ผู้ป่วยและญาติ ได้รับรายละเอียดเกี่ยวกับการดูแลตนเองหลังผ่าตัดหัวใจเมื่อกลับบ้าน

เนื้อหาของแผ่นพับเรื่อง “คำแนะนำในการปฏิบัติตัวหลังการผ่าตัดหัวใจ” ประกอบด้วย

1. ยา และการใช้ยา
2. ข้อแนะนำในการทำกิจกรรมของผู้ป่วย เรื่อง การอาบน้ำ การจัดเวลาพักผ่อนให้เพียงพอ การจัดกิจกรรมของผู้ป่วย และการออกแรง
3. การดูแลรอยแผลผ่าตัด/การดูแลแผลที่ขา หลังการเลาะหลอดเลือด
4. การจัดการกับความเจ็บปวด
5. การรับประทานอาหาร
6. คำแนะนำในการจำกัดเกลือ
7. การชั่งน้ำหนักตัว
8. การตรวจตามนัด อาการเตือนที่ต้องมาพบแพทย์
9. การออกกำลังกาย กายบริหารสำหรับผู้ป่วยโรคหัวใจ
10. ข้อควรระวังสำหรับผู้ป่วยผ่าตัดหัวใจ

(ตัวอย่างแผ่นพับจริงที่ใช้ในงานวิจัยอยู่ในซองท้ายเล่ม)

Appendix H

Handbook of the ICU-TPP using for program provider

(คู่มือสำหรับผู้ใช้โปรแกรมการเตรียมความพร้อมในการย้ายผู้ป่วยผ่าตัดหัวใจออกจากไอซียู)

การดูแลผู้ป่วยตามโปรแกรมฯ ต้องให้การดูแลผู้ป่วยตั้งแต่วันแรกที่ผู้ป่วยเข้า ICU หลังการผ่าตัดหัวใจและดูแลจนผู้ป่วยย้ายออกจาก ICU ขณะย้ายมีพยาบาลไอซียูไปส่งที่หอผู้ป่วย และต้องเยี่ยมผู้ป่วยหลังการย้ายภายใน 8 ชั่วโมง จำนวน 1 ครั้ง (โดยผู้วิจัย) การดูแลผู้ป่วยทั่วไปของโปรแกรม (Appendix A) ทำตามกรอบกรอบของ Critical Pathway (Appendix B) และใช้แนวทางการปฏิบัติและให้ข้อมูลเพื่อลดความวิตกกังวลจากการย้าย (Instruction content guideline) ตาม Appendix C เป็นแนวทางในการปฏิบัติและให้ข้อมูลกับผู้ป่วยและญาติ ตามโปรแกรม

Critical pathway

Aspect of care	*Before surgery day*	*PO day0*	*PO day1*	*PO day2*	*PO day3*	*PO day4*	*PO day5*	*PO day6*	*PO day7*
Desired outcome									
Assesment									
..									
..									
Discharge plannining and Information patients&Families									

Integrated in pathway

Session of Post-op day0	Session of Post-op day1	Session of Post-op day2	
		Transfer	visiting

แนวทางในการปฏิบัติ
เพื่อลดความวิตกกังวลจากการย้าย
(Instruction content guideline)

Aspect of care / Day		Desired outcome	Assessment	Diagnostic	Intervention	Nutrition	Medication	Activity	*Discharge planning and Information to patients & families*
PO Day 0									
PO Day 1	Post Extubate								
	Post-op Followi								
PO Day 2									

โปรแกรม แบ่งออกเป็น 3 ระยะ คือ

1 ระยะเริ่มต้น **Session of Post-op Day 0** (Surgery day)

2 ระยะอยู่ในไอซียู **Session of Post-op Day 1** (Phase of Stayed in ICU)

3 ระยะการย้าย **Session of Post-op Day**

ระยะการย้ายนี้แบ่งเป็น 2 ระยะ คือ

Transferring phase และ **Visiting phase**

การดูแลผู้ป่วยตามโปรแกรมคือการให้การดูแลผู้ป่วยตามตาม Critical pathway ในวันตามโปรแกรม โดยใช้แนวทางการปฏิบัติและให้ข้อมูลเพื่อลดความวิตกกังวลจากการย้าย (Instruction content Guideline) มาเป็นแบบแผนในการปฏิบัติการเพื่อลดความวิตกกังวลจากการย้าย

การปฏิบัติและให้ข้อมูลตามโปรแกรม

1. ปฏิบัติการดูแลทางกายภาพด้วยการดูแลตามกรอบ Critical pathway (Critical pathway เป็นกรอบของการให้ intervention และเป็นรายละเอียดของกิจกรรมต่างๆ ที่จะต้องเกิดกับผู้ป่วย ในแต่ละวัน เพื่อเป็นการฟื้นฟูสมรรถภาพด้านร่างกายหลังการผ่าตัดหัวใจ ซึ่งประกอบด้วยกิจกรรมต่างๆ ใน 6 ด้านคือ (1) Assessment (2) Diagnostic (3) Intervention (4) Nutrition (5) Medication และ (6) Activity) ทั้ง 6 ด้าน
2. ปฏิบัติการดูแลเพื่อลดความวิตกกังวลในการย้ายด้วย โปรแกรมในระยะต่างๆ ทั้ง 3 ระยะ
   - Session of Post-op Day 0
   - Session of Post-op Day 1 ระยะนี้เป็นระยะอยู่ในไอซียู
   - Session of Post-op Day 2 ระยะนี้เป็นระยะย้ายนี้แบ่งเป็น 2 ช่วง คือ
     - Transferring phase เป็นช่วงที่มีการเตรียมการย้าย และทำการย้าย
     - Visitation phase เป็นช่วงที่มีการเยี่ยมหลังย้ายโดยเยี่ยมภายใน 8 ชม. หลังเวลาย้ายผู้ป่วยออกจากไอซียู

การดูแลผู้ป่วยตามโปรแกรม คือการให้การดูแลผู้ป่วยตามตาม Critical pathway ในวันตามโปรแกรม โดยใช้แนวทางการปฏิบัติและให้ข้อมูลเพื่อลดความวิตกกังวลจากการย้าย(Instruction content Guideline) มาเป็นแบบแผนในการปฏิบัติการเพื่อลดความวิตกกังวล จากการย้าย

อุปกรณ์และเครื่องมือใช้ประกอบโปรแกรม คือ เครื่องเป่าบริหารการหายใจ (Incentivespirometry : Triflow) และแผ่นพับ/คู่มือ ที่แจกให้ผู้ป่วยและญาติ อุปกรณ์เหล่านี้ใช้ประกอบตามกิจกรรมรายวันของโปรแกรม

ข้อมูลและกิจกรรมที่จัดลงโปรแกรมเพื่อลดความวิตกกังวลจากการย้ายประกอบด้วย

1. Result of the surgery and limitations after surgery
2. List of invasive devices and the effect of them
3. Introducing the nurse who care the patients (researcher & assistant)
4. Orientation to ICU, unit routine, staff in ICU
5. Notification from admission to ICU to present stay in ICU as temporary
6. Instruction pamphlet to family about patient's operation and transfer process
7. Keeping patient up to date clinical data
8. Encouraging patient's verbalization and inquiries
9. Encourage breathing exercise with incentive spirometry
10. Presenting transfer as a sign of progress
11. Informing patient and family about transfer plan on the critical pathway
12. Explaining rationale, function and weaning of monitor and equipment
13. Weaning patient from nurse-patient relationship before transfer
14. Informing patient and family about activity, pain management, medication and diet, lab tests/treatment
15. Encouraging patients' self esteem
16. Providing an instruction pamphlet to patient about the transfer from the ICU to general ward
17. Weaning patient from use of monitors and equipments before transfer
18. Disconnection cardiac monitor before transfer 60 minutes at lease.
19. Comparing and contrasting ICU and general ward
20. Involving patient's family with transfer
21. Building the patient's chance to meet the ward nurse
22. Transferring during day time and avoid transfer during routine time or time of shift rotate nurse
23. Having ICU nurse care for the patient during transfer
24. Introducing patient to receiving nurse
25. ICU nurse visit patient after transfer
26. Giving an instruction booklet to the patient about the recovery and preparing for hospital discharge

Appendix I

List of Experts Consulted on Validation of the Research Instrument

The content validation of the ICU-TPP, Instruction content guideline, Instruction pamphlet and booklet, and the PP-TAI (Pre-TAI and Post-TAI) were determined by five consulting experts included

1. Miss Aree Bulborvornrattanakul , M.S. (Nursing)
   Nurse Expertise and Head Nurse of Surgical Intensive care unit,
   Division of Surgical Nursing, Nursing Department,
   Faculty of medicine Ramathibodi Hospital, Mahidol University.

2. Associate Professor Orasa Punpakdee, Ph.D. (Nursing)
   Department of Nursing, Faculty of Medicine,
   Ramathibodi Hospital, Mahidol University.

3. Assistant Professor Pikul Tantitum, M.S. (Nursing)
   Department of Nursing, Faculty of Medicine,
   Ramathibodi Hospital, Mahidol University.

4. Assistant Professor Ranu Pukboonmee, Ph.D. (Nursing)
   Department of Nursing, Faculty of Medicine,
   Ramathibodi Hospital, Mahidol University.

5. Miss Sunee Eaemsirinukul, M.S. (Nursing)
   Nurse Expertise and Head Nurse of Coronary care unit,
   Division of Medical Nursing, Nursing Department,
   Faculty of medicine Thammasart Chalermprakeat Hospital,
   Thammasart University.

Appendix J

ข้อมูลลำดับที่ .....

แบบบันทึกข้อมูลส่วนบุคคล (Demographic data questionnaire)

คำชี้แจง

กรุณา.ให้ข้อมูลเกี่ยวกับตัวท่านโดยการกาเครื่องหมาย (✓) ในช่องสี่เหลี่ยม และเติมข้อมูลของท่านลงในช่องว่าง

1. เพศ ☐ ชาย ☐ หญิง
2. อายุ..... ปี (เมื่อครบรอบวันเกิดที่ผ่านมา)
3. ระดับการศึกษา.....ปี (จำนวนปีที่ศึกษาในสถานศึกษา)
4. สถานภาพสมรส ☐ โสด ☐ คู่ ☐ หม้าย ☐ หย่า ☐ แยกกันอยู่
5. ศาสนา ☐ พุทธ ☐ อื่นๆ โปรดระบุ.....
6. อาชีพปัจจุบัน .....
7. ปัญหาเรื่องค่ารักษาพยาบาล

   ☐ มีมาก ☐ มีน้อย ☐ ไม่มี

8. จำนวนวันในการพักอยู่ในโรงพยาบาลก่อนวันผ่าตัดหัวใจของการพักรักษาตัวในครั้งนี้..... .....วัน

9. ประสบการณ์ที่เคยพักรักษาตัวในหอผู้ป่วยหนัก (ไอซียู หรือ ซีซียู) ก่อนการเข้ารักษาตัวในครั้งนี้

   ☐ เคย ..... ครั้ง ☐ ไม่เคย

10. ประสบการณ์ที่เคยพักรักษาตัวในหอผู้ป่วยหนัก (ไอซียู หรือ ซีซียู) ก่อนการเข้ารักษาตัวในครั้งนี้

    ☐ เคย ..... ครั้ง ☐ ไม่เคย

.....**ส่วนต่อไปนี้สำหรับผู้วิจัย**.....

11. จำนวนวันในการพักอยู่ในโรงพยาบาล ของการพักรักษาตัวในครั้งนี้.....วัน

12. จำนวนวันในการพักรักษาตัวหลังการผ่าตัดของการพักรักษาตัวในครั้งนี้.....วัน

13. จำนวนวันในการอยู่ในไอซียู ของการผ่าตัดในครั้งนี้.....วัน

14. การเปลี่ยนแปลงของอาการของผู้ป่วยรายอื่น และสิ่งแวดล้อมภายในหอผู้ป่วยเป็นอย่างไร..

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HN. ..... Functional class.....

วัน เดือน ปี ..... การวินิจฉัยโรค..... การผ่าตัด.....

Appendix K

Pre - Post Transfer Anxiety Inventory (PP-TAI)

แบบวัดความวิตกกังวลจากการย้ายออกจากไอซียู (PP-TAI) ในงานวิจัยนี้ มี 2 รูปแบบ คือ แบบที่ใช้วัดก่อนการย้ายออกจากไอซียูหรือ Pre-Transfer Anxiety Inventory (Pre-TAQ) และ แบบใช้วัดหลังย้ายออกจากไอซียู หรือ Post-Transfer Anxiety Inventory (Post-TAQ) โดยที่ ผู้วิจัยเสร้างขึ้นมาจากผลของ การวิเคราะห์แนวคิดความวิตกกังวลจาการย้าย ของ เลทธ์ (Leith, 1998) แบบวัดทั้ง 2 รูปแบบนี้ แตกต่างกันที่คำแสดงช่วงเวลาก่อนหรือหลังการย้าย ส่วนเนื้อหาคำถาม เป็นโครงสร้างเดียวกัน

แบบวัดความวิตกกังวลก่อนการย้ายออกจากไอซียู
Pre-Transfer Anxiety Inventory (Pre-TAI)

คำชี้แจง

ขอให้ท่านอ่านข้อความทางซ้ายมือ แล้วทำเครื่องหมาย ✓ ลงในช่องที่ตรงกับความรู้สึกของท่านทางด้านขวามือ โดยเลือกช่องที่ตรงกับความรู้สึกของท่านในขณะนี้

ความรู้สึกที่ตรงกับตัวท่าน	ไม่มีเลย	มีบ้าง	มีค่อนข้างมาก	มีมากที่สุด
1. ฉันรู้สึกว่าอาจจะมีอาการแย่ลง เมื่อรู้ว่าจะต้องย้ายออกจากไอซียู				
2. ฉันรู้สึกไม่ปลอดภัย เมื่อรู้ว่าจะต้องย้ายออกจากไอซียู				
3. ฉันรู้สึกกังวลว่าอาจจะเกิดภาวะแทรกซ้อนขึ้นได้ เมื่อรู้ว่าจะต้องย้ายออกจากไอซียู				
4. ฉันรู้สึกว่าอาการยังไม่ดีพอที่จะย้ายออกจากไอซียู				
5. ฉันกังวลใจว่าจะไม่ได้รับการดูแลรักษาอย่างใกล้ชิด เมื่อรู้ว่าจะต้องย้ายออกจากไอซียู				
6. ฉันรู้สึกสูญเสียความคุ้นเคยกับเจ้าหน้าที่ เมื่อจะต้องย้ายออกจาก ไอซียู				
7. ฉันรู้สึกไม่ปลอดภัย เมื่อเอาเครื่องมือและอุปกรณ์การแพทย์ออกไปจาก ร่างกาย ก่อนการย้ายออกจากไอซียู				
8. ฉันรู้สึกกลัวการถูกทอดทิ้ง เมื่อฉันรู้ว่าจะต้องย้ายออกจากไอซียู				

ความรู้สึกที่ตรงกับตัวท่าน	ไม่มีเลย	มีบ้าง	มีค่อนข้างมาก	มีมากที่สุด
9. ฉันรู้สึกพร้อมที่จะย้ายออกจากไอซียู				
10. ฉันรู้สึกอ่อนเพลีย ก่อนการย้ายออกจากไอซียู				
11. ฉันรู้สึกหงุดหงิด ก่อนการย้ายออกจากไอซียู				
12. ฉันรู้สึกกระตือรือร้น ในการจะย้ายออกจากไอซียู				
13. ก่อนย้ายออกจากไอซียู ฉันรู้สึกมีคุณค่าในตัวเองลดลง				
14. ก่อนย้ายออกจากไอซียู ฉันรู้สึกกระวนกระวายใจ				
15. ก่อนย้ายออกจากไอซียู ฉันรู้สึกนอนไม่ค่อยหลับ				
16. ก่อนย้ายออกจากไอซียู ฉันรู้สึกเบื่ออาหาร				
17. ฉันรู้สึกกระปรี้กระเปร่า เมื่อใกล้เวลาจะย้ายออกจากไอซียู				
18. ฉันรู้สึกใจสั่น หัวใจเต้นแรงกว่าปกติ เมื่อรู้ว่า ใกล้เวลาจะย้าย ออกจากไอซียู				
19. ฉันรู้สึกดีใจ เมื่อใกล้เวลาจะย้ายออกจากไอซียู				
20. ฉันคิดหมกมุ่นแต่เรื่องการที่จะย้ายออกจากไอซียู				
21. ฉันรู้สึกหวาดหวั่น ต่อการย้ายออกจากไอซียู				
22. ฉันรู้สึกเกิดความไม่แน่ใจในเหตุการณ์ข้างหน้าเพราะไม่รู้ว่าอะไรจะเกิดขึ้นกับตนเอง หลังจากย้ายออกจากไอซียู				
23. ฉันไม่รู้ว่าจะต้องปฏิบัติตัวอย่างไร เมื่อย้ายออกจากไอซียู				
24. ฉันไม่ค่อยมั่นใจ ว่าฉันจะทำกิจกรรม หรือช่วยเหลือตนเองได้เมื่อย้ายออกจากไอซียู				
25. ฉันเกรงว่าจะไม่มีคนมาบอกหรือให้ข้อมูลเกี่ยวกับ ความเจ็บป่วย และการรักษาของตัวฉัน อย่างที่ฉันเคยได้รับเหมือนที่อยู่ไอซียู				
26. ก่อนย้ายออกจากไอซียู ฉันรู้สึกเครียด				
27. ฉันรู้สึกว่าไม่สามารถจัดการกับเหตุการณ์ที่จะเกิดกับ ตนเองได้				
28. ฉันรู้สึกไม่มั่นใจในการดูแลรักษาจากเจ้าหน้าที่ใน หอผู้ป่วยที่ ไม่ใช่ไอซียู				
29. ฉันรู้สึกกังวล เพราะไม่รู้ว่าหอผู้ป่วยที่จะย้ายไปอยู่จะมีเครื่องมืออุปกรณ์ และเจ้าหน้าที่เพียงพอเหมือนในไอซียูหรือไม่				
30. เมื่อญาติหรือครอบครัวของฉันแสดงความวิตกกังวลเกี่ยวกับการจะย้ายออกจากไอซียูของฉัน ทำให้ฉันรู้สึกวิตกกังวลมากขึ้น				

แบบวัดความวิตกกังวลหลังย้ายออกจากไอซียู
Post-Transfer Anxiety Inventory (Post-TAI)

คำชี้แจง

ขอให้ท่านอ่านข้อความทางซ้ายมือ แล้วทำเครื่องหมาย ✓ ลงในช่องที่ตรงกับความรู้สึกของท่านทางด้านขวามือ โดยเลือกช่องที่ตรงกับความรู้สึกของท่านในขณะนี้

ความรู้สึกที่ตรงกับตัวท่าน	ไม่มีเลย	มีบ้าง	มีค่อนข้างมาก	มีมากที่สุด
1. ฉันรู้สึกว่าอาจจะมีอาการแย่ลง ภายหลังย้ายออกจากไอซียู				
2. ฉันรู้สึกไม่ปลอดภัย ภายหลังการย้ายออกจากไอซียู				
3. ฉันรู้สึกกังวลว่าอาจจะเกิดภาวะแทรกซ้อนขึ้นได้ ภายหลังย้ายออกจากไอซียู				
4. ฉันรู้สึกว่าอาการยังไม่ดีพอที่จะย้ายออกจากไอซียู				
5. ฉันกังวลใจว่าจะไม่ได้รับการดูแลรักษาอย่างใกล้ชิด เมื่อย้ายออกจากไอซียู				
6. ฉันรู้สึกสูญเสียความคุ้นเคยกับเจ้าหน้าที่ไอซียู ภายหลังย้ายออกจากไอซียู				
7. ฉันรู้สึกไม่ปลอดภัย เมื่อไม่มีเครื่องมือและอุปกรณ์แพทย์คอยตรวจเช็คร่างกายเหมือนที่เคยทำในไอซียู				
8. ฉันรู้สึกกลัวการถูกทอดทิ้ง หลังย้ายออกจากไอซียู				
9. ฉันรู้สึกตนเองมีความพร้อม เมื่อย้ายออกจากไอซียู				
10. ฉันรู้สึกอ่อนเพลีย หลังย้ายออกจากไอซียู				
11. ฉันรู้สึกหงุดหงิด หลังการย้ายออกจากไอซียู				
12. ฉันรู้สึกกระตือรือร้น หลังการย้ายออกจากไอซียู				
13. ฉันรู้สึกมีคุณค่าในตัวเองลดลง ภายหลังการย้ายออกจากไอซียู				
14. ฉันรู้สึกกระวนกระวายใจ หลังย้ายออกจากไอซียู				
15. ฉันรู้สึกนอนไม่ค่อยหลับ หลังย้ายออกจากไอซียู				
16. ฉันรู้สึกเบื่ออาหาร หลังย้ายย้ายออกจากไอซียู				
17. ฉันรู้สึกกระปรี้กระเปร่า หลังได้ย้ายออกจากไอซียู				

ความรู้สึกที่ตรงกับตัวท่าน	ไม่มีเลย	มีบ้าง	มีค่อนข้างมาก	มีมากที่สุด
18. ฉันรู้สึกใจสั่น หัวใจเต้นแรงกว่าปกติ ตอนที่ย้ายออกจาก ไอซียูมาอยู่ที่หอผู้ป่วยใหม่ๆ				
19. ฉันรู้สึกดีใจ หลังย้ายออกมาจากไอซียู				
20. ฉันคิดหมกมุ่นอยู่กับเรื่องที่ถูกย้ายออกมาจากไอซียู				
21. ฉันรู้สึกหวาดหวั่น หลังการย้ายออกมาจากไอซียู				
22. ฉันรู้สึกเกิดความไม่แน่ใจในเหตุการณ์ข้างหน้า เพราะไม่รู้ว่าอะไรจะเกิดขึ้นกับตนเอง ขณะย้ายมาอยู่หอผู้ป่วย				
23. ฉันไม่รู้วิธีการปฏิบัติตน ขณะอยู่ที่หอผู้ป่วย				
24. ฉันไม่ค่อยมั่นใจในการทำกิจกรรมต่างๆของตนเองขณะอยู่ที่หอผู้ป่วย				
25. ฉันได้รับข้อมูลของความเจ็บป่วยและการดูแลรักษา ไม่สม่ำเสมอเหมือนที่เคยได้รับจากไอซียู				
26. การย้ายออกจากไอซียูมาอยู่ที่หอผู้ป่วยทำให้ฉันเครียด				
27. ฉันรู้สึกว่าไม่สามารถจัดการกับเหตุการณ์ที่จะเกิดกับตนเองได้				
28. ฉันรู้สึกไม่มั่นใจในการดูแลรักษาที่ได้รับขณะอยู่ในหอผู้ป่วยที่ ไม่ใช่ไอซียู				
29. ฉันรู้สึกกังวลว่าหอผู้ป่วยที่ย้ายมาอยู่ จะมีเครื่องมือ อุปกรณ์ และเจ้าหน้าที่ไม่เพียงพอเหมือนในไอซียู				
30. เมื่อญาติหรือครอบครัวของฉันแสดงความวิตกกังวลที่ฉันย้ายออกจากไอซียูมาอยู่หอผู้ป่วย ทำให้ฉันรู้สึกวิตกกังวลมากขึ้น				

Appendix L

Protect Human Right and Consent to Participate in Research Study

คำชี้แจงสำหรับกลุ่มตัวอย่าง

(กลุ่มควบคุม)

ดิฉัน เป็นพยาบาลไอซียูศัลยกรรม ชื่อ วรรธกร รักอิสสระ กำลังศึกษาวิจัยเกี่ยวกับ ผลของการใช้โปรแกรมเตรียมความพร้อมในการย้ายออกจากไอซียูของ ผู้ป่วยที่ได้รับผ่าตัดหัวใจแบบเปิด ต่อระดับความวิตกกังวล ซึ่งดิฉันจะอธิบายให้คุณฟังถึงขั้นตอน และการเข้าร่วมการวิจัย หลังจากนั้นดิฉันจะถามถึงความสมัครใจของคุณ ว่าจะยินดีเข้าร่วมการวิจัยครั้งนี้หรือไม่

การวิจัยครั้งนี้มีจุดมุ่งหมายที่จะศึกษาเกี่ยวกับคุณภาพของการพยาบาลผู้ป่วยที่ได้รับผ่าตัดหัวใจในโรงพยาบาลแห่งนี้ และถ้าพบว่าโปรแกรมที่ใช้ในการดูแลผู้ป่วยที่ได้รับการผ่าตัดหัวใจให้ผลที่ดี ก็จะนำมาใช้เป็นแนวทางในการดูแลผู้ป่วยที่ได้รับการผ่าตัดหัวใจ ต่อไป ถ้าคุณเข้าร่วมในการวิจัย คุณจะได้รับการพยาบาลตามขั้นตอนปรกติของโรงพยาบาล และท่านจะได้รับการเก็บข้อมูล 2 ครั้ง ครั้งแรก คุณจะได้รับการสัมภาษณ์เพื่อเก็บข้อมูลส่วนบุคคลทั่วไปและตอบแบบสอบถามความวิตกกังวลก่อนการย้ายออกจากไอซียู และครั้งที่สองคุณจะต้องทำแบบสอบถามความวิตกกังวลหลังการย้ายออกจากไอซียูเมื่อย้ายกลับตึกผู้ป่วยเดิม ถ้าคุณไม่สะดวกในการอ่านหรือกรอกแบบสอบถามจะมีผู้ช่วยอ่านหรือกรอกแบบสอบถามให้

การเข้าร่วมงานวิจัยในครั้งนี้จะเป็นไปตามความสมัครใจของคุณ และหากคุณเข้าร่วมในการวิจัยแล้วก็มีสิทธิ์ออกจากการวิจัยได้ทุกเวลาถ้าต้องการ โดยไม่มีผลกระทบใดๆต่อการรักษาพยาบาลที่ท่านจะได้รับหลังการผ่าตัด ข้อมูลทั้งหมดของท่านจะไม่ถูกเปิดเผย และนำเสนอในรูปผลของการวิจัยเท่านั้น ตอนนี้คุณมีข้อสงสัยอะไรไหมคะ ?

คุณยินดีที่จะเข้าร่วมการวิจัยนี้หรือไม่

Appendix M

Protect Human Right and Consent to Participate in Research Study

คำชี้แจงสำหรับกลุ่มตัวอย่าง
(กลุ่มทดลอง)

ดิฉัน เป็นพยาบาลไอซียูศัลยกรรม ชื่อ วรรธกร รักอิสสระ กำลังศึกษาวิจัยเกี่ยวกับ ผลของการใช้โปรแกรมเตรียมความพร้อมในการย้ายออกจากไอซียูของผู้ป่วยที่ได้รับผ่าตัดหัวใจแบบเปิด ต่อระดับความวิตกกังวล ซึ่งดิฉันจะอธิบายให้คุณฟังถึงขั้นตอน และการเข้าร่วมการวิจัย หลังจากนั้นดิฉันจะถามถึงความสมัครใจของคุณ ว่าจะยินดีเข้าร่วมการวิจัยครั้งนี้หรือไม่

การวิจัยครั้งนี้มีจุดมุ่งหมายที่จะศึกษาเกี่ยวกับคุณภาพของการพยาบาลผู้ป่วยที่ได้รับผ่าตัดหัวใจในโรงพยาบาลแห่งนี้ และถ้าพบว่าโปรแกรมที่ใช้ในการดูแลผู้ป่วยที่ได้รับการผ่าตัดหัวใจให้ผลที่ดี ก็จะนำมาใช้เป็นแนวทางในการดูแลผู้ป่วยที่ได้รับการผ่าตัดหัวใจ ต่อไป ถ้าคุณเข้าร่วมในการวิจัย คุณจะได้รับการพยาบาลโดยใช้โปรแกรมเตรียมความพร้อมในการย้ายออกจากไอซียู ซึ่งแบ่งเป็น 4 ระยะ คือระยะเริ่ม ระยะพักอยู่ในไอซียู ระยะย้ายออกจากไอซียู และระยะเยี่ยมหลังย้าย และท่านจะได้รับการเก็บข้อมูล 2 ครั้ง ครั้งแรก ท่านจะได้รับการสัมภาษณ์เพื่อเก็บข้อมูลส่วนบุคคลทั่วไปและตอบแบบสอบถามความวิตกกังวลก่อนการย้าย และครั้งที่สองท่านจะต้องทำแบบสอบถามความวิตกกังวลหลังการย้ายออกจากไอซียูเมื่อย้ายกลับตึกผู้ป่วยเดิม ถ้าท่านไม่สะดวกในการอ่านหรือกรอกแบบสอบถามจะมีคนช่วยอ่านหรือกรอกแบบสอบถามให้

การเข้าร่วมงานวิจัยในครั้งนี้จะเป็นไปตามความสมัครใจของคุณ และหากคุณเข้าร่วมในการวิจัยแล้วก็มีสิทธิ์ออกจากการวิจัยได้ทุกเวลาถ้าต้องการ โดยไม่มีผลกระทบใดๆต่อการรักษาพยาบาลที่ท่านจะได้รับหลังการผ่าตัด ข้อมูลทั้งหมดของท่านจะไม่ถูกเปิดเผย และนำเสนอในรูปผลของการวิจัยเท่านั้น ตอนนี้คุณมีข้อสงสัยอะไรไหมคะ ?

คุณยินดีที่จะเข้าร่วมการวิจัยนี้หรือไม่

Appendix N

Guide for research assistant verification to assure
that the assistant can use the ICU-TPP the same as the researcher

Phases and period			Teaching and activities contents	1[a]	2[b]
Session of PO day0		Informed upon awakening from anesthesia	1. Results of the surgery and limitations after surgery		
			2. List of invasive devices and their effects		
		Informed patient after gaining full consciousness	3. Introducing the nurse who cares for the patients (researcher & assistant)		
			4. Orientation to ICU, unit routine, staff in ICU		
			5. Notification from admission to ICU to present stay in ICU as temporary		
			6. Instruction pamphlet to family about patient's operation and transfer process		
Session of PO day1		After extubation	1. Keeping patient up to date with clinical data		
			2. Encouraging patient's verbalization and inquiries		
			3. Encouraging breathing exercise with incentive spirometry		
		Informed patient and family during the time of patient visitation in ICU	4. Presenting transfer as a sign of progress		
			5. Informing patient and family about transfer plan on the critical pathway		
			6. Explaining rationale, function and weaning of monitor and equipment		
			7. Weaning patient from nurse-patient relationship before transfer		
			8. Informing patient and family about activity, pain management, medication and diet, lab tests/treatment		
			9. Encouraging patients' self esteem		
			10. Providing an instruction pamphlet to patient about the transfer from the ICU to general ward		
Session of PO day2	Transferring phase	Informed patient and family in the morning of transfer day	1. Weaning patient from use of monitors and equipment before transfer		
			2. Disconnecting cardiac monitor at least 60 minutes before transfer		
			3. Comparing and contrasting ICU and general ward		
			4. Involving patient's family with transfer		
			5. Building the patient's chance to meet the ward nurse		
			6. Transferring during day time and avoid transfer during routine time or time of nurse shift rotation		
		Measure anxiety before discharge from ICU			
		Provided for patients during transfer	7. Having ICU nurse care for the patient during transfer		
			8. Introducing patient to receiving nurse		
	Visiting	Within 8 hrs after transfer	1. ICU nurse visits patient after transfer		
			2. Preparing patient for hospital discharge and giving an instruction booklet about the recovery		
		Measure anxiety after discharge from ICU (time between pre-post transfer out of ICU of at least 4 hrs.)			

1[a] The research assistant taught and activated
2[b] The research assistant demonstrates understanding
by repeating information and activities to the patient.

เงื่อนไขที่ใช้ในการยอมรับว่าผู้ช่วยผู้วิจัยสอนและทำกิจกรรมได้ตามโปรแกรมเหมือนผู้วิจัย

1. ผู้ช่วยวิจัยสอนหรือทำกิจกรรมตามโปรแกรมใน 4 ระยะ ให้ครบทั้ง 27 ข้อ
2. ผู้ช่วยวิจัยสอนหรือทำกิจกรรมตามโปรแกรมตามห้วงเวลาที่กำหนดตาม pathway
3. ผู้วิจัยประเมินผู้ช่วยวิจัยตลอดการสอนและการทำกิจกรรมตามโปรแกรม
4. ผู้ช่วยวิจัยสอนหรือทำกิจกรรมตามโปรแกรมได้อย่างถูกต้องตาม แนวทางการการให้ข้อมูล (Instruction content guideline)
5. ผู้ป่วยต้องถูกประเมินจากผู้วิจัยว่ารู้และเข้าใจในคำแนะนำโดยสามารถบอกและปฏิบัติได้ถูกต้อง หลังสิ้นสุดการสอนและทำกิจกรรมในแต่ละระยะ (phase)

ผู้วิจัยได้ฝึกผู้ช่วยวิจัยในการใช้โปรแกรม (Intervention) จำนวน 4 คน แต่มีผู้ช่วยวิจัยที่ผ่านเงื่อนไข 3 คน ดังนั้น ในงานวิจัยนี้จึงมีผู้ช่วยวิจัยในการให้ intervention จำนวน 3 คน

BIOGRAPHY

NAME	Capt. Wattakorn Rak-issara
DATE OF BIRTH	28 June 1967
PLACE OF BIRTH	Saraburi, Thailand
INSTITUTIONS ATTENDED	Burapha University, 1985-1989: Bachelor of Nursing Science Mahidol University, 1999-2003: Master of Nursing Science (Adult nursing)
THESIS SUPPORTED FUND	Support in part by Thesis Grant. Graduate Studies of Mahidol University Alumni Association
POSITION & OFFICE	1991-Present, Registered Nurse at Surgical Intensive Care Unit, Surgical Department, Pramongkutkalo Hospital