Abstract of thesis entitled

“A standardized protocol on witness resuscitation in cardiac arrest patients in Accident and Emergency department”

Submitted by

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Psychological impact is usually experienced by the relatives when their family members were cardiac arrest and received resuscitation. In tradition, during the resuscitation, the patients’ relatives are not allowed to observe the resuscitation procedure. They have no idea about the patient’s condition and what the health care providers do in the resuscitation room. The sudden cardiac arrest of patient usually causes negative psychological impact on the relatives on bereavement and it makes health care providers face difficulty in handling. The relatives usually feel stress, depression and anxiety when experience the loss of their love.

In Hong Kong, there are more the 800 resuscitation case in each Accident and Emergency department each year. The affected family would experience psychological impact for a sustained period. If there are ways to reduce their psychological impact when they handle this difficulty, it would improve their
quality of life. However, there are no specific tools or measure to prevent this traumatic psychological impact to the relatives. It is expected that there are evidenced-base measure established by nurses in the Emergency Department (ED) to provide the relatives with psychological care and support.

A literature search was conducted. There databases were used including PubMed, CINAL Plus and ProQuest. Five studies published from 1998 to 2014 were selected which included four randomized control trial and one prospective, comparative study. Review of the current literature reveals that family witness resuscitation as strategy to reduce psychological impact is effective. It seems intuitive that implementing family witness resuscitation in the Accident and Emergency is beneficial to the family members.

After assessing the transferability, feasibility and its cost/benefit ratio to incorporate the new innovation, the innovation was considered as transferable and feasible to be implemented in the Accident and Emergency (A&E) settings in Hong Kong. A clinical protocol on family witness resuscitation to reduce relatives’ psychological impact was developed. Before incorporating family witness resuscitation in ED, the communication plan, the pilot test and the evaluation plan were discussed.

A communication plan was developed with strategies to integrate and maintain the changes in practice with the stakeholders. A pilot test will be conducted using the protocol to examine the work flow, the acceptability, fidelity and feasibility of the innovation. Finally, an evaluation will be conducted on the process and outcome.
A standardized protocol on witness resuscitation in cardiac arrest patients in Accident and Emergency Department

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Declaration

I declare that this thesis represents my own work, except where due acknowledgment is given and that it has been previously included in a thesis, dissertation or report submitted to this University or to any other institution for a degree, diploma, or other qualifications.

Signed _______________________

Luk Chun Yu
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Chapter 1: Statements of the Problem

1.1 Background

Witness or family-presence resuscitation is a new promotion in the general health care settings. Resuscitation is a medical procedure to save the patients’ life that is in critical condition such as cardiac or respiratory arrest. In the tradition, during the resuscitation, the patient’s relatives are not allowed to observe the resuscitation procedure (AHA, 2005). They have no idea about the patient’s condition and what the health care providers do in the resuscitation. In the ED, the patients usually suffer from sudden cardiac arrest and it may cause traumatic psychological impact towards the relatives. This emotional impact may cause the negative effect on the relatives on bereavement and it makes health care providers face the difficulty in handling it. Recently, there are sounds promoting the family presence during the resuscitation. The guideline from American Heart Association (2005) suggests that the health care provider should give a choice to the relatives whether they are present or not during the resuscitation. There are some studies suggested that there may be some benefits towards the relatives which can reduce emotional impact and provide them support (Meyers et al., 2000, Mian et al., 2007, McMahon-parkes et al., 2009). The idea of witness resuscitation is allowing the relatives to understand the procedure of resuscitation. They would realize the most appropriate treatments have been done to the patients and it may help the grieving process. However, there are some opinions that the benefit of
witness resuscitation is not proven and it may cause the unexpected effect on the health care providers. In the western countries, the witness resuscitation is a trial and the use of witness resuscitation only depends on each single situation like pediatric cases or in some single department like intensive care unit (AHA, 2005). In Hong Kong, there are also lacks of clinical guideline to support the frontline staffs to manage the use of witness resuscitation. Not only the health care providers but also the general public has limited ideas about the witness resuscitation.

1.2 Affirming of the needs

Importance of witness or family-presence resuscitation

When the patients were suffered from critical illness or accident like critical trauma, they may need resuscitation for saving their lives. However, according to the America Heart Association (2005), the recovery rate for patients with sudden cardiac arrest is below 30%. For those patients who sudden cardiac arrest before the arrival of hospital, the recovery rate is much lower. It shows that many patients would lose their life even the health care teams have spent their effort to perform resuscitation. Some studies have been conducted to interview the families who lost the relatives suddenly (Bambi et al., 2002, Duran et al., 2007). The relatives claimed that the impact of sudden bereavement is very large. They did not accept that the health care teams could not save their relatives (Bambi et al., 2002). They had many question and unknown about the process of resuscitation. It might cause the traumatic effect on their psychological and emotional condition. Some relatives reported that they showed little distrust towards the health care providers. (Duran et al.,
These emotional impacts affect them more than 6 months or even longer. However, if the relatives were able to be present during the resuscitation, they found that it was easier for them to accept the bad news and they would realize that the health care providers have put their effort to save the patients (Meyers et al., 1998). Some of them in this study reported that they could accompany the relatives when they were suffering and be present when the patients passed away. It is a traditional belief for them especially in the Chinese culture. In the Chinese culture people would feel regretful if they could not attend the sense since it was the last chance to see their relatives.

**Situation in local settings**

In resuscitation, the health care teams including 1-2 physicians and 3-4 nurses need to perform different assessments and intervention (AHA, 2005). The health care team needs to provide chest compression, ventilation, and medication injection. For some cases, for example hypothermia leading cardiac arrest, the patients needs to be re-warming during the resuscitation. In other case, if the patients developed difficult airway, the health care team needed to consider intubation or even surgical airway to maintain the respiration. There are some arguments that the presence of relatives during the resuscitation may disrupt the procedure. Therefore, witness resuscitation still is not common practice in general health care settings in Hong Kong. Some parties suspected that there may be potentially harmful to the health care providers and families (Badir & Sepit 2007 & Demir, 2008). However, some health care providers showed support to the witness resuscitation after briefing or education about this matter. According to Henderson & Knapp (2005), it
reported that the health care providers were be interested in learn more about witness resuscitation. Both physicians and nurses were support the idea of witness resuscitation. They showed interest to learn more and try to promote this if there are sufficient guidelines or support. It recommends that the health care providers also agree the implementation of witness resuscitation and need more information about it.

Recently, the public have known more about the medical knowledge and their expectation is increasing. They would like to receive more information when their families are receiving care in the hospital. In Hong Kong, witness resuscitation is not a routine procedure. The individual hospitals or departments might consider allowing the family presence in some cases. There are also no guidelines from the Hospital Authority. In the ED, there is higher possibility to face this problem. It is an advance nursing role to provide a holistic care not only for the patient but also their families. We need to respect their right and consider their needs. There are needs to study this topic in order to improve the general care to the public about the critical resuscitation procedures.

1.3 Objective and Significance

This evidence base protocol could provide an appropriate resuscitation meanwhile provide the support to the relatives.

For the public, this evidence base research provides the information about the needs of relatives. This paper may summarize the physical and psychological needs during the resuscitation. Also, this guideline could allow the public’s
right of choice. The public could know more about what the health care teams would perform during the resuscitation procedure and it might help to build up the trust relationship among the health care providers and public.

This transitional nursing research also provides evidence-based information to facilitate the clinical staff performing witness resuscitation. For the health care team, this evidence-based research would search and analysis the useful concept and skills which are essential to establish the clinical guideline. Nowadays, the frontline staff could not make conclusion that witness resuscitation is benefit or harmful towards the relatives. A systematic review is necessary to provide evidence that whether witness resuscitation should be promoted or not. Moreover, the health care teams should be educated before providing this service. This evidence based guideline provides a training material for the frontline hospitals. The individual department could establish their own guideline according to this evidence guideline, not only the ED but also the other departments for reference. The health care staff could learn the appropriate method of witness resuscitation.

Research Question

In order to provide evidence that witness resuscitation is useful. The research question has been established. The research was set in PICO format.

In the family of patients under cardiopulmonary resuscitation, how does family presence compare to non-witness resuscitation, improve psychological stress?
(P): Family members in AED

(I): Family members witness resuscitation protocol

(C): Standard practice (non-witness resuscitation)

(O): improve psychological stress

Aims

The aim of the protocol is to translate the basic evidence and recommendations of witness or family-presence resuscitation in AED.

Objectives of the research

1. To gather the significant evidence of witness resuscitation to reduce the psychological impact of relatives.
2. To develop the standard protocol for allowing witness resuscitation in the ED.
3. To access the implementation potentials of the witness resuscitation protocol.
4. To evaluate the effectiveness of the witness resuscitation protocol.
Chapter 2: Review of evidence

2.1 Study Selection Criteria

Inclusion Criteria

- Studies with original full report in either English or Chinese were included.

Type of studies

- Unrestricted searches on types of studies and were taken.

Type of Participants

- Relatives with family’s members receiving witness resuscitation to their relatives in hospital settings

Types of Intervention

- Relatives were allowed to witness the process of resuscitation.

Types of Outcome Measure

- Psychological or emotional outcome like stress, traumatic impact, acceptance of lost.

Exclusion Criteria

- Studies targeting on the health care team
Patients receiving resuscitation outside hospital settings.

Unpublished research paper and descriptive studies were also excluded.

2.2 Search Strategies

A search of literature published between Sept 1994-2014 for the studies about witness resuscitation. Three databases were included Pubmed, CINAHL Plus (EBSCOhost) and Psyinfo (ProQuest). The relevant MeSH terms including all subheadings included “witness resuscitation”, “family presence resuscitation”, “psychological impact”, “psychological effect” and “psychological distress”. After the key words search using above terms, 12 possible studies were searched. 11 from Pubmed, 1 from Psyinfo (ProQuest) and no articles could be searched from CINAHL Plus (EBSCOhost). (Appendix 1)

After the searching process, the titles of the searched were screened and the irreverent articles were excluded. Then, the abstracts of the chosen articles were reviewed. The citations in the chosen studies were also screened to identify the possible paper in the review and there were no result retrieved. Finally, there were totally five studies from 1998 to 2014 chosen. (Appendix 2)

2.3 Appraisal strategies

Methodology checklists for controlled trials of by SIGN in 2012 were used in the study appraisal. The checklist was used to access the quality of the studies. The checklists of the five chosen articles were attached. (Appendix 2)

Internal validity
The 5 chosen studies addressed appropriate and clearly-focused research questions and matched the purpose of the studies. And all studies clearly defined the outcome measures and provided conclusion for the effect of witness resuscitation for the relatives.

About the randomization, 4 studies showed that the subjects were randomized to either intervention or control group. One studies of prospective comparative study in 2010 by Pasquale et al. was used. The intervention and control group were decided by the subjects. They could choose presence or not during the resuscitation. About method of randomization, the Robinson et al., (1998) used sealed envelope to randomize the subjects. Jabre et al., (2013) mentioned that they use simple randomization. They assigned eight of the subjects to the intervention group and seven to the control group. The other two studies just mentioned that randomization was applied but did not mention which type of randomization was included.

For the recruitment of the subject, all five studies have mentioned the dropout rate. The dropout rate was 17% in Jabre’s study (2013) and 18% in Robinson’s study (1998). The dropout rate in Jabre’s study (2013) was 17%, 28% in Jabre’s study (2014) and Pasquale’s study (2010) was 5.7%. According to the suggestion from SIGN, the dropout rate should be less than 20%. Four out of five studies met this requirement. In Jabre’s study (2014), the overall rating should be downgrade since the dropout rate was slightly larger than the standard.

Since in the intervention group, the presence of the relatives would be noticed during the resuscitation. It could not be avoidable that the subjects and the
investigators could not be blinded. The similarity of the intervention and control group during the start of the trials was positive for the Patricia et al., (2013) and Robinson et al., (1998). However, there was no sufficient information about the similarity in the other the three studies. About the intention to treat analysis, the Jabre et al.,(2013) and Jabre et al., (2014) has mentioned the analysis of the study was based on the intention of treat population. Then, all five studies have mentioned the length of studies.

Quality Assessment Rating

After doing the appraisal, the rating of the chosen studies have been done. The rating showed that how the studies minimize the bias. In Jabre’s study (2014) was rated as 2+ of the quality assessment rating. It showed that this study get a high quality to minimize bias. It fulfilled 7 out of 10 in the internal validity. The larger sample size also reduces the error of analysis. Robinson et al., (1998). Jabre et al, (2013). Jabre et al., (2014) and Pasquale et al., (2010) were rated as 1+. These four studies showed the acceptable quality to minimize bias. The Pasquale et al. (2010) is a comparative study that no randomization has been used on assigning intervention group and control. According to the Checklist, the rating of this study should not be higher than 1+. Although this study is not a randomize study, the large sample size could be significant to reduce the bias.

Overall, the five chosen studies could fulfill the basic requirement of the SIGN checklist. The overall effect was due to the study intervention and the result of these studies could directly apply to the patient group in the studies.
2.4 Table of evidence

The data from the five chosen article were extracted in the format table of evidence (appendix 3). The critical points were presented as follow:

The study type

Four out of five studies were randomized controlled trials. Patricia et al., (2013) and Jabre et al., (2013) were cluster-randomized controlled trials. The Robinson et al., (1998) was a single center randomized controlled trial and Jabre et al., (2014) was a multi-center randomized controlled trail. The fifth study Pasquale et al., (2010) was a prospective, comparative study and no randomization was used in assigning subjects.

Characteristics of Participants

The five studies recruited the family members of the patients receiving cardiopulmonary resuscitation in the emergency units. In Jabre et al., (2013), the study recruited totally 570 family members who were all adult. The relationship of the members with the patients included partner, child, parent and sibling. The family members included with the age range of 19-78 years old (Robinson et al., 1998). In the study Jabre et al., (2013), the average age of the family members was 57 and 36% was male. They were all adult and relationship with the patients included spouse, child, parent and siblings. The Jabre et al. (2014) also included adult family members and Pasquale et al. (2010) mainly focus on the patients with trauma.

Description of the intervention
The studies including Jabre et al., (2013), Robinson et al., (1998), Jabre et al., (2014) and Pasquale et al.,(2010) provided the intervention group with witness resuscitation. The relatives were able to attend the resuscitation area during the resuscitation. In Jabre’s study in 2013 mentioned that a communication guide was offered to introduce the condition and explain the procedure to the relatives during the resuscitation. In Jabre’s study in 2014 offered opportunity for the family members in the intervention group to choose witness or not. Some family members in the control group may have chances to witness the resuscitation without systematically offered.

**Outcome measurement**

All five studies were well defined the outcome measurement. These outcome measurements mainly focus on the psychological and emotional changes. The study Jabre et al., (2013) used Impact of Event Scale score (IES) and Hospital Anxiety and Depression Scale (HADS) score to assess the outcome. The IES contain 15 items and the high score reflected the severe post-traumatic stress disorder (PTSD) related symptoms. The HADS included two scales. The scale measure the symptom of anxiety and depression. The high score reflected the more severe symptoms. The study Robinson et al., (1998) used different scales to measure the outcome. Besides HADA and IES, this study also used Back anxiety inventory (BAI), Back depression inventory (BDI) and Texas inventory of grief (TRIG) scale. These two tools measure the severity of anxiety and depression. Subjects with the higher score which is indicated with more severity in anxiety and depression. The TRIG consisted of two parts. The TRIG1 address the feelings and the action at the time of death. TRIG2
reflected present feelings. State-Trait Anxiety Inventory (STAI) score, Critical Care Family Needs Inventory (CCFNI) score and Family Well-being Index (FMWB) score have been used in the study Pasquale et al., (2010). The STAI measured the feelings apprehension, tension and worry. CCFNI measure the family member needs focusing on empathy, attitude, and access to caregivers, technical competence and convenience of environment. The FMWB Index measures the feelings of family members on health, tension, energy, fear, anger and general concern. The lower score represent the difficult adaption.

Effect size

The five studies generally showed that the witness resuscitation obtained the effect on reducing the negative psychological impacts. The studies Pasquale et al. (2010) and Robinson et al. (1998) indicated non-significant effect from the intervention group. The large p-value may be the result from small sample size. However, other studies showed significant evidence that the intervention group expressed less impacts comparing to the control groups.

2.5 Summary and Synthesis of the Findings

Summary of Findings

All five studies also supported the intervention (witness resuscitation) presented positive effect on different psychological factors. The study of Jabre et al. (2013) showed that the witness resuscitation is the factors on positive result on psychological variable and the family presence would not cause the medical conflict. The health team would not increase stress during the resuscitation. In Robinson et al., (1998)’s study, it suggested that the routine
exclusion of family presence during resuscitation may be not appropriate. In the study of Jabre et al. (2013), it suggested that the family presence resuscitation would reduce the anxiety of post traumatic stress. The study of Jabre et al. (2014) showed that there are benefits for the family members who have opportunity to choose presence during the resuscitation. The fifth study Pasquale et al., (2010) suggested that the quality of the resuscitation could be maintained in the witness resuscitation. The family member also supported this experience would be helpful to maintain stable well-being.

Data Synthesis and Recommendations

The result of the chosen studies provided the evidence that witness resuscitation is benefit to the family to accept the death of patients. The data synthesized from the studies would be useful to achieve the paper’s outcomes. The evidence and suggestion from the studies could be considered to generalize a standardized guideline for witness resuscitation for cardiac arrest patients in ED in Hong Kong.

Recommendation 1 - The location of offering witness resuscitation

The studies searched that providing significant evidence mainly focusing on the ED. There were not information supported that the results from the studies were applicable to the other units. ED is suggested to offering witness resuscitation.

Recommendation 2 - The types of patients receiving CPR appropriate for witness resuscitation
According to the Jabre et al., (2014), the patients developed cardiac arrest outside hospital and CPR was attempted during the transportation was suitable for offering witness resuscitation. The age of the patients in the studies is mainly above 18 years or adults. Robinson et al., (1998) have example that the patient in study was 8 years old. However, there was no significant evidence. According to the above studies, adult was the main population for the witness resuscitation.

Recommendation 3 - The type of family members present during the resuscitation

According to Jabre et al. (2013), adult was recommended to be presence during resuscitation. The impact of the children witness resuscitation was unknown. The family members could be parents, spouse, siblings and off sibling.

Recommendation 4 - The numbers of family member presence during the resuscitation

All the studies were performing one patient with one relative intervention. There was no significant evidence to prove how many family members should be patients during the resuscitation. Pasquale et al. (2010) suggested that one family member who is the spokesperson should be the ideal one to be presence.

Recommendation 5 - Offering choice to the family for witness resuscitation

Jabre et al. (2014) provided the significant evidence that if the family was
given a choice of witness resuscitation; the effect of reducing negative impact was high than assigning them into either presence or non-presence group. The time of offering decision should be made throughout the whole process of the resuscitation and their decision should be supported without judgments (Pasquale et al., 2010).

Recommendation 6 - Introduction of the witness resuscitation to the family

Jabre et al. (2013) suggested that communication guide should be provided during the procedure. The guide is useful for explanation and announcement of death. Pasquale et al. (2010) suggested that before entering the resuscitation room, the family should be told about the environment in the resuscitation area setting, possible situation and what the patients may receive.

Recommendation 7 - The end of the witness resuscitation

The witness resuscitation should be withheld if the family was emotional unstable or violent behavior happened. Also, if the resuscitation has been disrupted in every situation, the witness resuscitation should be stopped. The family should be escorted and appropriate supportive care should be provided (Jabre et al., 2013)
Chapter 3: Translation and Application

3.1 Implementation Potential

Resuscitation with sudden collapsed patients in the A & E Department is a common task that it makes unpredicted impacts towards the relatives (Bambi et al., 2002). It is also difficult for the healthcare providers to manage the emotional condition of these relatives (Duran et al., 2007). The reviewed research studies have provided evidence that family member presence resuscitation for the sudden collapsed patients could reduce the emotional impacts towards the relatives (Patricia J. et al., 2013; Jabre et al., 2013; Robinson et al., 1998; Jabre et al., 2014; Pasquale et al., 2010). It provides support that the implementation of this standardized protocol in the local emergency department would benefit to the relatives and healthcare providers. According to Polit and Beck (2008), the transferability, the feasibility and the cost/benefit ratio of the innovation need to be considered. For the above mentioned topic would be discussed in this chapter. The standardized protocol for family presence resuscitation on the cardiac arrest patients will be developed.

Target Setting

This proposed standardized protocol is implemented in an ED under the Hospital Authority (HA). A selected emergency department provides 24 hours emergency services which serve the population of West Kowloon region. In the selected emergency department, the patients would attend the department
through ambulance or walk-in. According to the Master Statistics from Hospital Authority (2014), the average attendance of this selected department is around 350 per day. The attendance of patients who need resuscitation is more than 800 in 2014. This ED needs to handle more than 2 cases with resuscitation each day.

3.2 Transferability of the findings

Similarity of Setting and Target Population

The settings of the all selected studies were ED. It is transferable for this proposed protocol to implement in Hong Kong since the nature of the clinical settings is similar among the reviewed studies and the local ED.

The target population in the studies is similar to those in the proposed ED settings. Both of the target audiences are family members of patients receiving resuscitation in the ED. In the studies, the patients were developing Cardiac Arrest outside the hospital setting and transferred by ambulance or their relatives (Patricia et al., 2013; Jabre et al., 2013; Robinson et al., 1998; Jabre et al., 2014; Pasquale et al., 2010). This situation is similar to the local department settings. The main target patients are adult in the study (Robinson et al., 1998). It is also similar to the local settings that the main age group of the local department is above 18 years old according to the Master Statistics from Hospital Authority (2014).It is transferable of the findings about the settings and target population.

Philosophy of Care
The philosophy of care of Hospital Authority is focusing on the “people first” organization. They always strive to treat the patients and their families, staff members and other stakeholders in the community fairly, with respect and as equals (Hospital Authority of Hong Kong, 2014). It also supports the staff to take action to improve knowledge, skill in order to increase professionalism. The proposed protocol fulfils the concept of the mission of Hospital Authority that this implementation encourages the clinical staff to innovate evidence base practice to enhance quality of care not only the patients but also the relatives. This proposed protocol is mainly promoting the care towards the relatives. The organization also supports the clinical staff to improve the quality of care by promoting professionalism. This proposed protocol is an evidenced-base study that it could provide advance nursing practices in the clinical settings.

**Clients Benefit from Innovation**

According to the Master Statistics from the Hospital Authority, the selected emergency department serves more than 800 patients who need resuscitation and the number of patients who is certified dead in the department is around 550 patients. The statistics shows that there are more than 2 resuscitation case per day in the departments and the more than half of these case need bereavement in the department. It is estimated that the number of relatives involved in this proposed protocol would be more than 1000 annually. So, if the proposed innovation is implemented, there are sufficient number of target population who would benefit from this proposed family presence resuscitation.
3.3 Feasibility

The implementation of a new clinical guideline may face different problem in the clinical settings. The feasibility of implementing the innovation should be considered according to the chosen clinical situation.

Motivational Readiness for Change

The proposed protocol needs the support from the management level. Although the reviewed evidence shows that the family-presence resuscitation is beneficial to the clients and clinical staffs, it is necessary to seek approval for the head of service in the cluster and department. In the local emergency department, one of the missions is encourage learning and innovation in care delivery (Hospital Authority, 2011). The organization climate shows positive attitude towards the innovation. So, it is confident for our team to propose this evidence-base protocol since the proposed innovation provides an advance evidenced-base nursing care. The department head of the chosen emergency department also shows support and encouragement about the advance nursing practice. In 2013, the department head and manager provided support and welcomed the implementation of nurse-led clinic in the department. They show conductive and supportive in improving the quality of care and services in the department.

The staffs in the chosen department also show positive attitudes about the changes of current practice. They are looking forwards to receiving some standardized protocol in the clinical practice so they could be more confident to deliver care to the clients.
Need of External Assistance

The reviewed evidence from the research articles show that this proposed protocol may need the assistance from the ambulance service (Pasquale et al., 2010). The patients found collapsed outside the hospital mainly transferred by the ambulance crew. They would provide information about the patients and relatives condition in advance. So, the cooperation with the ambulance service is important in this service. The cooperation between the Hospital Authority and Ambulance division is currently implemented. The Hospital Authority and Ambulance division would run different drill together. For example, the disaster drill and management infection control management. Besides, ED is a main partner with the ambulance division in the Hospital Authority. The ambulance division and ED would arrange their staff and crew members to attach the duty between two departments in order to explore and share their services and skills. So, it is expected that the assistance from the ambulance service for the proposed protocol is feasible.

Availability of Staff

In the chosen ED, when managing a resuscitation case, there are two doctors and 4 nurses in the resuscitation room. The daily manpower in each shift includes 2 nursing officers and 12 nurses. During night duty, the route manpower is 1 nursing officer and 4-5 nurses. It is possible to arrange extra staff for handling the relatives when resuscitation in progress. The proposed protocol also provides guidelines to the staff with different experience to follow in the delivery of care.
Availability of Resources

The basic equipment for training is available in the ED such as computers, projectors and television. There are also interview rooms available in the department for the counseling and bereavement to the relatives. The resuscitation room would also be re-designed that provides area for the relatives to be present during the resuscitation.

Require Skills and Training

Family-presence resuscitation is a new innovation in local settings. The clinical staff may feel difficult since there may be unfamiliar situation. However, the nurses usually have basic training about psychology and counseling skills in the Nursing School. They would have basic knowledge about handling relatives with critically illness patients. Besides, all the nursing staff in the ED are required to hold certificate of Advance Cardiac Life Support (ACLS) from American Heart Association. They have sufficient knowledge about the resuscitation process which is important for introducing to the relatives. In order to achieve the goal of the proposed protocol, sufficient training and the introduction of this evidence-based protocol are required. The clinical would be provided workshop for introducing the new protocol and sharing counseling skills through discussion. The staff are required to participate role play during the workshop to improve their counselling skills.

Anticipate Resistance

When implementing a new innovation, extra time and manpower will be
required to minimize the interruption the route service. The influence of family-presence resuscitation on the staffs’ performance in the resuscitation also needs to be considered. A pilot study would be conducted to assess the feasibility of the innovation. Interview would also be performed to collect data from doctors and nurses assess the barriers during the implementing of the innovation. The cooperation between the ED and ambulance service would also need to evaluate the innovation practice.

It is expected that the proposed innovation would be implement efficiently if communication is adequate.

**Evaluation and Quality Control**

The evaluation of the service is essential to maintain the quality of care. More detailed discussion would be covered in the Chapter 6. There are different rating score to access the emotional condition suggested by the reviewed articles (Patricia et al., 2013; Jabre et al., 2013; Robinson et al., 1998; Jabre et al., 2014; Pasquale et al., 2010). These tools are helpful in the evaluation process.

**3.4 Cost-benefit Ratio of the Innovation**

The overall cost and benefits would affect the decision of implementing a new innovation. It is necessary to evaluate the ratio of cost and benefit

**Potential Risk**

The family-presence resuscitation allows the relatives present in the resuscitation. There may be potential harms towards the healthcare providers
(Demir, 2008). To reduce the risk of this disturbance, the standardized protocol should clearly mention the ways to control this problem and the decision of terminating the witness time. Also, the interview from the healthcare providers about the innovation also collects the opinions from them and the protocol could be improved in the discussion during the department meetings.

**Potential Benefit**

**Clients**

The family-presence resuscitation provides chance to the relatives to realize the resuscitation process. The reviewed articles showed that the emotion impact towards the relatives is significant decrease (Patricia et al., 2013; Jabre et al., 2013; Robinson et al., 1998; Jabre et al., 2014; Pasquale et al., 2010). The relatives could realize the efforts from the healthcare providers that they have tried their effort to save their relatives (Fulbrook et al., 2007). It provides positive experience about the grieving process (MacLean et al., 2003). The impact of sudden loss of relative cause emotional problem and may last for a long period (Pasquale et al., 2010). In addition, the new innovation helps the relatives to handle this difficult situation. It helps to maintain not only physical health but also psychological and spiritual health.

**Nurse**

The evidence-based protocol provides standardized guideline for the frontline staffs that it helps them to handle the clients’ emotional problem. They could enhance their knowledge about the development of nursing practice in other countries. The evidence-based practice also increases the professionalism and
autonomy of nurses. The advance nursing practice promote the evidence-base practice rather than base on own experience. The new innovation promotes the use of evidence-base practice. It is expected that it is helpful to encourage the nursing staffs to chance their traditional practice.

**Organization**

The new evidence-based protocol is expected to improve the quality of service in the organization. The innovation helps to establish the up-to-date image of the organization and promoting this evidence-based culture to the other department.

**Risks of Maintaining Current Practice**

The reviewed articles show that the relatives were suffered from the emotional impact in the current practice (Patricia et al., 2013; Jabre et al., 2013; Robinson et al., 1998; Jabre et al., 2014; Pasquale et al., 2010). If the current practice does not change, the clients could not identify their needs and the number of clients involved is large in estimation.

Since the benefit of the new innovation are expected to override the risks, the proposed protocol; should be implemented in the clinical settings.

**Tangible Cost**

When implementing a new innovation, there would be extra cost in the department. There would be materials and non-materials cost. The estimated cost and saving for the family-presence resuscitation are shown in the Appendix 4.
Materials cost

Since the extra equipment for this protocol is minimal, the major cost of this innovation is manpower. The service is included in the route practice. No extra manpower needs to be established. The cost is mainly come from the training workup. The estimated duration of the workshop is 3 hours. According to the Civil Pay Scales (Civil Service Bureau, 2014), the estimated median monthly salary for Nurse Officer is HK$49495 and Registered Nurse is HK$31200. The registered nurse hourly pay rate is approximately is HK$1124 and HK$709. In view of, each nurse for the 3 hours’ workshop is around HK$3372 and HK$2127.

The printed materials for workshop and documentation including the written protocol, dictionary are available in the department for route use.

Non-material costs

The main cost of this protocol is the extra manpower who accompany with the relatives. The nurse needs additional time for counseling during and after the resuscitation. Also, the nurses need extra time to report any difficulty and evaluate about the case to the project coordinator.

Conclusions

The new innovation is beneficial to the clients, nurses and the organization comparing with the current practice. After assessing the transferability, feasibility and the cost/benefit ratio of the family presence resuscitation, it is highly feasible to implement this evidence-based protocol in the emergency
setting of Hong Kong.
Charter 4: Intervention Protocol

Overview of Protocol

Evidence-based Clinical Protocol

The idea of family-presence resuscitation is introduced to the local ED settings for the healthcare providers to increase quality of care to the clients with the potential of reduce the psychological impact during bereavement.

Protocol Title

A standardized protocol on witness resuscitation on cardiac arrest patients in AED

Aim of Protocol

The aim of the protocol is to provide information for healthcare professionals on the practice of family-presence resuscitation to reduce the psychological impact and increase quality of care

Target Group

The target group is adult family member with patients receiving resuscitation in the ED.

Major Outcome

The major outcomes are acceptance of bereavement with lower psychological impact and traumatic experience by the family members
Recommendations

The evidence used in this protocol was graded using the levels of evidence of SIGN (2008) and the recommendations formulated based on the recommendation of SIGN (2008).

Recommendation 1:

The types of patients receiving CPR appropriate for witness resuscitation

**Grade A** The patients above 18 years who develop cardiac arrest outside hospital and CPR was attempted during the transportation were suitable for offering witness resuscitation. (Jabre et al., 2014, Robinson et al., 1998) (1+)

Recommendation 2:

The type of family members present during the resuscitation

**Grade A** The adult family members of the patients. The family members could be parents, spouse, siblings and offspring. (Patricia et al., 2013)(2+) and (Jabre et al., 2013)(1+)

Recommendation 3:

The numbers of family member presence during the resuscitation

**Grade A** One family member who is the spokesperson should be the one to be present. (Jabre et al., 2014; Pasquale et al., 2010) (1+)

Recommendation 4:
Offering choice to the family for witness resuscitation

**Grade A** The time of offering decision should be made throughout the whole process of the resuscitation. (Patricia et al., 2013) (2+) and (Pasquale et al., 2010) (1+)

Recommendation 5:

Introduction of the witness resuscitation to the family

**Grade A** The family should be told about the environment of the resuscitation area, safety, possible situation and what the patients may receive before entering the resuscitation room. (Jabre et al., 2013, Pasquale et al., 2010) (1+)

Recommendation 6:

The end of witness resuscitation

**Grade A** The witness resuscitation should be stop if the family was emotional unstable or violent behavior happen which may disrupt the resuscitation. (Patricia et al., 2013) (2+) and (Jabre et al., 2013; Robinson et al., 1998) (1+)

The flow of handling family member resuscitation is formulated in steps for convenience in clinical use. (Appendix 5)
Chapter 5: Implementation Plan

Introduction

The studies chosen in this protocol showed that family member-witness resuscitation is effective to reduce the psychological impact of relatives and the quality of care would be improved by changing the current practice. In Chapter 3, this innovation is discussed and the result supported that the protocol is transferable and feasible to be implemented in the A&E in Hong Kong. In this chapter, the communication plan and the pilot test of implementation the family-witness resuscitation in the A&E department would be discussed.

5.1 Communication Plan

Communication with Stakeholders

Stakeholders are different groups of people who are affected or could influence the implementation of the new plan. The stakeholders could be identified as internal and external groups. In the A&E Department settings, the main internal stakeholders included senior administrators, doctors and nurses. The important external stakeholders are Chief of Service (COS) and Operation Manager of the department (DOM). The ambulance service and the family members who have relatives under resuscitation in the Emergency Department are also the essential external stakeholders.

Obtain Official Approval for Pilot

Melnyk and Fineout (2005) recommended that top-down organizational
support is imperative when implantation of evidence based practice needed to be sustained. Seeking approval and support from the administration of hospital and cluster is necessary before implementing the pilot test. The timeline for the planning of implementation of the new protocol in the Emergency Department is attached in below. (Appendix 6)

The Department Chief of Service (COS) and Department Operation Manager (DOM) of the department will be consulted during the whole process of implementation. They are the essential stakeholders who approve the innovation. The revised implementation plan about the research evidence, benefit and implementation potential would be reported to them through the nursing officer in-charge.

Initiation of the Marking Plan

The promotion of the innovation is important and the health care providers are recommended to be involved in the early stage of the promotion (Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004). The development of a marketing plan about the planning of pilot test is necessary. This marketing plan will be disseminated to all the stakeholders when the proposed protocol is approved.

Health care Providers

All nurses and doctors of the ED are involved in the family-witness resuscitation protocol. A poster about conception of family-witness resuscitation will be posted in the common room of the staff. A brief introduction about the new protocol and planned pilot test will be held. The
nurses and doctor would obtain information about the concept of the
innovation and the responsibility of the health care providers. All staff will be
invited and half-staffs in the department are expected to attend. During the
daily hand-over session, this issue would be delivered to the staff for a week to
ensure that most of the staff would obtain the information.

Ambulance service

The department in-charge of the ambulance service will be contacted to
explain the family-witness resuscitation and indicate which part of the
protocol the ambulance crews need to be involved. A memorandum will be
sent to the ambulance service department to provide instruction and
information when this protocol will be implemented.

Relatives of the patient

Since the resuscitation is an unexpected situation, it is impossible to indicate
who the target is and inform them during the marketing period. Public
promotion is preferred for this innovation for marketing. Posters will be posted
in the public area in the Hospital. The poster includes the date of pilot test, the
criteria of the new protocol and potential benefit. More information would be
uploaded to the Hospital Website. It would provide the public brief
information about this innovation.

Initiating the Change

Analysis to Identify Barrier

During the implementation of innovation, identifying the potential barriers is
important to achieve the change. In order to assessing the barriers of the
innovation from the views of staff, a simple survey will be conducted in the
Emergency Department. The project coordinator will invite the Staff according
to their rank to discuss the facilitating factors, barriers and ask for suggestion
from them. This informal interview will be last for 1.5 hours and 10 staffs will
be invited and divided into two groups for discussion. Their points of views
will be used to generate the implementation plan.

Organize and Implement Core Group

A core group will be formed to coordinate the innovation. This name of this
group is Family-Witness Resuscitation Core Group. The team is leaded by the
project proposer. Two nurses with experience more the 5 years in the
Emergency will be invited as team members. One doctor, one Advanced
Practice Nurse in the Emergency Department will be invited in the core group
as project advisors. Besides, Medical Social Worker (MSW) and Clinical
Psychologist Department would also be invited to provide professional
opinion in the training session and back up our frontline staff if there are
difficult situation. This group will facilitate the implementation by monitor the
communication plan; provide evidence-based practice to the other staff and
monitor the training process. The group will meet every two weeks at the
initial period and special meeting will be held at the end of each phase to
ensure the outcome will be met as planned. This group will keep reminding
the staff about process of the implementation.

In-servicing Education
Since the family-witness resuscitation is not a usual practice and there is no corresponding training for the nurses about counseling the family in the undergraduate training, the nurses may feel incompetent in familiar with the innovation. So, there will be training session in the ED before the implementation. Three hours workshop will be conducted for all staff. (Appendix 7)

The workshop includes PowerPoint presentation, demonstration of counseling skills, role play and stimulation training. The concept of family-witness resuscitation will be explained. The possible difficulties may be faced during the services will be discussed. The staff will learn how to handle the family counseling during resuscitation and facilitate other staff who performing resuscitation meanwhile. A role play and stimulation training will be conducted and all staff are recommended to participate. In the role play and stimulation training session, staff would require to handle different situation. After the demonstration, there would be debriefing session about the counseling skills and their performance in the selected scenario.

Assess Reference Guide

In order to facilitate the new practice, the core team will develop a file which contains the protocol of the family-witness resuscitation, counselling information to the relatives and other useful document including the protocol, information & consent form and advisor contact list. This file will be placed in the resuscitation room and our staffs could seek information for preparation when the patients who fulfil the criteria of our new innovation service.
Prepare Pilot site and Logistics

In order to implement the new protocol smoothly, the education session are conducted and all document are prepared before the pilot. All the stakeholders would be contacted and ready for the innovation.

Integrate and Maintain the Change in Practice

During the initiate phase of the implementation, the nursing officer in-charge (Core team member) will reminder the staff about the implementation of innovation during the daily briefing session. At the early stage of the change, the core team member would be present during the new service in order to monitor the procedure and provided advice when need. The core team members would also document their observation and encounter difficulties. The core team would discuss each case in the core team meeting.

The counseling nurses and team who performed family-witness resuscitation will be interviewed by the core team in the early phase. To encourage the nurses to perform the new protocol, a name list would be prepared to record how many times the staff involving in the new protocol. During the early phase, all the nurses in the department are encouraged to have an opportunity to perform the new protocol with the presence of core team members. The core team members will provide reinforcement to the individual and give conductive feedback. Therefore, each staff would identify their own strength and barriers in performing the new practice.

In addition, all the new staff who do not take part in the training session would not be recommended to take part the new protocol. The core team would
arrange education program for the new staff and they would be monitored in whole process in early stage.

5.2 Pilot Study Plan

Objectives

A pilot test will be conducted to collecting data of the implementation in the early stage. The flow and feasibility of the innovation would be examined. This pilot study would identify any unexpected issues in the real situation and allow the core team to review the implementation plan. The core team could collect data from the staff and other shareholders in the pilot test. It is expected that the pilot test could provide information to increase the competence and confidence of the staff to perform the full-scale implementation of this new innovation. The objectives of the pilot study:

1. To acquire the baseline psychological outcome of family members who experience family member resuscitation
2. To test the feasibility of the family-witness resuscitation clinical guideline
3. To assess family members’ acceptance towards family resuscitation
4. To identify barriers to conduct family-witness resuscitation by clinical staff
5. To assess nurse’s acceptance and compliance to the new protocol
6. To identify the logistic concern during implementation of the new protocol

Study Design

This pilot study using the non-experimental posttest design
Responsible Staff

The Core team members of the family-witness resuscitation group

Setting and Duration

The pilot test will be conducted in the designated ED. The estimated duration of the pilot will be 4 weeks in order to recruit optimal number of participants.

Sampling Plan

The target participants would be adult (age >18), competent to give informed consent. The family members (Next of kin) of the patients are included. Family member who have history of psychiatric disorder or unwilling to participate would be excluded.

Melnyk and Fineout-Overholt (2005) suggested that the pilot study with a sample size 30-40 subjects was beneficial. There are 40 nurses in the ED. It is optimized that each nurse would perform once in the pilot test. However, provided that the number of cases of resuscitation is not stable and there are some exclusion criteria, it is acceptable that the target numbers of sample meet the minimum requirement. So, 10-15 cases will be recruited in this pilot study during 4 weeks. In each case, we would invite 2-3 relatives into our pilot test. It is optimal to recruit 30 subjects.

Workflow of Pilot Study

When relatives arrive at ED, they will be introduced that there is pilot study of family witness resuscitation. They will be informed about the idea of family
witness resuscitation and the witness- relatives would be followed up for 2 weeks. (Appendix 8) The informed consent (Appendix 9) form will be signed by the participants and kept in individual file. After 3 days and 2 weeks of the resuscitation, the participants will be contacted by phone interview. The phone interview will be conducted for 15 minutes. The psychological outcome will be documented in the data collection form (Appendix 10) by the core team members. The completed psychological outcome collection form will be gathered for analysis.

**Evaluation of pilot study**

After the initial implementation of the pilot study, the effectiveness of the new protocol and the process of the implementation will be evaluated. In Charter 6, the detailed evaluation will be discussed. The core team will also evaluate the process outcome form the nurses’ point of view. The involved staffs would be interviewed and their feedback will be evaluated by staff evaluation form (Appendix 11) after the family-witness resuscitation. The collected data will be analysis and as a guide to improve the implementation of the new protocol.
Chapter 6: Evaluation Plan

Introduction

The effectiveness of implementation of family-witness resuscitation could be assessed by the feasibility and acceptability as a nursing intervention in reducing the psychological impact of the family members. The evaluation plan will access the process and outcome measures after the pilot study.

6.1 Intervention Outcome Evaluation

Expected Outcome

The expected outcomes are evaluated by whether the family witness resuscitation is benefit to family relatives’ psychological condition and acceptance of the intervention by the relatives.

Relatives’ psychological impact

The main objective of this implementation is to reduce the psychological impact in the relatives who have relative receiving resuscitation in the ED. The psychological impacts can be classified as the presence of anxiety or depression symptoms. In order to assess the outcome, the psychological impact can be rated by the designated score. In this protocol, Impact of Event Scale (IES) score and Hospital Anxiety and Depression Scale (HADS) score have been chosen to assess the psychological impacts. The clients will be interviewed 2 weeks after the resuscitation by phone. The demographic data
will also be collected such as age, gender, relationship with the patients. (Appendix 4)

*The acceptance of the witness resuscitation*

Another outcome is the relatives’ acceptance of family-witness resuscitation. When the nurse in-charge contacts the family members, they would introduce the concept of family-witness resuscitation. They have opportunity to decide whether accept or not. The acceptance of the relatives shows that the family-witness resuscitation is an index to show whether this innovation is required by the public needs. The number of accepted and refused cases would be recorded by the case nurses. During the phone survey, the clients would be asked about their views or further suggestions of the family-witness resuscitation. (Appendix 4) The core team would analyze the data received.

*Healthcare Provider Outcome*

Education session was provided to all the nursing staff in the ED. In order to determine the ongoing education needs for the staff, the evaluation of nursing knowledge, acceptance and competency were assessed in CPR or counseling.

*Nursing knowledge*

The effectiveness of the education session could be assessed by the post-class evaluation. The nurses will be asked to complete an evaluation form. They need to answer the question about the concept of the protocol, steps of guideline and counseling skills. The nurses who do not meet the requirement will be remediated after the education class.
6.2 Process Evaluation

The process evaluation revises the implementation process of the innovation and discusses the barriers and problem that may be found in order to improve the implementation plan.

Evaluation aspects

*Family members’ acceptance and satisfaction of family-witness resuscitation*

The evaluation survey (Appendix 10) will be conducted to collect feedback on the outcome of the implementation and level of satisfaction and recommendation from the relatives. The outcome of the implementation is assessed by the tools chosen for rating the psychological condition. The family members can also reflect the feeling of the innovation in this evaluation survey by the designated and open-ended questions.

*Nursing adherence to performing family-witness resuscitation*

The compliance of the staffs to performing the innovation is important to implement the family-witness resuscitation in the clinical settings. The staffs will handle each case with a checklist that lists the steps of the protocol. They need to record the performance and activities that conducted during the family witness resuscitation. The core team will collect the checklist and revise each case to examine whether the staffs implement innovation practice according to the protocol.

*Nursing competence to performing family-witness resuscitation*
All nurses will be simultaneously observed during their first time implementation of innovation practice by the core team members. The observer will assess the performance with the protocol checklist and they will offer constructive feedback to improve performance. The core team will analyze the collected data and provide additional education to the staff.

*Nursing acceptance and satisfaction of the family-witness resuscitation*

The implementation process will be evaluated at the end of the pilot. All the staffs who involved in the innovation will be asked to reply the staff evaluation form. The data would help to identify the barriers and challenges of the implementation in new innovation practice.

**Nature of Participants and Sample Size**

The nature of participants will be similar with the pilot study. The number of participants will be calculated according to the primary outcome as Presence of post-traumatic stress disorder (PTSD). The presence of PTSD could be used to assess people who need to encounter difficulties after a distress event including grief (Patricia et al., 2013). The incidence of presence of PTSD will be analyzed by Impact of Event Scale (IES) score. According to the pilot test, we could recruit appropriate 15 cases within 4 weeks and 2-3 family members could be invited in each case. There would be 30 subjects in the pilot test. In this situation, it is estimated that targeted sample size 144 will be recruited in case of 20% attrition after 6 months for evaluation process.

**Data Analysis**
The project coordinator will collect and analyze the data by Statistical Package for the Social Science (SPSS). The demographic and quantitative data will be analyzed by descriptive statistics. The qualitative interview will be recorded and analyzed by coding structure.

**Considerations to Determine the Effectiveness of the innovation**

*Relatives' psychological outcome*

After the implementation, it is expected that the rate of presence of PTSD will be decrease. The primary client psychological outcome will be assessed by the IES score. According to the IES, the range was between 0 (no PTSD-related symptom) to 88 (severe PTSD-related symptom). Azoulary (2005) suggested that primary end point of the presence of PTSD is 30. Two IES scores from individual subject during 3 days and 2 weeks phone interview will be obtained and comparison will be done if there are decreasing of IES score among two interviews and whether the scores are below the primary end point.

*Clients' acceptance and satisfaction*

The implementation is considered to be effective if the survey of the evaluation survey show at least 80% positive findings.

*Nursing acceptance*

The 80% of the positive findings in the staff evaluation survey shows the nurses in the clinical setting support the innovation after receiving specific training.
Dissemination of the result

After the evaluation of family-witness resuscitation, the core team will present the findings to all of the staff in the ED. The result will also be report to the all stakeholders including COS, DOM and Hospital administrator.

Anticipated Limitation of the Evaluation

The primary limitation of the evaluation is that the relatives’ outcome is varying by the performance of individual nurses. Their skills of counseling may be different. The education program provides standard training but the performance may not be consistent. It is impossible to standardize all the script during the implementation since the client’s response is different. Secondly, there may be loss of follow up after 2 weeks telephone interview. No information could be obtained since no immediate data collection would be done on the day of recruitment.
Conclusion

Nurses in the ED have the role to improve the psychological outcome of the patients and their relatives. The proposed evidence based protocol provides a standardized guideline to improve the relatives who experience of grief. In this protocol, after the database searching process, 5 RCTs were reviewed and the evidence from these studies was taken into the reference in the establishment of the protocol. In Hong Kong, it is a first strategy to identify the barriers and assess the implementation in the real situation. An evidence based protocol, education workshop and a core team monitoring on the innovation would facilitate the new implementation. It is expected that the proposed innovation would improve the quality of care to the patients and their family members when patients suffer cardiac arrest and nursing development. The pilot study and evaluation would be useful to improve and facilitate the further nursing service development in the other ED settings in Hong Kong.
Reference


The journal of Trauma injury, infection, and Critical Care, vol 65 no.5


LANCET Vol 352
Appendix 1

Search History

Database: 1. Pubmed advanced search

Search strategy:

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Database: 2. CINAHL Plus

Search strategy

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Database: 3. ProQuest

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Appendix 2

PRISMA 2009 Flow Diagram

Records identified through database searching
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Additional records identified through other sources
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Records after duplicates removed
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Records screened
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Records excluded
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Full-text articles assessed for eligibility
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Full-text articles excluded, with reasons
\(n = 0\)

Studies included in qualitative synthesis
\(n = 0\)

Studies included in quantitative synthesis
\(n = 5\)

doi:10.1371/journal.pmed.1000097

53
Methodology Checklist 2: Controlled Trials

Study identification  *(Include author, title, year of publication, journal title, pages)*


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<th>Key Question No:</th>
<th>Reviewer:</th>
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**Before** completing this checklist, consider:

1. Is the paper a **randomised controlled trial** or a **controlled clinical trial**? If in doubt, check the study design algorithm available from SIGN and make sure you have the correct checklist. If it is a **controlled clinical trial** questions 1.2, 1.3, and 1.4 are not relevant, and the study cannot be rated higher than 1+

2. Is the paper relevant to key question? Analyse using PICO (Patient or Population Intervention Comparison Outcome). IF NO REJECT (give reason below). IF YES complete the checklist.

**Reason for rejection:**
1. Paper not relevant to key question □
2. Other reason □ (please specify):

**SECTION 1: INTERNAL VALIDITY**

*In a well conducted RCT study...*  

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**SECTION 2: OVERALL ASSESSMENT OF THE STUDY**

| 2.1 | How well was the study done to minimise bias? *Code as follows:* | High quality (++) |
| 2.2 | Taking into account clinical considerations, your evaluation of the methodology used, and the statistical power of the study, are you certain that the overall effect is due to the study intervention? | Yes |
| 2.3 | Are the results of this study directly applicable to the patient group targeted by this guideline? | Yes |
| 2.4 | **Notes.** Summarise the authors’ conclusions. Add any comments on your own assessment of the study, and the extent to which it answers your question and mention any areas of uncertainty raised above. | **Good quality** |
Methodology Checklist 2: Controlled Trials

**Study identification**  
*Include author, title, year of publication, journal title, pages*


**Guideline topic:**  
**Key Question No:**  
**Reviewer:**

**Before** completing this checklist, consider:

1. Is the paper a **randomised controlled trial** or a **controlled clinical trial**? If in doubt, check the study design algorithm available from SIGN and make sure you have the correct checklist. If it is a controlled clinical trial questions 1.2, 1.3, and 1.4 are not relevant, and the study cannot be rated higher than 1+

2. Is the paper relevant to key question? Analyse using PICO (Patient or Population Intervention Comparison Outcome). IF NO REJECT (give reason below). IF YES complete the checklist.

**Reason for rejection:** 1. Paper not relevant to key question ☐ 2. Other reason ☐ (please specify):

**SECTION 1: INTERNAL VALIDITY**

**In a well conducted RCT study...**  
**Does this study do it?**

<p>| The study addresses an appropriate and clearly focused question | Yes |
| The assignment of subjects to treatment groups is randomised. | Yes |
| An adequate concealment method is used. | Yes |
| Subjects and investigators are kept ‘blind’ about treatment allocation. | No |
| The treatment and control groups are similar at the start of the trial. | Yes |
| The only difference between groups is the treatment under investigation. | No |
| All relevant outcomes are measured in a standard, valid and reliable way. | Yes |</p>
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
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<tbody>
<tr>
<td>What percentage of the individuals or clusters recruited into each</td>
<td>28%</td>
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<tr>
<td>treatment arm of the study dropped out before the study was completed?</td>
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<td>All the subjects are analysed in the groups to which they were</td>
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<tr>
<td>randomly allocated (often referred to as intention to treat analysis).</td>
<td>determine</td>
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<tr>
<td>Where the study is carried out at more than one site, results are</td>
<td>Does not apply</td>
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<td>comparable for all sites.</td>
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**SECTION 2: OVERALL ASSESSMENT OF THE STUDY**

<table>
<thead>
<tr>
<th>Question</th>
<th>Code as follows</th>
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<tbody>
<tr>
<td>How well was the study done to minimise bias?</td>
<td>Acceptable (+)</td>
</tr>
<tr>
<td>Taking into account clinical considerations, your evaluation of the</td>
<td>No</td>
</tr>
<tr>
<td>methodology used, and the statistical power of the study, are you</td>
<td></td>
</tr>
<tr>
<td>certain that the overall effect is due to the study intervention?</td>
<td></td>
</tr>
<tr>
<td>Are the results of this study directly applicable to the patient group</td>
<td>Yes</td>
</tr>
<tr>
<td>targeted by this guideline?</td>
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</tr>
</tbody>
</table>

**Notes.** Summarise the authors’ conclusions. Add any comments on your own assessment of the study, and the extent to which it answers your question and mention any areas of uncertainty raised above.

General acceptable. The sample is not large enough that the evidence/result were not all significant in the study.
Methodology Checklist 2: Controlled Trials

Study identification  (*Include author, title, year of publication, journal title, pages*)
Jabre. P (2013) Family presence during resuscitation attempts is associated with positive psychological effects for the observers, Evidence Based Mental Health online, doi:10.1136/eb-2013-101354

Guideline topic:  |  Key Question No:  |  Reviewer:

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Reason for rejection: 1. Paper not relevant to key question □  2. Other reason □  (please specify):

<table>
<thead>
<tr>
<th>SECTION 1: INTERNAL VALIDITY</th>
</tr>
</thead>
</table>

**In a well conducted RCT study…**  |  **Does this study do it?**

1.1 The study addresses an appropriate and clearly focused question.  |  Yes

1.2 The assignment of subjects to treatment groups is randomised.  |  Yes

1.3 An adequate concealment method is used.  |  Can’t determine

1.4 Subjects and investigators are kept ‘blind’ about treatment allocation.  |  No

1.5 The treatment and control groups are similar at the start of the trial.  |  Can’t determine

1.6 The only difference between groups is the treatment under investigation.  |  No
| 1.7 | All relevant outcomes are measured in a standard, valid and reliable way. | Yes |
| 1.8 | What percentage of the individuals or clusters recruited into each treatment arm of the study dropped out before the study was completed? | 17% |
| 1.9 | All the subjects are analysed in the groups to which they were randomly allocated (often referred to as intention to treat analysis). | No |
| 1.10 | Where the study is carried out at more than one site, results are comparable for all sites | Does not apply |

### SECTION 2: OVERALL ASSESSMENT OF THE STUDY

| 2.1 | How well was the study done to minimise bias?  
*Code as follows* | Acceptable (+) |
| 2.2 | Taking into account clinical considerations, your evaluation of the methodology used, and the statistical power of the study, are you certain that the overall effect is due to the study intervention? | YES |
| 2.3 | Are the results of this study directly applicable to the patient group targeted by this guideline? | YES |
| 2.4 | **Notes.** Summarise the authors’ conclusions. Add any comments on your own assessment of the study, and the extent to which it answers your question and mention any areas of uncertainty raised above. |

*Good quality*
Methodology Checklist 2: Controlled Trials

Study identification  
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<table>
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</tr>
<tr>
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</table>
All relevant outcomes are measured in a standard, valid and reliable way. | Yes |
---|---|
What percentage of the individuals or clusters recruited into each treatment arm of the study dropped out before the study was completed? | 28% |
All the subjects are analysed in the groups to which they were randomly allocated (often referred to as intention to treat analysis). | Yes |
Where the study is carried out at more than one site, results are comparable for all sites. | Yes |

### SECTION 2: OVERALL ASSESSMENT OF THE STUDY

| How well was the study done to minimise bias? | Acceptable (+) |
---|---|
Taking into account clinical considerations, your evaluation of the methodology used, and the statistical power of the study, are you certain that the overall effect is due to the study intervention? | YES |
Are the results of this study directly applicable to the patient group targeted by this guideline? | YES |

**Notes.** Summarise the authors’ conclusions. Add any comments on your own assessment of the study, and the extent to which it answers your question and mention any areas of uncertainty raised above.

**Good quality**
### Methodology Checklist 2: Controlled Trials

#### Study identification (Include author, title, year of publication, journal title, pages)

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**acceptable**
Appendix 4
Table of evidence

<table>
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<tr>
<th>Bibliographic citation</th>
<th>Title</th>
<th>Study Design</th>
<th>Subject Characteristic</th>
<th>Intervention(s)</th>
<th>Comparison</th>
<th>Length of the Follow up</th>
<th>Outcome Measure</th>
<th>Effect Size</th>
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<tr>
<td>Patricia et al, (2013)</td>
<td>Family Presence during Cardiopulmonary Resuscitation</td>
<td>Prospective, cluster-randomized control trial</td>
<td>Family members of patient's receiving CPR in emergency unit</td>
<td>Family member presence during resuscitation (N=289)</td>
<td>Family member absent during resuscitation (N=186)</td>
<td>3 Months</td>
<td>Primary: 1. Impact of Event Scale (IES) score (median) 2. Presence of post-traumatic stress disorder-related symptoms (%) 3. Hospital Anxiety and Depression Scale (HADS) score (median) 4. Symptoms of anxiety (%) 5. Symptom of</td>
<td>1. +5 (p=0.007) 2. -2 (p=0.01) 3. +3 (p=0.02) 4. +8 (p&lt;0.001) 5. +11 (p=0.009) 6. -2 (p=0.23) 7. +13 (p&lt;0.001) 8. -2 (N/A)</td>
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<td>Robinson et al. (1998)</td>
<td>Psychological effect of witnessed resuscitation on bereaved</td>
<td>Randomized control trial</td>
<td>Relatives of patients requiring resuscitation in emergency department</td>
<td>Witness resuscitation (N=6)</td>
<td>No opportunity to witness resuscitation (N=7)</td>
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<td>-18.5</td>
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</tr>
</tbody>
</table>

depression (%)

Secondary:

6. Saw a psychologist after resuscitation of the patient (%)

7. Received newly prescribed psychotropic drug (%)

8. Made a suicide attempt (%)
<p>|   | Depression Scale-Depression (HADD) score | Back anxiety inventory (BAI) score | Back depression inventory (BDI) score | Impact of Event Scale (IES) score | Impact of Event Scale (IESA) score | Texas inventory of grief 1 (TRIG1) score | Texas (p=0.084) |</p>
<table>
<thead>
<tr>
<th>Jabre et al., (2013)</th>
<th>Family presence during resuscitation attempts is associated with positive psychological effects for the observers</th>
<th>Cluster-randomized controlled trial</th>
<th>Adult relatives of adults of suffering cardiac arrest at home and given CPR in emergency department</th>
<th>Opportunity to observe resuscitation (N=266)</th>
<th>Standard practice (no route offer of presence during resuscitation (N=304)</th>
<th>3 months</th>
<th>Primary:</th>
<th>1. -1.3 (p=0.05) 2. -8 (p&lt;0.001) 3. -4 (p=0.13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jabre et al., (2014)</td>
<td>Offering the opportunity for family to present during cardiopulmonary resuscitation: 1-year assessment</td>
<td>Multi-center randomized controlled trail</td>
<td>Family members of patients receiving CPR in the emergency department</td>
<td>Systematically offer change to witness resuscitation (N=198)</td>
<td>Standard practice regarding family presence (N=210)</td>
<td>12 Months</td>
<td>Primary:</td>
<td>1. -1 (p=0.03) 2. -12 (p=0.01) 3. -2 (p=0.41) 4. -5 (p=0.47) 5. -13 (p=0.003) 6. -19 (p=0.02) 7. -3 (p=0.06) 8. -15 (p=0.005)</td>
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</tbody>
</table>

inventory of grief 2 (TRIG2) score
<table>
<thead>
<tr>
<th>Pasquale et al., (2010)</th>
<th>Family Presence During Trauma</th>
<th>Prospective, comparative study</th>
<th>Adult family members of</th>
<th>Family presence</th>
<th>Family not presence</th>
<th>5 Months</th>
<th>Primary:</th>
<th>1. State-Trait</th>
<th>1. -3.84 (p=0.368)</th>
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</table>

3. Hospital Anxiety and Depression Scale (HADS) score (medium)
4. Symptom of anxiety (%)
5. Symptom of depression (%)
6. Major depressive episode by MINI score (%)
7. ICG score (medium)
8. Presence of complicate grief (%)
<table>
<thead>
<tr>
<th>Resuscitation: Ready for Primetime</th>
<th>adult trauma patients receiving resuscitation in trauma center</th>
<th>during resuscitation (N=25)</th>
<th>during resuscitation (N=25)</th>
<th>Anxiety Inventory (STAI) score (mean)</th>
<th>2. +1.39 (p=0.398)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>Critical Care Family Needs Inventory (R-CCFNI) (mean)</td>
<td>3. +3.43 (p=0.431)</td>
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<tr>
<td></td>
<td></td>
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<td></td>
<td>The Family Well-being Index (FMWB)(mean)</td>
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</table>
## Appendix 5

### Estimated Cost of the Proposed Family-Presence Resuscitation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Unit cost</th>
<th>Quantity</th>
<th>Expense</th>
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</thead>
<tbody>
<tr>
<td>Printed/education materials for workshop</td>
<td>HK$ 5</td>
<td>50</td>
<td>HK$250</td>
</tr>
<tr>
<td>Workshop (3hrs)/nurse</td>
<td>NO: HK$ 3372</td>
<td>10</td>
<td>HK$ 33720</td>
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<td></td>
<td>RN: HK$ 2127</td>
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<td>HK$ 85080</td>
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<tr>
<td>Printed materials for Evaluation</td>
<td>HK$ 0.05</td>
<td>500</td>
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<td><strong>Total</strong></td>
<td></td>
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<td><strong>HK$ 119075</strong></td>
</tr>
</tbody>
</table>
The flow of handling family-presence resuscitation

1. Call received from ambulance: patient cardiac arrest and CPR on progress

   Patients age > 18

   Yes (Preparation of witness resuscitation)
   No (Not consider witness resuscitation under the protocol)

2. Patient arrival

   Resuscitation continuous (Decision made by Medical officer)

   Yes (Preparation of witness resuscitation if family members are present)
   No (Provide last office and breaking bad new as route practice)

3. Resuscitation continuous and family arrive the emergency department

   The option of witness presence resuscitation provided by the communication guide (Nurse)

   Yes (Introduction of the rule, environment, and situation in the resuscitation area to the family)
   No (Accompany the family and provide support and information)

4. Witness resuscitation start and on progress

   The Disruption of resuscitation happen

   Yes (The communication guide lead the family leaving the resuscitation room and provide emotional support.)
   No (Continuous the witness resuscitation with communication guide accompany)

5. The end of witness resuscitation

   Success of resuscitation

   Yes (lead the family to leave the resuscitation room and provide information about further management in admission)
   No (explain the condition to the family, preparation of last office and provide counseling)
## Timelines for the Activities Involved Implementation of Family Witness Resuscitation in Emergency Department

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</table>
Family witness Resuscitation

Outline of education session

Duration: 3 hours

Audience: Nursing staff in the Emergency Department

Speakers: Core team member of Family-witness resuscitation, Clinical psychologist

Flow:

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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</thead>
<tbody>
<tr>
<td>00:00-00:15</td>
<td>-Introduction of the family-witness resuscitation (Powerpoint presentation)</td>
</tr>
<tr>
<td>00:15-00:45</td>
<td>-Demonstration of family-witness resuscitation by the instructors</td>
</tr>
<tr>
<td>00:45-01:15</td>
<td>-Role play in small group (1)*</td>
</tr>
<tr>
<td>01:15-01:30</td>
<td>-Break</td>
</tr>
<tr>
<td>01:30-02:00</td>
<td>--Handling of difficult situation (Session by Clinical psychologist)</td>
</tr>
<tr>
<td>02:00-0230</td>
<td>-Role play in small group (2)*</td>
</tr>
</tbody>
</table>

02:30-03:00 Q & A session and closing

*In the role play session, 4 participants will be formed in one group and monitored by an instructor. They will receive different scenario and perform counselling skill in the role play. Debriefing will be held after each scenario. The participants will discuss the performance with the instructor and receive feedback.
Study in the effect of family witness resuscitation in reducing relatives’ psychological impact

We would like to invite you to take part in a study which tests the effect of family witness resuscitation on the psychological status of relatives. Family witness resuscitation provides an option for you to be present in the resuscitation with the health care professions. The objective is to examine whether family witness resuscitation reduce the psychological impact of relatives during critical life event.

Your participation in the study is voluntary and you may withdraw at any time. The information obtained will be kept confidential.

You will be expected to have a follow-up phone interview and reply a simple questionnaire 2 weeks after the care provided.

The investigator will be available if further information is needed at any time. If you have any problems or enquiries at any time please contact Luk Chun Yu (investigators) on phone no xxxxxxxx

Thank you for your participation
Family witness Resuscitation

Consent for study (Sample)

Study in the effect of family witness resuscitation in reducing relatives’ psychological impact

- I confirm that I have read and understand the information sheet for the above study.
- I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.
- I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected.
- I understand that all the information provided will be kept confidential strictly for use of the evaluation purpose.
- I agree and allow the use of the provided information for evaluation purpose.
- I hereby agree to take part in the above study

__________________________________________  _______________________
Name of Participant                                   Name of Witness

__________________________________________
Signature of Witness                                   Signature of Participant

__________________________________________
Date                                               Date
Family Witness Resuscitation
Phone interview relative’s data collection and evaluation form (Sample)

Case No.:__________
Name:______________
Age:______________
Relationship with the patient:_______
Date of Resuscitation:___________
Date of phone interview:__________
(First/Second interview) Please circle the appropriate one

Part A Service Evaluation

<table>
<thead>
<tr>
<th>Questions</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Did you receive adequate information on family witness resuscitation when you were invited to join?</td>
<td></td>
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<tr>
<td>2. Did the nurse provide adequate explanation during the resuscitation?</td>
<td></td>
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<tr>
<td>3. Were you satisfied with the family witness resuscitation service?</td>
<td></td>
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<tr>
<td>4. Do you think family witness resuscitation is useful for you to reduce psychological impact?</td>
<td></td>
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<tr>
<td>5. Do you think family witness resuscitation should be implemented in others clinical settings?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Suggestions

1. What did you like MOST about the family witness resuscitation?
   _____________________________________________________________
   _____________________________________________________________
   _____________________________________________________________

2. What did you like least about the family witness resuscitation?
   _____________________________________________________________
   _____________________________________________________________

3. What suggestion do you have to improve the family witness resuscitation?
   _____________________________________________________________
   _____________________________________________________________
**Part B**

**Psychological index**

*Impact of Event Scale – Revised*

**Instruction:**
- Item Response Anchors are 0 = Not at all; 1 = A little bit; 2 = Moderately; 3 = Quite a bit; 4 = Extremely.
- The Intrusion subscale is the MEAN item response of items 1, 2, 3, 6, 9, 14, 16, 20. Thus, scores can range from 0 through 4.
- The Avoidance subscale is the MEAN item response of items 5, 7, 8, 11, 12, 13, 17, 22. Thus, scores can range from 0 through 4.
- The Hyperarousal subscale is the MEAN item response of items 4, 10, 15, 18, 19, 21. Thus, scores can range from 0 through 4.

<table>
<thead>
<tr>
<th>Item</th>
<th>Item Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Any reminder brought back feelings about it</td>
</tr>
<tr>
<td>2</td>
<td>I had trouble staying asleep.</td>
</tr>
<tr>
<td>3</td>
<td>Other things kept making me think about it</td>
</tr>
<tr>
<td>4</td>
<td>I felt irritable and angry.</td>
</tr>
<tr>
<td>5</td>
<td>I avoided letting myself get upset when I thought about it or was reminded of it.</td>
</tr>
<tr>
<td>6</td>
<td>I thought about it when I didn’t mean to.</td>
</tr>
<tr>
<td>7</td>
<td>I felt as if it hadn’t happened or wasn’t real</td>
</tr>
<tr>
<td>8</td>
<td>I stayed away from reminders of it.</td>
</tr>
<tr>
<td>9</td>
<td>Pictures about it popped into my mind.</td>
</tr>
<tr>
<td>10</td>
<td>I was jumpy and easily startled.</td>
</tr>
<tr>
<td>11</td>
<td>I tried not to think about it.</td>
</tr>
<tr>
<td>12</td>
<td>I was aware that I still had a lot of feelings about it, but I didn’t deal with it</td>
</tr>
<tr>
<td>13</td>
<td>My feelings about it were kind of numb.</td>
</tr>
<tr>
<td>14</td>
<td>I found myself acting or feeling like I was back at that time</td>
</tr>
<tr>
<td>15</td>
<td>I had trouble falling asleep.</td>
</tr>
<tr>
<td>16</td>
<td>I had waves of strong feelings about it.</td>
</tr>
<tr>
<td>17</td>
<td>I tried to remove it from my memory.</td>
</tr>
<tr>
<td>18</td>
<td>I had trouble concentrating.</td>
</tr>
<tr>
<td>19</td>
<td>Reminders of it caused me to have physical reactions, such as sweating, trouble breathing, nausea, or a pounding heart</td>
</tr>
<tr>
<td>20</td>
<td>I had dreams about it.</td>
</tr>
<tr>
<td>21</td>
<td>I felt watchful and on-guard.</td>
</tr>
<tr>
<td>22</td>
<td>I tried not to talk about it.</td>
</tr>
</tbody>
</table>

**Total IES-R score:**

**Remark:** Range of IES score: 0 (no PTSD-related symptom) to 88 (severe PTSD-related symptom). The primary end point of the presence of PTSD: 30
Family Witness Resuscitation
Staff Evaluation Form (Sample)

To assist us to improve the guideline and education session, please complete the following question by circling the appropriate rating.

<table>
<thead>
<tr>
<th>Items</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Part A Education session</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1. The objectives of the education session were clearly defined.</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2. I understand the materials being presented.</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
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<tr>
<td>3. The trainers reply and explain my question clearly.</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
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<tr>
<td>4. The duration of the education session is adequate.</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
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<tr>
<td>5. I can perform the skills in the real situation after attending the education session alone.</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>6. The education session was held on a convenient time and place.</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
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<tr>
<td><strong>Part B General evaluation on the protocol</strong></td>
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<tr>
<td>7. I think the new implementation would improve the quality of nursing care.</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>8. I can find adequate support when I perform the implementation.</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>9. I can communicate well with the relatives during the implementation.</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>10. I think the new implementation would not disturb route practice.</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>11. I recommend to implement the innovation in other clinical settings</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
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</tbody>
</table>
Suggestion

1. What did you like MOST about the family witness resuscitation?

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

2. What did you like least about the family witness resuscitation?

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

3. What suggestion do you have to improve the family witness resuscitation?

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________