CRITICAL CARE NURSES’
PERCEPTIONS AND ATTITUDES
TOWARDS TRAINING IN ADULT RESUSCITATION

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Dissertation submitted in part fulfilment of the requirements for
the degree of Master of Science in Nursing Studies

University of Malta
Institute of Health Care
May 2009
Dedicated to Alexandra
Declaration

I hereby declare that I have conducted this study and that this dissertation is entirely my own work.

[Signature]

Trevor Abela Fiorentino
Acknowledgements

I would like to express my sincere thanks and appreciation to my research supervisor Dr Rita Borg Xuereb RN, RM, DipEd(Adult), PDipMidEd, MSc, PhD., for her guidance, support and encouragement throughout the dissertation.

Special thanks go to my wife Alexandra, my family and friends for their support and encouragement throughout the whole course and throughout the research project.

I would also like to thank all the nurses who participated in the study for their participation, cooperation and support.
The purpose of this study was to explore critical care nurses’ knowledge and views towards resuscitation guidelines, their confidence and perceived competence when participating in resuscitation attempts, as well as perceptions and attitudes towards adult resuscitation training. A sequential-explanatory design was adopted to fulfill the aims and objectives of the study. This mixed-methods approach incorporated the use of a questionnaire to collect data on views and attitudes, followed by a focus group interview to achieve deeper exploration of issues identified through the questionnaires. This enhanced the interpretation of findings and allowed a more realistic description of the situation under study.

Data collection was conducted within the four critical care settings at Mater Dei Hospital; namely the accident and emergency, the intensive care unit, critical cardiac care units and the anaesthesia department. All the nurses within this population (n=222) were recruited to participate in the first part of the study (quantitative phase) and a response rate of 49.1% (n=109) was achieved. A purposive sample of two nurses from each setting was recruited for the second part of study (qualitative phase), however, nurses representing cardiac care units did not participate in the focus group interview.

Findings revealed that critical care nurses have a positive perception of their resuscitation skills, their competence and confidence during resuscitation situations. While guidelines are considered as somewhat significant in guiding resuscitation situations, knowledge of these guidelines is not as high as required from health care professionals. The importance of initial and refresher training was highlighted, however there are several barriers which hinder nurses from attending to such training. Current courses do not effectively prepare nurses to fulfill the demands imposed on them by their settings. Furthermore, while training in skills supportive to basic life support could help enhance performance during cardiac arrest situations, courses need to be designed in accordance with the expected role of the nurse within each specific setting. Issues of mandatory resuscitation training have also been highlighted throughout the findings, and the combination of formal and informal sessions was identified as a possible approach to ensure that the required level of skill and knowledge is reached, while ensuring that specific requirements for each setting are also addressed.

Regular audits to identify and address deficiencies and inaccuracies in knowledge and skill are recommended to ensure the best possible performance during cardiac arrest situations. Furthermore, a needs assessment is recommended to identify the learning content for resuscitation courses to address nurses’ needs during resuscitation situations within their settings. Further research on variables within resuscitation training, such as confidence, competence, previous training, experience, exposure and work setting, are also recommended to highlight the dynamics within nurses’ perceptions and attitudes towards training.
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Chapter 1

INTRODUCTION
1.1 Background to the study

In the event of a cardiac arrest within a critical care setting, nurses, being in constant attendance close to the bedside of the patient, are usually the first health professionals to identify a cardiac arrest and to initiate resuscitation efforts until advanced life support is available. The success and outcome of advanced resuscitation efforts depend on the speed by which resuscitation is initiated, as well as on the effectiveness of the immediate actions performed by nurses (Page & Meerabeau, 1996; Dwyer & Williams, 2002). Thus, in cardiac arrest situations, the delivery of immediate and appropriate interventions is essential to preserve life. Effective resuscitation efforts depend on the quality of training offered to nurses working in critical care settings (Crunden, 1991). Nursing staff need to be adequately trained, competent and confident in resuscitation skills to ensure the fastest possible deployment of resuscitation efforts, to enhance the best possible outcome following a cardiac arrest (Saravanan & Soar, 2005; Broomfield, 1996).

As highlighted in the next chapter, literature shows that nurses’ knowledge of resuscitation guidelines and resuscitation skills are poor (Pottle & Brant, 2000; Murphy & Fitzsimons, 2004; Abella et al., 2005; Baskett et al., 2005; Hamilton, 2005). Furthermore, participation to resuscitation training is also lacking (Hamilton, 2005), leading to poor competence and confidence when dealing with patients in cardiac arrest. All in all this contributes to the already low chance of survival carried by resuscitation attempts following cardiac arrests (Dwyer & Williams, 2002).
1.2 Overview of the research problem

Locally, resuscitation training for nurses consists of basic life support training, which is initially delivered as part of the undergraduate nursing curriculum. However, it is up to the individual nurse to refresh, update or maintain his/her skills by attending a post-registration basic life support course offered by the Institute of Health Care or the Maltese Resuscitation Council. Basic life support courses are aimed at teaching lay first aiders how to identify a cardiac arrest, how to summon appropriate emergency medical care as soon as possible and how to deliver initial resuscitation without the use of any equipment in an out-of-hospital cardiac arrest. While guidelines for in-hospital resuscitation share a common background with basic life support guidelines, the UK Resuscitation Council (2005) maintains that clinical staff requires regular resuscitation training beyond the basic life support level, to a level more appropriate to fulfil their expected role. Nurses working in different settings require different skills to be able to perform up to the demands and expectations of their setting, and thus nurses who are more likely to encounter cardiac arrest situations require a higher level of resuscitation training. The UK Resuscitation Council (2005) recommends that clinical staff is trained in managing the airway using airway adjuncts, ensure adequate ventilation and oxygenation using a bag-valve-mask, perform CPR effectively and defibrillate as required.

While initial resuscitation training for nurses completing their undergraduate qualification locally is compulsory, as it forms part of the nursing curriculum,
refresher/update training is not mandatory. Furthermore, there is no formal in-service training in resuscitation, and no audits on skill and knowledge are being carried out in local hospitals as part of practice development programmes.

1.3 Rationale of the study

While local research on resuscitation and resuscitation training is limited, various studies have been carried out abroad, some of which are presented in the next chapter. Results from these studies highlight how resuscitation training can influence competence and confidence, and thus the timely deployment of effective resuscitation efforts. While results from these studies highlight some very important variables on resuscitation training some might not be applicable to the local situation due to the different clinical circumstances and different administrative systems. Given the importance of resuscitation training as identified in some of the studies, this study will explore critical care nurses’ perceptions and attitudes towards training in adult resuscitation.

Within the local situation as described above, three main research questions were identified. These were used to design the aims and objectives of the study.

- What is critical care nurses’ knowledge of resuscitation guidelines and how do they rate their confidence and perceived competence when participating to resuscitation attempts?
- What are critical care nurses’ perceptions and attitudes towards training in adult resuscitation?
• Does resuscitation training currently offered to critical care nurses meet the demands of their settings?

In view of the above research questions, the main aims of the study are...

• To evaluate critical care nurses’ knowledge of resuscitation guidelines, their perceived competence and confidence when participating in resuscitation attempts.

• To explore critical care nurses’ perceptions and attitudes towards training in adult resuscitation.

• To identify if current resuscitation training available meets the needs of critical care nurses and identify their perceived training needs.

To achieve these aims, the following objectives were set out...

• Assess nurses’ awareness of in-hospital resuscitation guidelines, the regular updates and knowledge of the latest guidelines.

• Identify how nurses rate their resuscitation skills, their perceived competence and their confidence when participating in resuscitation attempts.

• Explore perceived factors which hinder and promote attendance to formal and informal resuscitation training.

• Identify if nurses feel that resuscitation programmes currently offered meet the needs of their settings.

• Explore if nurses feel the need of supplemental/advanced training to function better within their settings.
• Identify any association between variables explored in the study and attitudes towards training.

1.4 Overview of chapters

Literature on resuscitation training, which was identified through a literature search, is discussed in the next chapter. Important issues surrounding resuscitation training identified in literature are highlighted in view of research studies conducted.

The mixed methods approach used throughout this study is described in Chapter 3. A description of the population is also presented in the same chapter, together with the methods used for sampling and recruitment. Operationalisation of the tools used as well as issues related to validity, reliability and trustworthiness are also presented in Chapter 3.

The findings of the study are presented in Chapter 4. Consequently, these findings are discussed in Chapter 5, in light of literature discussed in the literature review and the objectives of the study presented above.

In the final chapter (Chapter 6), while a summary of the main findings is presented in light of the theoretical framework adopted to guide the study, recommendations for practice, management, education and further research are also presented.
Critical care nurses’ perceptions and attitudes towards adult resuscitation training

Chapter 2

LITERATURE REVIEW
2.1 Introduction to the literature review

Knowledge of resuscitation guidelines and effective resuscitation skills are an important component of nursing practice (Crunden, 1991; Page & Meerabeau, 1996). However, literature shows that nurses’ knowledge and skill are poor (Moser & Coleman, 1992; Crouch & Graham, 1993; Murphy & Fitzsimons, 2004; Baskett et al., 2005; Hamilton, 2005). Furthermore, participation to resuscitation training is also lacking (Flisher, 1992; Hamilton, 2005), leading to poor competence and confidence. All in all this contributes to the already low chance of survival carried by resuscitation attempts following cardiac arrests (Broomfield, 1996; Dwyer & Williams, 2002).

The aim of this literature review is to identify issues related to resuscitation training from a nurses’ perspective and discuss these issues from an adult learning point of view. Malcolm Knowles’ Andragogy Theory (1973, 1990), will be used as theoretical framework to discuss how issues identified through the literature review affect nurses’ motivation to engage into resuscitation learning activities and how they influence attitudes towards resuscitation training.

The literature reviewed in this chapter was identified through CINAHL®, EBSCO®, PubMed®, MedLine®, BNI® and Blackwell Synergy® databases. The literature search revealed a limited number of research studies on resuscitation training after 1996, so articles dating back to 1990 had to be included in the
review. Reference lists of the selected articles were also reviewed to identify secondary sources.

Five issues related to resuscitation training were identified in the literature; namely nurses’ knowledge of basic life support guidelines and basic life support skills, nurses’ confidence and competence when performing resuscitation, influence of resuscitation training on nurses’ performance, retention of resuscitation knowledge and skills following training and nurses’ attitudes towards resuscitation training.

Throughout the literature review, literature selected will be discussed in light of these five issues. Furthermore, issues identified will be presented from an adult learning perspective using Knowles’ Andragogy Theory towards the last part of this chapter.

**2.2 Nurses’ basic life support (BLS) knowledge and skills**

Resuscitation and life support skills are essential for all health care professionals. However, various studies conducted to assess knowledge and skill show that in general skill and performance are inadequate (Crunden, 1991; Crouch & Graham, 1993; Devlin, 1999; Brown et al., 2006).

Devlin (1999) conducted an exploratory study to investigate basic life support (BLS) skills of nurses working in general wards of an unnamed independent
hospital in the South East of England. The aim of his study was to identify any relationship between nurses’ BLS skills and variables obtained through a literature review. The variables identified through the literature review were grade (i.e. ward sister, staff nurse or enrolled nurse), area of practice (medical or surgical), experience (<10 years or >10 years) and frequency of resuscitation training (<6 months, 6 – 12 months or >12 months).

The population of nurses working at the identified hospital was 150 and a sample of 30 nurses (20% of the whole population) was recruited by convenience sampling from those who were on duty on the days of the study. While a convenient sample was used, an equal number of nurses were chosen to represent the medical setting (n=15) and the surgical setting (n=15) and stratified sampling was used to represent grade (ward sisters n=6, staff nurses n=18 and enrolled nurses n=6).

Data on the variables was collected by means of a questionnaire, while BLS skill was assessed by means of a computerised training mannequin and a skills checklist. The skills checklist included 10 assessment criteria, critical for best BLS performance as suggested by the European Resuscitation Council, thus scoring correctly all 10 criteria was required to pass the test. The average score for all participants was 3.17 and none of the participants passed all 10 BLS criteria. Table 2.1 shows how scores varied in relation to the variables investigated.
Table 2.1

Scores for BLS skills according to demographic variables

(Devlin, 1999)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Score</th>
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</thead>
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<tr>
<td>Setting</td>
<td>Medical (n=15)</td>
<td>2.86</td>
</tr>
<tr>
<td></td>
<td>Surgical (n=15)</td>
<td>3.40</td>
</tr>
<tr>
<td>Grade</td>
<td>Ward Sisters (n=6)</td>
<td>3.83</td>
</tr>
<tr>
<td></td>
<td>Staff Nurses (n=18)</td>
<td>2.88</td>
</tr>
<tr>
<td></td>
<td>Enrolled Nurses (n=6)</td>
<td>3.16</td>
</tr>
<tr>
<td>Experience</td>
<td>&gt;10 years (n=18)</td>
<td>2.88</td>
</tr>
<tr>
<td></td>
<td>&lt;10 years (n=12)</td>
<td>3.50</td>
</tr>
<tr>
<td>Training</td>
<td>&gt;12 months (n=3)</td>
<td>4.00</td>
</tr>
<tr>
<td></td>
<td>6 – 12 months (n=19)</td>
<td>2.68</td>
</tr>
<tr>
<td></td>
<td>&lt; 6 months (n=8)</td>
<td>3.87</td>
</tr>
</tbody>
</table>

While results obtained from this study cannot be generalised to the whole population of nurses due to the small sample size, they highlight the low level of competence in nurses’ BLS skills. Furthermore, the nature of observational studies using checklists further allows the extrapolation of a range of proficiency for individual skills within the checklist itself (Parahoo, 2006; Polit & Beck, 2006). Range of proficiency for the study by Devlin (1999) varied from 0% to 83% for different skills. This was in comparison with other studies who also obtained proficiency ranges of 6% to 77% (Seidelin et al., as cited in Devlin, 1999) and 3% to 69% (Greig et al., as cited in Devlin, 1999). While the aim of this literature review is not to explore competence scores for specific resuscitation skills, it is interesting to note that recurrent themes occur in various studies. For instance, a low level of correct chest compressions identified by Devlin (1999) is also evident in studies by other authors such as Seidelin et al. (1989), Greig et al. (1996) (as cited by Devlin, 1999) and Brown et al. (2006).
In spite of the comparable results highlighting the low skill level for nurses obtained by various authors, Devlin (1999) maintained that in view that there were no significant differences between the variables explored and the results obtained, further research looking into the relationship between specific variables and skill is required.

While studies exploring resuscitation skills highlight an overall poor performance, research exploring the relationship between knowledge and skill is limited. In this regard, Brown et al., (2006) conducted a study to explore the relationship between knowledge of resuscitation guidelines as issued by the American Heart Association (AHA) and performance. The sample consisted of 60 emergency medical technicians (EMTs) working in 26 emergency medical service stations chosen conveniently from those working on the days of data collection from a total population of 593 EMTs at 31 stations. Inclusion criteria defined the population as, all EMTs with a minimum of BLS training who are likely to respond to cardiac arrest situations as professional rescuers. For this study, researchers used a questionnaire to assess knowledge on CPR guidelines as issued by the AHA and a skills checklist designed using the same AHA guidelines to assess performance. Both tools looked at four criteria; namely, compression rate, compression depth, compression / ventilation ratio and ventilation volume.

Results revealed that while accurate knowledge of guidelines was associated with better performance, there was low compliance with AHA guidelines during
performance. Poor performance was observed in all criteria assessed by the skills checklist, as shown in the Table 2.2.

Table 2.2
Scores for BLS skills according to observed criteria
(Brown et al., 2006)

<table>
<thead>
<tr>
<th>Skill</th>
<th>Correct Responses (n=60)</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>Correct compression rate</td>
<td>33</td>
<td>56%</td>
</tr>
<tr>
<td>Correct compression depth</td>
<td>23</td>
<td>39%</td>
</tr>
<tr>
<td>Correct compression : ventilation ratio</td>
<td>25</td>
<td>42%</td>
</tr>
<tr>
<td>Correct ventilation volume</td>
<td>8</td>
<td>13%</td>
</tr>
</tbody>
</table>

Brown et al., (2006) argue that reasons for poor performance could be various. Furthermore, while they attempted to explore few variables which could influence knowledge and skill; namely, years of experience, frequency of CPR performance and more advanced training; overall there was no correlation between the variables explored and correct performance. Authors concluded that while a higher knowledge of CPR guidelines could likely improve some aspects of performance, skill retention and correct overall performance require intensive and ongoing CPR training. Observational studies involving simulated scenarios pose a major limitation to such studies. A scenario based on a manikin under controlled criteria does not truly represent a real – life situation (Page & Meerabeau, 1996; Brown et al., 2006), thus the effect of some variables which cannot be controlled (such as commotion during the resuscitation attempts) on performance cannot be identified.

2.3 Competence and Confidence

Studies examining nurses’ competence in performing resuscitation and confidence in their resuscitation skills have also been conducted. Some of these studies have
attempted to identify a relationship between the two variables. Two such studies which have combined the two variables together are the studies carried out by Crunden (1991) and Crouch and Graham (1993).

Crunden (1991) conducted a study to explore the relationship and identify any gap between nurses’ perceived effectiveness and actual effectiveness when performing basic life support. The study was divided in two stages. Stage one included data collection on actual performance and perceived effectiveness by using skill observation on a resuscitation training manikin and a questionnaire respectively. Stage two included semi-structured interviews used to explore and define the gap between the two variables in detail using a grounded theory approach.

For the first stage of data collection, the whole population of nurses at an unnamed district general hospital in Greater London was invited to participate to 12 workshops on BLS. Respondents (n=51) to this “invitation” were the sample for the first stage of data collection. During the workshop each participant was asked to answer three questions related to perceived effectiveness. As in other studies, participants were then asked to perform cardiopulmonary resuscitation on a computerised training manikin whilst being assessed against a skills checklist. Results from the first stage of the study revealed that while 11 nurses considered themselves to be effective when providing cardiopulmonary resuscitation, none of the 51 nurses passed the test. These 11 nurses were all recruited as sample for the second stage of the study. So inclusion criteria defined participants to the second stage of the study as nurses who consider themselves to be effective but are not.
As highlighted by the authors themselves, sample selection for a grounded theory approach need not equate to issues of representativeness but more to the criteria which define the variables making up the phenomenon (Holloway & Wheeler, 2002). Qualitative data in this second stage of the study was collected by means of semi-structured interviews and analysed by thematic analysis. Six categories emerged from this study. Table 2.3 describes the categories identified.

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>Role Identification</td>
<td>Nurses present an image of being capable and competent and display a behavior which is in line with their perceptions of their professional role.</td>
</tr>
<tr>
<td>Training Issues</td>
<td>Performance is highly influenced by training, so consistent and up to date training is vital.</td>
</tr>
<tr>
<td>Threats to Self – esteem</td>
<td>Becoming aware of deficiencies in knowledge and skill puts a threat to nurses perceived competence and confidence.</td>
</tr>
<tr>
<td>Attitudinal Orientation</td>
<td>The attitudes towards resuscitation influence nurses’ attitudes towards resuscitation training and self appraisal.</td>
</tr>
<tr>
<td>Expectations of Others</td>
<td>Nurses model their behaviour in response to expectations of peers, superiors, learners and public</td>
</tr>
<tr>
<td>Influence of Past Experience</td>
<td>Nurses are influenced by experiences of resuscitation when appraising their own skills.</td>
</tr>
</tbody>
</table>

A similar study was conducted by Crouch and Graham (1993), who used a questionnaire to gather data on nurses’ knowledge of guidelines for cardiopulmonary resuscitation made by the UK Resuscitation Council and their confidence during cardiac arrest situations. A sample of 100 nurses was recruited by convenience sampling from 5 areas of an unnamed district general hospital in the UK; namely, medical, surgical, ophthalmology, intensive care and emergency. The study yielded a 62% response rate. In the questionnaire nurses were asked seven clinical questions on cardiac arrest situations as well as questions on their confidence during cardiac arrest situations. Results show that while 42% (n=26)
of the participants feel confident during a resuscitation situation, only 8% (n=5)
do not feel confident. However, 42% (n=26) stated that they are unsure but
somehow cope. An interesting finding is that of the 42% (n=26) who stated they
felt confident during a cardiac arrest situation only 9.5% (n=4) correctly answered
all seven clinical questions and only 52% (n=32) responded correctly to more than
4 questions.

Results from this study show that while there might be a correlation between
knowledge of guidelines and perceived confidence, the relationship between
confidence and competence is complex and needs to be explored further by other
methods. In view of these results and conclusions, Crouch and Graham (1993)
recommend compulsory training in resuscitation with regular retraining
opportunities offered by health care facilities such as hospitals. Furthermore, they
highlight the need for further research on outcomes of in-hospital resuscitation.

While on one hand authors only briefly mention the method of sample selection,
on the other hand no details were given on the specific procedure used. However,
they highlight two major limitations of the study. A major limitation was that
respondents could have easily referred to texts when answering to clinical
questions leading to false positive answers. Another limitation is that the study
was only conducted in one hospital; however, they managed to obtain a
considerable cross-section within the different specialities. While the total
population was not quantified, so generalisations cannot be made and
representativeness cannot be worked out, conclusions from the study are indicative of the need for further research.

From the above two studies, it is evident that there is a major difference between self-appraisal of subjects and knowledge or skill of basic life support. The two studies performed by Crunden (1991) and Crouch and Graham (1993) highlight the poor confidence and somehow a lack of competence possessed by nurses. This has been attributed to lack of participation to training programme and a lack of knowledge on current resuscitation guidelines (Bhaskarabhatla, 1999; Saravanan & Soar, 2005).

A study was performed by O'Donnell (1990), using an anonymous questionnaire, to explore the opinions of trained nurses and medical colleagues regarding the resuscitation of a patient following cardiac arrest. Questionnaires were sent to all nurses in an unnamed hospital in the UK and also to doctors in the same hospital who responded to cardiac arrest situations in hospital (from house officers to registrars). The author does not state the size of the population, however, respondents included 155 nurses and 20 doctors. The questionnaire covered four main areas; namely questions on training in BLS and self appraisal of performance during resuscitation attempts, questions on areas in which respondents felt there were particular problems affecting the outcome of resuscitation attempts, questions to assess knowledge of drugs and equipment used during resuscitation attempts and comments on suggested improvement to current hospital practices.
Results revealed that 76% of the nurses (n=118) were not satisfied with how their undergraduate training had prepared them to adequately deal with resuscitation situation and rated their undergraduate preparation at 6/10 or less. This was in contrast with the doctors’ replies of whom 75% (n=15) were satisfied with how their undergraduate training prepared them for resuscitation situations and rated their undergraduate preparation at 7/10 or more; however still commented that their training needed some improvement. An interesting observation is that none of the doctors scored their undergraduate preparation between 4/10 to 6/10, while nurses produced more variable results along the scores from 1 (least satisfied) to 10 (highly satisfied).

When asked to rate their performance on a scale from 1 (poor performance) to 10 (best performance), 60% (n=12) of doctors rated their performance at 7 or more, and 50% (n=35) of the nurses rated their performance at 7 or more. While results for self appraisal for doctors and nurses are close to each other, as the authors themselves highlight, results for doctors’ self appraisal might not be reliable due to the small number of doctors participating in the study (n=20). While values for nurses who had attended post-qualification training in resuscitation are not reported in the literature, authors state that they were significantly more confident of their resuscitation skills and more knowledgeable on drugs used during resuscitation.
In this study, while 60% of the nurses (n=93) commented that they were unsure of their role during resuscitation, this was not evident in doctors' replies. However, both nurses and doctors identified the need for a designated role for each person participating during resuscitation. With regards to training, both doctors (94.7%) and nurses (98.2%) identified the need for compulsory yearly lectures in resuscitation.

With regard to skill assessment, authors argue that self-scoring of resuscitation skills has been shown to have little correlation with competence as assessed using a mannequin (O'Donnell, 1990; Crunden, 1991; Crouch & Graham, 1993). Thus, literature highlights the need for regular resuscitation skills update in order to have the best life support administered efficiently and effectively. Improvements in resuscitation training could have an appreciable impact on total mortality, as the outcome of resuscitation attempts is likely to be related to the quality of resuscitation training provided (Ballew, 1997; Saravanan & Soar, 2005).

2.4 Influence of training on performance

A study was performed by Nyman and Sihvonen (2000), to describe the BLS skills of nurses and nursing students, and to assess the influence of resuscitation teaching on performance. The sample consisted of 75 nurses from a university hospital in Helsinki and 223 final term nursing students from institutes of nursing in Budapest and Hungary. The authors' hypotheses were that qualified nurses having more experience than nursing students have better CPR skills and
participants with recent training (≤ 6 months) would demonstrate better CPR skills.

Thus, the two variables considered were experience and training. A questionnaire
was used to obtain demographic data and data on experience, training, confidence
as well as skills self-evaluation. A skills checklist was used to gather data on
actual skill performance using a computerized resuscitation training mannequin
for 4 minutes.

Demographic data revealed that 53% of the participants (both nurses and students)
had attended a BLS course 6 months or less before data collection, while 40% had
attended BLS training more than 6 months before data collection. Seven percent
of the participants had never participated in BLS training. There was no statistical
difference between nurses and students with regards to frequency in CPR training.
Another observation made in the study was that participants who attended recent
BLS training also evaluated their skill statistically significantly higher than other
participants. On one hand, 55% of all the participants evaluated their skills as
good, while on the other hand 45% evaluated their skills as poor. In spite of these
results, the authors did not find any statistical correlation neither between CPR
training and performance nor between experience and performance. Thus, both
hypotheses were rejected. In agreement with Marteau, Wynne, Kaye and Evans
(1990), O'Donnell (1990), Crunden (1991), and Crouch and Graham (1993),
authors concluded that while self-evaluation of CPR skills, experience and
training do not necessarily reflect actual performance; there is still a possible
influence of experience and/or training on confidence and/or perceived
competence. Nyman and Sihoven (2000) argue that this could result in nurses
failing to identify the need for training. Furthermore, Marteau et al. (1990) argue that “misplaced confidence” could lead to enhanced ineffective skill and performance. Consequently, Nyman and Sihoven (2000) in agreement with other authors (Marteau, Wynne, Kaye & Evans, 1990; O’Donnell, 1990; Crunden, 1991; Crouch & Graham, 1993; Saravanan & Soar, 2005) suggest the use of frequent psychomotor assessments and regular training to encourage and motivate staff to be prepared adequately to perform resuscitation.

Bhaskarabhatla (1999) and Saravanan and Soar (2005) argue that the lack of knowledge and skill can be improved upon by providing adequate resuscitation training programmes for nurses and doctors, tailor made to fulfil the demands of different specialities and different environments. In this regard, following the introduction of the intermediate life support course by the European Resuscitation Council, various authors (Murphy & Fitzsimons, 2004; Scapigliati et al., 2006) undertook research to explore the potentials of such training and its outcome on knowledge and skill.

Murphy and Fitzsimons (2004) conducted a study to determine whether attendance to an ILS course influences nurses’ skill deployment during cardiac arrests. Data collected retrospectively through cardiac arrest reports by comparing skill deployment 1 year before the ILS course and 1 year after revealed that ILS training was insufficient to increase skill deployment by ward nurses. Interviews conducted 1 year after the ILS courses revealed that although nurses felt more confident after participating in the ILS course, as time passed without practice,
confidence reduced in such a way that they would not use skills learnt without supervision. In this regard, the authors concluded that ILS training alone may be insufficient to increase deployment, and frequent refreshing of the training could be required together with individual coaching.

Different results were obtained by Scapigliati et al. (2006), from a study conducted during an ILS course in Italy. The aim of this project was to train all nurses within a Department of Cardiovascular Medicine in a hospital in Italy. The population for this study were all nurses within the department (n=125). Six nurses did not consent to participate in the study. All nurses who consented to participate in the study (n=119) were randomly divided in two groups: the pilot group (n=66) and the study group (n=53). The study phase included a pre-course and a post-course questionnaire. Pre-course questionnaires yielded an average of 10.15 correct answers out of a possible 16 (=/- 2.75). This increased to 13.19 +/- 2.53 after the course. The only considerable difference within the population was a higher pre-course score of 11.74 out of 16 for nurses in the intensive care unit (ICU) as opposed to 9.26 for non-ICU nurses. However, this difference disappeared in the post-course assessment to 13.89 and 12.79 for ICU and non-ICU nurses respectively.

In this study, Scapigliati et al. (2006) observed a significant increase in knowledge of in-hospital resuscitation following the ILS course. They stress that the course was useful to improve actual knowledge and decrease knowledge differences due to the different working backgrounds. However, as the authors themselves
highlight, the study was conducted in one centre so results are not generalisable to the whole Italian nursing community. They further stress the importance of a larger study on a wider context. Despite these high results, which are expected immediately after a course, studies discussed in the next section show that knowledge and skill retention decreases gradually over time.

2.5 Retention of knowledge and skill

Hamilton (2005) in her report on resuscitation training stated that poor retention of BLS knowledge and skill has been documented over the past 20 years. Authors attempted to quantify retention or indeed rate of deterioration. However, this requires complex statistical and pedagogical procedures so research on retention is limited.

Berden, Williams, Hendrick, Pijls and Knape (1993) conducted a study to assess the extent of retention of BLS skills in nurses. The study was conducted in general wards of an unnamed teaching hospital. The population consisted of 180 nurses in general non-cardiac wards and 141 nurses gave their consent to participate in the study. The representative sample of 141 nurses was randomly divided in three groups. All three groups were given initial BLS training with pre-test (before the session) and post-test (after the session). Average penalty scores for each group in post-test were used as a baseline measure for comparison of average penalty scores in subsequent re-tests for the same group. Nurses in group A were reassessed every 3 months after the initial training, while nurses in group B were
reassessed every 6 months, both for a period of one year. Nurses in group C were reassessed only once after 12 months. After each reassessment nurses were given a refresher course in BLS.

While detailed results for this study are not provided in the literature, authors observed an increase in average penalty scores in the first retest for each group evidencing skill decay. However, average penalty scores decreased and were maintained for subsequent retests for both groups A and B. This suggests that refresher training at 3 to 6 month intervals could be effective to enhance skill retention. A high average penalty score for reassessment at 12 months in group C, highlighted significant skill decay after 12 months, thus too long for retention of skills.

While authors argue that scores obtained from post-test following the initial session were equally distributed amongst the three groups (Kruskal – Wallis Test), they fail to acknowledge that in pre-test, group A achieved double the average penalty score as those achieved by groups B and C (as shown in the only diagram provided in the literature). This could have influenced interpretation of average penalty scores for retests achieved by group A resulting in false positive results (Dent & Gillard, 1993). This error could have been minimised if participants were distributed to groups after pre-test to achieve a more uniform distribution of average penalty scores amongst the three groups. In the way the study is presented there appears to be no use for the pre-test: carried out before initial training. In spite of this, the diagram shows that average penalty score after first reassessment
of group B (after 6 months) is similar to an extrapolation of penalty score for group C after 6 months. Furthermore, in a critical review of this study, Dent and Gillard (1993) suggest that while results obtained from this study agree with those of other studies, interpretation of results from this study on its own standing must be treated with caution.

Similar results were obtained by Broomfield (1996), who conducted a study to investigate retention of knowledge and skill following a BLS training programme. A quasi–experimental approach was used for this study on a convenient sample of 19 nurses attending a course in “Professional Development (ENB 923)”. Data collection for this study was done in three parts. In each part a data set was collected using a 26 point questionnaire on BLS knowledge and an 8 point BLS skills checklist. Nurses participating in the study were given a 3 hour update in BLS. The first two identical data sets were collected before and after the 3 hour session respectively. The third data set was collected after 10 weeks. Table 2.4 shows the mean scores of the group in the pre-test, post-test and retest after 10 weeks.

<table>
<thead>
<tr>
<th>Test</th>
<th>Pre-test</th>
<th>Post-test</th>
<th>Retest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge (max score = 26)</td>
<td>14.895</td>
<td>23.895</td>
<td>19.421</td>
</tr>
<tr>
<td>Skill (max score = 8)</td>
<td>1.053</td>
<td>7.211</td>
<td>5.053</td>
</tr>
</tbody>
</table>

Results above show a significant increase in both knowledge and skill following the refresher session, however, there is a significant decrease in both knowledge and skill after 10 weeks. The researchers in agreement with Dent and Gillard (1993) concluded that knowledge and skill deteriorate quickly, highlighting the
need for regular updating of BLS knowledge and skills. In spite of these results, the study is not representative of the population of nurses and variables like experience and grade could neither be controlled nor statistically analysed due to the very small number of participants. However, results are suggestive of further large scale research.

This tendency of knowledge and skills deterioration is observed also in studies performed on other health professionals as well. Semeraro, Signore and Cerchiari (2005) conducted a study to assess retention of knowledge and skill of 47 anaesthetists participating in a European Resuscitation Council (ERC) ALS course. Knowledge was assessed by a standard multiple choice test, which is a standard test used for ALS course assessment and skill was assessed by CASTTest scenarios also used for ALS course assessment. Data was collected immediately after completion of the course (test) and again after 6 months (retest). Results from the study show a decline in knowledge from 85.89% (+/- 5.28%) in first test to 79.45% (+/- 6.62%) in the retest. These results were compared using paired t-test and show a significant difference between the two, thus a significant deterioration in knowledge. Skill assessment also shows a decline from 100% pass in the test to 63.83% in the retest. Results for the skill assessment were compared using McNemar test and also show a significant skill deterioration.

Woollard et al. (2006) conducted a study to determine the optimal refresher training intervals for AED and CPR skills. In their study, Wollard et al. recruited a sample of 60 lay respondents working at Bristol International Airport who
attended a four hour initial training course followed by a two hour refresher
course at 6 months interval. Participants were than randomly stratified into two
groups A and B to allow equal distribution on the basis of demographic
characteristics and skill. Group A received 2 further refresher courses at 6 months
intervals following the first refresher course, while group B received a 2\textsuperscript{nd}
refresher course after 12 months from the first refresher course. Differences
between 2\textsuperscript{nd} refresher training for both groups were not statistically significant,
however, authors observed a statistically significant difference in perceived
competence and confidence assessed during the last refresher courses. Participants
in group A scored higher pre-final refresher course self assessed competence and
confidence. Results are summarised in the Table 2.5.

<table>
<thead>
<tr>
<th></th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self Assessed Competence</td>
<td>87%</td>
<td>78%</td>
</tr>
<tr>
<td>Self Assessed Confidence</td>
<td>89%</td>
<td>79%</td>
</tr>
</tbody>
</table>

Authors concluded that while some skills deteriorated against time in general
performance was equal for both groups however, those who participated to three
refresher programmes cumulatively resulted in increase confidence and perceived
competence. This was adjusted after the final refresher courses in which overall
competence and confidence increased to 92 – 94% in all groups, suggesting that
regular training increase confidence and competence.

The authors argue that limitations to the study could have led to some errors
mainly the small sample used and that in fact the second refresher course for
group A was held at 7 months and not at 6 months due to delays in obtaining permissions. Authors further argue that the study was conducted before the publication of the latest CPR guidelines so further research using more recent guidelines is suggested.

Beckers et al. (2007) conducted a study to examine retention of AED skills in medical students following minimal initial training. The sample for this study included 59 medical students randomly selected from 1st year medical students at the University of Aachen (Germany). Data was collected using skills checklist aiming to observe improvement or deterioration in time to first shock, electrode positioning and safety. Three sets of data were collected. Pre-test was carried out before a 15 minute training session on the use of automated external defibrillators, post-test was carried out after the session and retest at 6 months interval. Table 2.6 shows results obtained from this study.

<table>
<thead>
<tr>
<th></th>
<th>Pre-test</th>
<th>Post-test</th>
<th>Retest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time to first shock</td>
<td>77.7s (+/- 17.05s)</td>
<td>56.5s (+/- 9.5s)</td>
<td>59.9s (+/- 8.9s)</td>
</tr>
<tr>
<td>Correct electrode placement</td>
<td>84.4%</td>
<td>93.2%</td>
<td>98.3%</td>
</tr>
<tr>
<td>Safety</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Results above show a significant decrease in time to first shock after the training session which was maintained in retest after 6 months. Although there was a slight increase in correct electrode placement, this was not statistically significant but was maintained in retest after 6 months. Safety was maintained throughout the three tests. Although authors suggest that retention of skills at 6 months is achievable, this study was specifically designed for automated external
defibrillation training. AEDs provide audiovisual guidance to the user which could have enhanced best performance. As the authors themselves acknowledge, these results might not be generalisable to all skill retention situations, but definitely stand in favour of the required refresher training for resuscitation skills at a minimum of 6 months interval after minimal training.

The report on resuscitation presented by Hamilton (2005) highlighted the importance of refresher training for the retention of BLS skills and knowledge. In agreement, various authors (Fisher, 1992; Moser & Coleman, 1992; Leah, 2001) also suggest a periodic review of BLS skills and knowledge every 6 to 12 months as part of a standard resuscitation training programme. Further to regular training sessions, Gabbott et al. (2004) argue that resuscitation training should be provided at a level appropriate for the expected clinical responsibilities of individual members of staff and maintained that all new members of staff should have compulsory BLS training as part of their induction programme.

2.6 Nurses’ attitudes towards in-hospital resuscitation training

In the latest guidelines for cardiopulmonary resuscitation practice and training in United Kingdom, Gabbott et al. (2004) emphasised the importance of ensuring a high standard of cardiopulmonary resuscitation training to all healthcare staff to ensure efficient and effective resuscitation in the healthcare setting. In agreement with studies discussed throughout the literature review (O’Donnell, 1990; Fisher, 1992; Crouch & Graham, 1993; Hamilton, 2005), Gabbott et al. (2004) highlight
the importance of staff to undergo regular resuscitation training at a level appropriate for their individual clinical responsibilities. Furthermore, authors maintain that all new members of staff should have compulsory basic life support training as part of their induction programme.

The importance of compulsory BLS training has been highlighted by various authors (O’Donnell, 1990; Flisher, 1992; Crouch & Graham, 1993; Hamilton, 2005). However, in interviews carried out by Crunden (1991) to identify nurses’ perspectives of resuscitation training, he observed that nurses were strongly in favour of voluntary attendance to continuing education as opposed to mandatory education. Furthermore, Crouch and Graham (1993) argue that there is evidence that basic life support training is not being taken seriously by senior medical and nursing staff due to the lack of interest. For instance, resistance is encountered when trying to convince management that resuscitation training is an essential component in the practical development of nursing skills. Arguments put forward by management include shortage of staff, which is a common reason for not releasing staff to take part in training sessions. However, Flisher (1992) argued that through careful liaison with management and avoiding busy hours, staff participation can be enhanced.

Hamilton (2005) also emphasized the importance in promoting participation in training. Such training should include in-hospital scenarios and using current evidence-based guidelines to teach basic life support skills and knowledge. In their study, Saravanan and Soar (2005) highlighted factors which hinder hospital
staff from undertaking BLS training. These included nurses who do not appreciate the need for retraining, courses do not meet the needs of different groups of nurses with different responsibilities, nurses attending to other courses thus have no time to do BLS training as well and lack of interest in BLS training by general nurses since resuscitation teams usually take over a cardiac arrest situation.

A major factor identified which influences nurses' attitudes towards training is the difference between what is taught during resuscitation training and what is encountered during real resuscitation situations. In this regard, Page and Meerabeau (1996) conducted a study to illustrate the complex mechanism of transferring what is learned during CPR training to the actual CPR scenario. To collect data they conducted 5 debriefing sessions with 8 nurses and 7 nursing students immediately following 8 resuscitation situations over a period of 6 months. All sessions took place as soon after the event as possible and lasted a maximum of 45 minutes. All sessions were audio – taped and transcribed prior to analysis. The distribution of participants for the debriefing sessions is illustrated in the Table 2.7.

<table>
<thead>
<tr>
<th>Session</th>
<th>Participants</th>
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<tbody>
<tr>
<td>1</td>
<td>2 Student Nurses &amp; 3 Staff Nurses</td>
</tr>
<tr>
<td>2</td>
<td>2 Staff Nurses &amp; 1 Ward Sister</td>
</tr>
<tr>
<td>3</td>
<td>1 Student Nurse &amp; 2 Staff Nurses</td>
</tr>
<tr>
<td>4</td>
<td>3 Student Nurses &amp; 3 Staff Nurses</td>
</tr>
<tr>
<td>5</td>
<td>1 Student Nurse &amp; 2 Staff Nurses</td>
</tr>
</tbody>
</table>

Note: Five of the staff nurses participated in two debriefing sessions.
The authors used debriefing sessions to identify the meaning participants gave to events during each particular incident in order to identify and highlight the relationships between theory, practice and perceived learning needs.

A major finding from this study was that there are deficiencies in the way nurses were taught and assessed during CPR training. Furthermore, participants highlighted the discrepancies between what is taught in theory and what is encountered in practice. Nurses argued that while classroom simulations help in developing technical ability, they do not represent the pressures of the real resuscitation situation. These findings are in agreement with findings by O’Donnell (1990) in which a number of participants highlighted that BLS training was confined to the classroom setting while the reality of a cardiac arrest situation is very different.

Page and Meerabeau (1996) in agreement with Crunden (1991) attributed nurses’ attitudes towards and perceptions of BLS training to this division between what is taught during formal training and what is encountered in practice. In this regard, O’Donnell (1990) recommended that classroom-based instruction is consolidated by attachment to CPR team as observers, in order to gain insight of the real situations and apply it to theory.
2.7 Issues related to resuscitation training from a theoretical adult learning perspective: Knowles’ Andragogy Theory (1990)

The Andragogy Theory was proposed by Malcolm Knowles (1990) as a theory for adult learning, however, some of its principles were successfully adopted within a pedagogical context. Furthermore, andragogy allows for a pedagogical (didactic) perspective in circumstances where the knowledge base is new to the learner and when certain basic knowledge is necessary, such as in initial basic life support training. From an adult learning perspective, the learner is encouraged and motivated as early as possible to assume responsibility for self-directed learning. This highlights various critiques to the theory who sustain that it is not a theory in itself but a set of assumptions or characteristics of adult learners, which influence the degree to which individuals engage into learning. However, Knowles (1990) maintains that his theory should be regarded as a model of assumptions about adult learning as opposed to a model of adult learning. This section addresses issues discussed throughout the literature review from an adult learning perspective, in light of the six assumptions within Knowles’ Andragogy Theory.

2.7.1 The need to know

In light of the andragogy theory (Knowles, 1990), the lack of knowledge and skill and the poor attendance to training programmes suggest that nurses fail to appreciate the importance of knowledge of resuscitation guidelines as well as the need of an efficient and effective response in cardiac arrest situations. Knowles
(1990) argues that adults must identify gaps in their knowledge and thus appreciate the need to learn for them to enroll onto training programmes. Due to the rate by which life support guidelines are updated, the evident lack of knowledge, poor skill and the low retention, gaps are not uncommon. To assist practitioners become aware of these gaps, Knowles (1990) suggests the use of "consciousness raising" techniques. In this regard, the use of ward based simulated scenarios could make nurses aware of their deficiencies in resuscitation skills and help them appreciate the need for training.

2.7.2 Learner’s Self Concept

Through experience and knowledge gained, adults develop their own individual perceptions about themselves. Furthermore, they perceive themselves as "being capable of free will" and are "responsible for their own decisions" (Knowles, 1990, p. 58). Real life clinical situations as well as previous training influence the way nurses perceive themselves with regards to confidence and perceived competence. While authors identified an association between confidence and perceived competence, they stress that perceived competence should not be translated into actual competence (Marteau, Wyne, Kaye & Evans, 1990; Crunden, 1991; Crouch & Graham, 1993). Nonetheless, this highly influences nurses’ perceptions as to the degree to which they identify the need to engage into refresher or update resuscitation training programmes.
2.7.3 Role of the Learner’s Experience

The andragogy theory maintains that experience of the learner prior the learning process is of value for the learning outcomes. In life support courses recalling and discussing previous knowledge and discussing real life experiences are very valid learning opportunities. They provide different perspectives and possibly allow a deeper understanding of the various complex issues involved. For instance, the issue of relatives witnessing resuscitation efforts of a family member has been raised frequently so having individuals in a group with knowledge on the ethical and practical issues involved would surely provide different perspectives for discussion. Supporting this idea, Knowles (1990, p.59) stated that “...the richest source of learning resides in the learners themselves.”

In spite of the value that andragogy puts on experience, it can also have negative effects on the learning process. Adults base their identity on their life experiences (Knowles, 1990), so when trainers do not give credit to the learner’s experience they would be devaluing the learner’s own perceived identity, destroying self awareness and self esteem which could have a devastating effect on the learning outcomes.

2.7.4 Readiness to learn

A fourth assumption made by Knowles (1990) on adult learners is that they are more willing to engage in learning activities which they perceive as useful and
that will help them cope with everyday situations. For instance, nurses who do not frequently encounter life support situations in their environment, might not consider life support training as important as nurses who work in acute environments. Furthermore, in some hospitals resuscitation team nurses usually take over as soon as the resuscitation team arrives at the patient thus nurses might not acknowledge the importance of their knowledge and skill. In fact, from information obtained from the Maltese Resuscitation Council, most nurses who attend basic life support courses are acute care nurses (such as accident & emergency nurses and coronary care nurses).

2.7.5 Orientation of the learning content

Further to the above assumption, adults tend to be more interested in learning skills that will assist them solve everyday problems (problem centred) rather than knowing all there is to know about the subject “just in case” (subject oriented). In this instance, nurses might be more interested in knowing how to effectively perform chest compressions rather than learning about the mechanics involved, unless they intend to become trainers or researchers. In fact, keeping in mind the needs of the target audience when planning life support training could help reduce drop out rates since adults are more willing to devote energy to learn tasks they will use in their every day life (Knowles, 1990). Knowles (1990) adds that it is easier for adults to learn new knowledge, develop skills and change attitudes when they are presented in the context of real-life situations. This is supported by the newly developed life support courses which are targeted at the need of
particular audiences, such as the intermediate life support course in which nurses do not learn all the component of advanced life support but only what is relevant to their needs.

2.7.6 Motivation

The last assumption proposed by Knowles (1990) is about the motivating factors which influence adults to engage in continuing education, such as nurses enrolling in life support courses. Tough (as cited in Knowles, 1990, p.63) argued that all adults are innately motivated to “grow and develop”, but this motivation could be easily blocked by “barriers” such as low self esteem, low self confidence in nurses who had negative experiences in previous basic life support training or for nurses who never participated in life support training due to rosters or other reasons.

In the andragogy theory Knowles (1990) differentiates between external and internal motivators. Whilst there are external factors that motivate learning such as qualification allowances or continuing professional development points, Knowles (1990) argues that the most potent motivators are internal factors such as an increased self esteem and job satisfaction after positive resuscitation outcomes or functionality within the resuscitation team even if the outcome is not necessarily positive.
2.8 Conclusion

Throughout the literature review, several issues relevant to resuscitation training have been analysed and discussed. While various articles were identified and included in the review, only articles published in the English language were considered. This could have led to some valid articles published in other languages to be omitted. Furthermore, due to the limited number of recent studies (< 10 years) some studies published before 1997 had to be included as well.

In conclusion, the literature review highlighted that the outcome of attempts to resuscitation is likely to be related to the quality of life support provided. This greatly depends on the competence and confidence of the individual practitioners involved. Thus, both nursing and medical staff need to appreciate the importance of adequate training in resuscitation to offer the best chance of survival to patients in cardiac arrest out of attempts at resuscitation.
Chapter 3

METHOD
3.1 Introduction to the research method

This chapter outlines the methods used to explore critical care nurses’ perceptions and attitudes towards training in adult resuscitation. Throughout this chapter issues surrounding the methods of investigation applied, sampling procedures, methods of data collection and procedures of data analysis are discussed. Furthermore, the mixed methods approach used in this study is discussed in light of issues related to validity, reliability and trustworthiness of the methods applied.

While the research questions, aims and objectives of the study were presented in the introductory chapter, the aims and objectives of the study are presented again in this chapter to facilitate understanding of the focus of this research project.

Aims of the study

- To evaluate critical care nurses’ knowledge of resuscitation guidelines, their perceived competence and confidence when participating in resuscitation attempts.
- To explore critical care nurses’ perceptions and attitudes towards training in adult resuscitation.
- To identify if current resuscitation training available meets the needs of critical care nurses and identify their perceived training needs.

To achieve these aims, the following objectives were set out…

- Assess nurses’ awareness of in-hospital resuscitation guidelines, the regular updates and knowledge of the latest guidelines.
• Identify how nurses rate their resuscitation skills, their perceived competence and their confidence when participating in resuscitation attempts.

• Explore perceived factors which hinder and promote attendance to formal and informal resuscitation training.

• Identify if nurses feel that resuscitation programmes currently offered meet the needs of their settings.

• Explore if nurses feel the need of supplemental/advanced training to function better within their settings.

• Identify any association between variables explored in the study and attitudes towards training.

3.2 Operational Definitions

For the purposes of this study, the terms used within this study are defined as follows:

Critical Care Nurses: First and second level nurses working in accident and emergency, intensive care, anaesthesia and cardiac care units.

Perceptions: Personal views on an issue attained through knowledge, experience, awareness, culture and values. Perceptions influence attitudes.

Attitudes: A disposition to evaluate something in a particular way according to perceptions. Attitudes influence actions towards an issue.
Training: A process of formal and informal teaching and learning, leading to the acquisition of new knowledge, skills and competencies, to change attitudes, shape behaviour and enhance performance.

Resuscitation: Procedures used in cardiac arrest situations to artificially oxygenate a patient's vital organs until return of spontaneous circulation.

3.3 Research Design

In choosing a research design appropriate to fulfil the aims and objectives of the study, two major issues were taken into consideration. The first issue is that there is a limited amount of local research on resuscitation and resuscitation training available. Secondly, a considerable amount of research has been conducted abroad. Thus, the appropriate design for this study had to allow the use of a method to provide a broad overview of the local situation guided by and in comparison to findings obtained from research conducted abroad. Such a result can be achieved by the use of quantitative methods, however, authors highlight that while quantitative methods are effective in generating a broad general overview, they do not easily allow for a deep exploration into a situation (Bowling, 2004; Parahoo, 2006). To overcome this second issue and allow for a more real and complete description of the phenomenon under study, the use of a qualitative method in combination with the quantitative method was considered. This led to a mixed methods approach to collect, analyse and interpret data on
variables making up critical care nurses’ perceptions and attitudes towards training in adult resuscitation.

Within this mixed methods approach, quantitative data on variables making up the situation and relationships between them was collected first and analysed to give a better picture of the local situation. Findings from this phase were used to inform and guide a second phase of qualitative data collection, allow for deeper probing into items identified during the first stage, as well as assisting in the interpretation of the findings and ultimately offer a deeper explanation of the situation. Creswell (2009) suggests that this sequential explanatory design, with its “quantitative – qualitative” sequence, is used when the intention of the researcher is to interpret and deeply explain findings obtained from a study.

3.4 Research Method

In the sequential explanatory design described above, quantitative data was collected by means of a questionnaire during the initial phase of data collection. Questionnaires were analysed and findings were used to design and guide the second phase of data collection (qualitative data) by means of a focus group interview. This qualitative method was also used to explore in further depth some of the findings obtained through the questionnaires. Data from the focus group interview was analysed, followed by an interpretation of the whole set of data obtained. Each of the two methods used is discussed in further detail in the next section, while the whole research process is highlighted in Figure 3.1.
In this design, while quantitative data obtained is given more weight in the interpretation, qualitative data was essential to interpret and explore in further detail the results obtained. While the structural approach to data collection and analysis offered by this design was an advantage, the length of time involved to complete the whole process was a major disadvantage inherent within this design (Creswell, 2009).
3.4.1 Quantitative Method: Questionnaire

During the initial phase of data collection, a descriptive survey method was used to observe, measure and document information on prevalence, distribution and interrelations of variables making up the “perceptions and attitudes towards training in adult resuscitation” phenomenon; such as knowledge, views, dispositions and perspectives (Polit & Beck, 2006). While the emphasis of descriptive survey methods is mostly to describe variables making up a phenomenon, patterns or trends which emerged out of the results obtained were also used to attempt identify relationships between the variables explored (Parahoo, 2006).

The choice of a particular survey method depends on the type of data it aims to collect and measure. A structured survey method for data collection such as the self-completion questionnaire used was appropriate for this study since the tool could be designed from knowledge and information identified in literature through the literature review (Polit & Beck, 2006). Furthermore, a theoretical framework of adult learning (Knowles’ Andragogy Theory, 1990) was used to identify and analyse literature and consequently design questions to collect data on and measure perceptions and attitudes, and factors affecting them.

While quantitative methods such as questionnaires can offer a broad overview of a situation, they fail to generate a deeper understanding of the phenomenon under study. This was overcome by a focus group interview, which was used to further
explore findings generated from the questionnaires, thus providing deeper understanding and a more real description of critical care nurses’ attitudes and perceptions towards training in adult resuscitation (Foss & Ellefsen, 2002).

3.4.2 Qualitative Method: Focus Group Interview

Bowling (2004) argues that focus group interviews are useful to explore deeper into reasons behind participants’ attitudes and perceptions collected through the initial phase of data collection through the questionnaires. Furthermore, authors agree that focus group discussion is a valid technique used to explore, interpret and explain results obtained from quantitative methods (Kingry, Tiedje & Friedman. 1990; O’Brien, 1993; Kitzinger, 1995). Thus, the focus group interview was identified as an adequate method used to collect qualitative data in the second phase of data collection in this study. The key process within focus group interviews is the interaction between participants and thus the subsequent stimulation of new ideas generated through discussion can provide themes explaining different variables and processes within a phenomenon (Robinson, 1999; Parahoo, 2006).

With all the advantages and benefits of combining methods, throughout this research study it was ascertained that planning was based upon rationales that clearly highlight the benefits of the design to add to the reliability and trustworthiness of the findings (Parahoo, 2006). While appropriate design of structured survey methods enhance the validity and reliability of quantitative data
obtained (Parahoo, 2006), appropriately designing the process of qualitative data collection is crucial to the success of the collection of qualitative data (Holloway & Wheeler, 2002). Thus, actions described later in this chapter were taken to ensure validity, reliability and trustworthiness of the data collected by each method.

3.4.3 Advantages and disadvantages of the research tools

Within a mixed methods approach, the advantages and disadvantages of each method need to be considered with regard to the whole research process to ensure that the methods identified are complimentary to each other and that they also provide a way to overcome or limit the limitations of each other (Polit & Beck, 2006).

As with all methods of data collection, self-completion questionnaires carry various advantages and disadvantages. One of the major advantages of self-completion questionnaires was the absence of the researcher (Parahoo, 2006). This offered a higher degree of anonymity to respondents than face to face data collection methods and also reduced bias which could have been present due to researcher presence (Parahoo, 2006; Polit & Beck, 2006). However, absence of the researcher within questionnaires also carries a major disadvantage of questionnaires. The researcher is not able to observe the respondents’ non-verbal responses and thus responses are void of context. Non-verbal responses and
context can produce additional information to enrich the quantitative data obtained (Parahoo, 2006; Polit & Beck, 2006).

Another advantage of a questionnaire is that it can be used to obtain data from a large sample as required by descriptive studies at a lower cost than other survey methods (Bowling, 2004). However, it is often observed and almost accepted that questionnaires carry a lower response rate than other methods (Parahoo, 2006). This was a major concern in this study, and in fact it was very much experienced by a low response rate.

Participants were ensured that data was collected for academic and research purposes only and was not coded in a way that individuals could be identified for any other reason (Bowling, 2004). Furthermore, to help increase participation, respondents were ensured that their response was valuable for the outcome of the study (Parahoo, 2006).

While focus group interviews have a major advantage of being economical and relatively easier to conduct (Krueger & Casey, 2000), they are time consuming and lack anonymity (Lane, McKenna, Ryan & Fleming, 2001). Furthermore, while being flexible and less threatening over the respondent (Krueger & Casey, 2000), when compared to other interview methods the researcher has less control over the discussion as opposed to the dialogue obtained in other interview methods and may thus achieve less depth in the data collected (Sim & Snell, 1996; Jackson, 1998).
The nature of discussion generated through focus group interviews depends on the nature of the dynamics within the group (Daly & Carnwell, 2001). Thus while wider views and ideas may be generated and expanded (Stewart & Shamdasani, 1990), participants might be uncomfortable about sharing their views and refrain from verbalising ideas that do not conform to the ideas of the group (Morgan, 1988; Krueger & Casey, 2000).

3.5 Operationalisation of the tools

The nature of this study allowed quantitative data to be collected by means of a questionnaire and qualitative data through a focus group interview. What follows is a description of the construction process and content of the tools.

3.5.1 Quantitative Method: Questionnaire

The questionnaire was self-designed, constructed following a literature review and consisted of a combination of closed and open questions. Closed questions were used to collect demographic data and to compare responses when a fixed number of alternatives could be offered. Open questions were used to identify recurring themes and allow comparison of views, perceptions and attitudes between participants and subgroups (Cormack, 2000). Following a pilot study some alterations were made to the original questionnaire (Appendix 1) as discussed in the next section and a modified questionnaire was produced for the main data
collection (Appendix 2). The modified questionnaire was piloted again with no changes required.

The questionnaire was divided in four parts. Part 1 consisted of eight multiple-choice questions to evaluate nurses’ awareness and knowledge of resuscitation guidelines. The questions included in Part 1 asked basic essential facts and procedures about resuscitation as identified in the UK and the European Resuscitation Council (ERC) Resuscitation Guidelines (2005) and confirmed by a panel of experts during testing for face validity. These were followed by questions exploring nurses’ confidence and perceived competence with regards to performing in-hospital resuscitation in Part 2.

Part 2 is composed of three major components, mainly perceived significance of resuscitation guidelines to nursing practice, confidence and perceived competence when performing in-hospital resuscitation; and confidence and perceived competence for individual resuscitation skills as identified in the UK and ERC Resuscitation Guidelines (2005) and confirmed by a panel of experts during testing for face validity.

Part 3 consisted of questions designed to explore attitudes, perceptions and views on resuscitation training and perceived training needs. Part 3 also contained questions on previous training and an evaluation of such training.
Demographic data required to identify subgroups of nurses thus enabling comparisons between participants and subgroups was collected in Part 4. Characteristics collected were academic qualifications, professional status, work experience and place of work. Throughout Part 4 questions were asked in a way that respondents could not be identified and complete anonymity was ensured.

3.5.2 Qualitative Method: Focus Group Interview

Assumptions within Knowles’ Andragogy Theory and data obtained from questionnaires were used to design a flexible interview schedule to guide the focus group interviews. In this way a specific set of issues of interest for the study were explored and strictly adhered to through a semi-structured interview schedule (Appendix 4). A focus group interview of 1½ hours was conducted (Sim, 1998). The focus group interview was conducted in English as agreed by all participants, minutes were taken by a scribe who did not participate in the discussions to facilitate transcription and analysis while the interviews were recorded (upon agreement by participants) and transcribed verbatim to allow coding and thematic analysis (Krueger & Casey, 2000).

3.6 Reliability, validity and trustworthiness

To ensure that data obtained from this study is as accurate as possible, various precautions and tests were carried out with regards to reliability, validity and trustworthiness of the tools designed (Parahoo, 2006).
As suggested by Parahoo (2006), a pilot study was first carried out on ten nurses chosen conveniently. The aim of the pilot study was to identify respondents’ views on the tool being used and to identify any problems encountered while completing the questionnaire (Parahoo, 2006). Various changes were done to the original questionnaire (Appendix 1) as suggested by participants during the pilot study (Table 3.1). The second questionnaire was re-piloted on four nurses without modification and is available in Appendix 2.

<table>
<thead>
<tr>
<th>Table 3.1</th>
<th>Changes to the questionnaire following pilot study</th>
</tr>
</thead>
<tbody>
<tr>
<td>In question 5, the abbreviation BVM was changed to AmbuBag® as it is more commonly known.</td>
<td></td>
</tr>
<tr>
<td>In question 6, the term Guedel® was added to oropharyngeal airway as it is more commonly known.</td>
<td></td>
</tr>
<tr>
<td>In questions 14 and 15, the terms BVM, oropharyngeal airway, VF and VT were changed to AmbuBag®, Guedel® Airway, ventricular fibrillation and ventricular tachycardia.</td>
<td></td>
</tr>
<tr>
<td>In part 3, the order of the questions was changed to allow for a better flow throughout the questionnaire.</td>
<td></td>
</tr>
</tbody>
</table>

3.6.1 Reliability and validity of quantitative method

The reliability of a tool lies in its “homogeneity” in collecting data, reproducing the same data when it is re-administered to the same respondents. The significance of reliability of a tool is that the data obtained is true data and not data occurring by chance (Bowling, 2004; Polit & Beck, 2006).

Bowling (2004, p.147) lists various psychometric tests that could be used to assess reliability of a research tool. Parahoo (2005) argues that there are two important considerations when assessing the reliability of a tool. On one hand that the
questions and statements within the tool are clear, understandable and unambiguous so the same respondents give the same response each time the test is repeated. On the other hand, that all respondents understand the questions and statements within the tool in the same way. Reliability tests include tests for stability, equivalence and internal consistency.

Stability of the questionnaire was ensured by a test-retest exercise. The questionnaire was administered two times to the same group of nurses doing the enrolled nurse to staff nurse conversion course (n=41) with a three week interval. While anonymity could not be offered since the researcher carrying out the study retained the coding list of the participants, confidentiality was ensured throughout. The data obtained from the test and the retest was compared and statistically analysed by paired samples t-test to ensure homogeneity in the results obtained (Bowling, 2004). A Sig.(2-tailed) value larger than 0.05 was required to conclude that there was no significant difference between responses for time 1 and responses for time 2 and confirm homogeneity in results (Pallant, 2007, p.239). Results for the paired samples t-test (Table 3.2) show that for Questions 9 and 10 results were less than 0.05 and thus homogeneity in those questions was not ensured. However, since these questions evaluated knowledge no changes were made. Similarly some of the components within Questions 14 and 15 did not produce homogenous results. However, in this regard, Polit and Beck (2006, p.326) argue that mood and attitudes may change over time as a result of changing experiences and interactions, thus no changes were made to these questions.
<table>
<thead>
<tr>
<th>Pair</th>
<th>Question</th>
<th>N</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
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<tr>
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<tr>
<td>Pair 13</td>
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<td>0.323</td>
</tr>
<tr>
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<tr>
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<td>1.000</td>
</tr>
<tr>
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<tr>
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<tr>
<td>Pair 35</td>
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<td>41</td>
<td>-0.573</td>
<td>40</td>
<td>0.570</td>
</tr>
</tbody>
</table>

Internal consistency of the questionnaire was measured by Cronbach’s Alpha. Cronbach’s Alpha measures correlations for all possible ways of splitting the tool for reliability testing to ensure consistency (Parahoo, 2006; Polit & Beck, 2006).
A Cronbach's Alpha of 0.815 was achieved, showing a high degree of internal consistency within the tool (Pallant, 2007, p.98).

Equivalence involves administering a tool similar to the one developed to identify convergent and divergent data (Parahoo, 2006). However, since the tool used was specifically designed for this research and no similar tool was available, equivalence testing was not carried out.

Bowling (2004) proposes that a tool is valid if it measures the phenomenon it is designed to measure and it is strongly influenced by the reliability of the same tool. Parahoo (2006) argues that there are two important considerations when assessing validity of a tool. Firstly the tool must address the research questions (face validity) and secondly the tool must adequately cover the different aspects of the subject under study (content validity).

In this study, the questionnaire was assessed for face validity and each item of the tool was compared to the list of objectives to ensure that all items within the tool were relevant and that all objectives were met. Furthermore, to ensure content validity, the questionnaire was reviewed by a consultant emergency physician, an immediate care physician and an experienced emergency nurse, all involved in resuscitation education.
3.6.2 Trustworthiness of the qualitative method

In qualitative methods, issues of rigour differ from those of quantitative methodologies (Rolfe, 2006). Rolfe (2006) argues that issues of rigour in qualitative research are more linked to trustworthiness rather than reliability. Authors (Cutcliffe & McKenna, 1999; Maggs–Rapport, 2001; Rolfe, 2006) argue that standard criteria proposed to ensure rigour in qualitative methods are still not widely accepted in view of the differences between the different methods. However, Holloway and Wheeler (2002) and Rolfe (2006) proposed criteria which were used as guidelines to ensure trustworthiness of the focus group interview; namely dependability, credibility and confirmability.

To ensure that the findings of the study presented are consistent, accurate and faithful to the data collected, an “audit trail” was maintained. The audit trail highlighted the relevance of the methodology adopted for designing the research, the approach to data analysis taken, as well as how conclusion were reached (Cutcliffe & McKenna, 1999; Holloway & Wheeler, 2002).

As suggested by Cutcliffe and McKenna (1999) the findings were presented to participants after the focus group and they were asked if they could identify their contribution to the discussion. Member validation was also acknowledged in the “audit trial” in which conclusions can be traced back to the focus group transcripts and thus are not a result of the researcher’s preconceptions.
Further to above methods for ensuring rigour, focus group discussions also carry a high level of face validity as participants' views and opinions can be confirmed, reinforced or contraindicated within the group discussion itself (Webb & Kevern, 2001). The combination of focus groups with questionnaires to explore themes deeper and the relevance of the content of the focus group schedule to the phenomenon being explored, further ensures trustworthiness to the research methods applied (Hinds, Scandrett-Hibden & McAulay, 1990; Maggs-Rapport, 2001; Foss & Ellefson, 2002).

3.7 Ethical Issues

Throughout all the stages of the research process, ethical principles were maintained to ensure that participants were safe guarded against harm (Polit & Beck, 2006). While some ethical issues are common to all methods, each method approach carries its own implications depending on methodological principles themselves, sample, method of data collection and nature of the data collected (Parahoo, 2006). This section briefly discusses the ethical implications within this study.

Parahoo (2006) and Polit and Beck (2006) agree that rigour and consistency throughout the research process is a sign of competence and a fundamental ethical principle. Competence not only influences the way research is conducted but also affects the type of data produced and its implications to practice. This was ensured by the appropriate choice and correct use of a methodology with the guidance of a
research supervisor. In this way commitments towards the research process and participants were fulfilled. Furthermore, findings from the study are available to be used for the benefit of nurses and clients.

An important implication of research is that it must not cause harm or distress to participants (Polit & Beck, 2006). Participants were informed of their right to choose not to participate and similarly the right to withdraw at any point. Furthermore, it was ensured that all members within the accessible population had the right to participate and were given an equal chance to be selected through adequate sampling. In this regard, participants were informed of the study in writing and were asked for their consent to participate and for their consent to audio record the focus group interviews which was erased after completion of the study.

Confidentiality was maintained at all times throughout the whole research process. Confidentiality does not only protect participants but also influences the quality of data collected (Parahoo, 2006). Participants were asked not to write their names on the questionnaire to enhance anonymity. Data is presented in a way that participants cannot be identified, no participant was identified by name within the report and no individual result was shared with other members of staff, supervisors or hospital administrators. Furthermore, the University of Malta – Research Ethics Committee were asked and granted permission to conduct the study (Appendix 5).
3.8 Research Setting, Population and Sample

The population under study was the population of critical care nurses working at Mater Dei Hospital (n=222) and thus the sampling units for this study were individuals within this population of nurses working at Mater Dei Hospital. Polit and Beck (2006) suggest the use of inclusion and exclusion criteria to specify the characteristics of the population under study and to serve as criteria for recruitment of the sample.

Inclusion Criteria

- First and second level nurses working in accident and emergency, intensive care, anaesthesia and cardiac care units at Mater Dei Hospital

Exclusion Criteria

- Nurses who participated in the pilot study
- Nurses who participated in the test-retest exercise

3.8.1 Sample for questionnaire

Authors (Williamson, 2003; Polit & Beck, 2006) agree that in quantitative research adequate sampling is essential so as not to compromise the research findings. To ensure as accurate findings as possible, it was ensured that the sample used for the questionnaire was as representative of the whole population as possible (Parahoo, 2006). Appropriate sample size is also an important factor which affects representativeness and generalisability of the data collected in quantitative research (Polit & Beck, 2006; Parahoo, 2006). Sample size required was
calculated with a software for sample size calculation (Raosoft® Sample Size Calculator), which uses power analysis to calculate sample size. Power analysis showed that for a population of n=222, a confidence interval of 95% and a margin of error of +/-5%, a sample of n=141 is required.

Systematic random sampling was the initial method considered in selecting the sample for the first phase of data collection (quantitative data collection). However, after discussion with the research supervisor and a statistician with regards to concerns for a low response rate, the whole accessible population (n=222) of critical care nurses working at Mater Dei Hospital (within the parameters of the inclusion and exclusion criteria) was recruited. In this way, an extra attempt was made to maintain representativeness of the whole population as much as possible and allow generalisation of results.

3.8.2 Sample for focus group

The sample for the focus group interview was drawn from a number of individuals who participated in the first part of data collection. Disagreement exists as to the number of participants required for focus group interviews, with suggestions ranging from four to twenty participants (Kreuger, 1994; Kitzinger, 1995; Sim & Snell, 1996). Polit and Beck (2006) argue that focus group interviews should enrol a small number of participants since importance lies in the depth of the data collected rather than in the actual number of participants. With this consideration in mind, the focus group involved eight participants; three from
the A&E department, three from ITU and two from the anaesthesia department. No one of the participants from the cardiac units accepted to participate in the focus group interview. While and equal distribution from all four areas was aimed at ensuring that views from all the four settings could be expressed, the two missing participants compromised obtaining a complete view of the four areas. The small size of the group was aimed at allowing easier interaction and easier facilitation of discussions.

Participants for the focus group interview were conveniently selected with regards to the common characteristics related to the topic of interest (Kreuger, 1994). In this way, the sample for focus group interview was typically purposive and based on suitability rather than representativeness (O’Brian, 1993). This homogeneity in characteristics within the groups lied in terms of a common critical care nursing background, similar exposure to resuscitation situations, similar nursing education, generalist knowledge and the constant presence of a medical officer on the unit. In this regard, Bowling (2004) warns that the more homogenous the characteristics within a group, the more likely that group polarisation effect is evident in a way that common views and attitudes are magnified.

3.9 Data Management, Analysis and Presentation

Data management and analysis for a mixed methods research design goes beyond analysis for each of the methods adopted, but further includes integration of data obtained by the two approaches to provide a single description of the phenomenon
under study (Creswell, 2009). For instance, within the sequential explanatory approach, an analysis of quantitative data in the first phase identified specific cases, which needed to be further explored and explained through the qualitative method, thus a more realistic insight about specific situations within a single phenomenon was achieved.

In this study, data from questionnaires was coded into numerical form and processed by SPSS – 17 (Statistical Package for Social Sciences, Version 17), with consultation and guidance from a statistician. Descriptive numerical analyses were carried out using parametric tests as advised by the statistician. Frequencies and descriptives were used to obtain results for categorical and continuous variables respectively (Pallant, 2007). Chi-square test for independence was used to identify any association between variables, where a significance level (2-tailed) smaller than p=0.05 was considered as a cut off point to denote an association between variables. Pearson R was used to explore relationships between variables (Pallant, 2007). Correlation coefficient values of r=0.10 to 0.29 were considered as a “small-strength” correlation, values of r=0.30 to 0.49 showed a “medium-strength” correlation, while values of r=0.50 to 1.00 showed a “large-strength” correlation between variables (Cohen, as cited in Pallant, 2007, p.132).

Narrative, non-numerical data from the focus group interview was analysed and organised into themes using a staged method of “thematic content analysis” as proposed by Burnard (1991). Themes identified through this process of analysis are presented in the next chapter together with selected statements to highlight the context within which the discussion took place. As highlighted by Burnard (1991,
p.463), in analysing interview transcripts and categorising responses, it is important to maintain the context of the discussion from which excerpts are selected, to highlight as much as possible the real meaning of the responses. In this regard, statements within the interview transcript are coded as such, maintaining the sequence in which they occurred during the transcript and presented as *statements* in the next chapters. Figure 3.2 highlights the steps used to analyse the transcript of the focus group interview.

**Figure 3.2**

*Method of thematic – content analysis*

- Notes were taken during the focus group interview to serve as "memory joggers" and to give a general overview of the categories within the interview
- Transcript was transcribed verbatim from audio record to written format
- Transcript was read and categories were identified and highlighted in the form of headings
- Category headings were reviewed to identify similarities and filtered into a single list of themes
- Transcript was re-read to ensure that the list of themes covered all aspects within the transcript
- Transcript was re-read and statements were coded under specific theme headings
- Two respondents were asked to check the category system and to see if it reflects the discussion during the focus group interview
3.10 Conclusion

Results for each phase of data collection are presented separately in the next chapter, answering each research question accordingly. Quantitative data is displayed in frequency tables and charts while qualitative data is displayed as bulleted reports supported by excerpts and quotes from the actual focus group interview transcript (Krueger & Casey, 2000; Creswell, 2009). A discussion and interpretation of the both quantitative and qualitative results is presented in Chapter 5.
Critical care nurses' perceptions and attitudes towards adult resuscitation training

Chapter 4

FINDINGS
Chapter 4: Findings

4.1 Introduction

The aim of this chapter is to report the findings of the study, compiled following statistical analysis of quantitative data collected through the questionnaires and thematic-content analysis of qualitative data collected through questions both in the questionnaires and the focus group interview. As described in the previous chapter, statistical analysis of quantitative data was carried out using parametric tests in SPSS-17 (Statistical Package for the Social Sciences, Version 17), mainly descriptives, frequencies and chi-square, as advised by the statistician. Qualitative data from both the questionnaires and the focus group interview was analysed using Burnard’s method of thematic – content analysis (1991) as described in the previous chapter. Throughout this chapter, quantitative findings are presented in tables and figures, while qualitative findings are presented in tables together with direct excerpts from the participants’ responses to highlight the content within each theme.

4.2 Demographic data of respondents for the questionnaire

The questionnaires were distributed to the whole population of nurses working in critical care areas (n=222), which include the accident and emergency department, intensive care unit, cardiac care units and the department of anaesthesia. One hundred and nine questionnaires (109) were collected by a nurse within each of the four departments, yielding a response rate of 49.1%. Distribution of respondents according to each department is shown in Table 4.1. This response
rate (n=109), also represents 49.1% of the whole target population. Power analysis using Raosoft® Sample Size Calculator showed that maintaining a confidence interval of 95%, a margin of error of +/-6.71% was obtained.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accident and Emergency</td>
<td>45</td>
<td>41.3</td>
</tr>
<tr>
<td>Intensive Care</td>
<td>35</td>
<td>32.1</td>
</tr>
<tr>
<td>Cardiac Care</td>
<td>15</td>
<td>13.8</td>
</tr>
<tr>
<td>Anaesthesia</td>
<td>14</td>
<td>12.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>109</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Respondents represented in Table 4.1, include both first level nurses (n=103) and second level nurses (n=6) distributed across all of the four areas and with various academic backgrounds. All second level nurses completed the certificate in nursing practice programme and first level nurses completed a range of five different programmes. While 89.5% of first level nurses completed an undergraduate university programme in nursing (n=85), 10.5% also completed an unspecified postgraduate university programme (n=10). Table 4.2 shows the distribution of academic background for all respondents.

<table>
<thead>
<tr>
<th>Academic Background</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conversion Course</td>
<td>8</td>
<td>7.3</td>
</tr>
<tr>
<td>Certificate in Nursing Practice</td>
<td>6</td>
<td>5.5</td>
</tr>
<tr>
<td>Diploma in Nursing Studies</td>
<td>45</td>
<td>41.3</td>
</tr>
<tr>
<td>Bachelor of Science in Nursing</td>
<td>40</td>
<td>36.7</td>
</tr>
<tr>
<td>Postgraduate Diploma</td>
<td>3</td>
<td>2.8</td>
</tr>
<tr>
<td>Postgraduate Degree</td>
<td>7</td>
<td>6.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>109</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Respondents produced a wide distribution of work experience over five categories, with the smallest amount in the “less than 1 year” category (n=8). The distribution of work experience for all respondents is shown in Table 4.3.
Table 4.3

<table>
<thead>
<tr>
<th>Work Experience</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 year</td>
<td>8</td>
<td>7.3</td>
</tr>
<tr>
<td>1 to 3 years</td>
<td>38</td>
<td>34.9</td>
</tr>
<tr>
<td>3 to 6 years</td>
<td>23</td>
<td>21.1</td>
</tr>
<tr>
<td>6 to 9 years</td>
<td>18</td>
<td>16.5</td>
</tr>
<tr>
<td>More than 9 years</td>
<td>22</td>
<td>20.2</td>
</tr>
<tr>
<td>Total</td>
<td>109</td>
<td>100.0</td>
</tr>
</tbody>
</table>

4.3 Data on attendance to basic life support courses

Some objectives set for this research study required the collection of data on attendance to basic life support (BLS) courses. In this regard, 89.9% of the respondents attended to BLS courses (n=98), while 10.1% did not complete any BLS course (n=11). Within the category of nurses who attended to BLS courses, 66.3% completed their initial BLS course within the 3 years just before data collection (n=65), while 33.7% completed their initial BLS training more than 3 years before data collection (n=33). The distribution across the five categories offered as options in the questionnaire is shown in Table 4.4.

Table 4.4

<table>
<thead>
<tr>
<th>Date of initial BLS course</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 6 months</td>
<td>7</td>
<td>6.4</td>
<td>7.1</td>
</tr>
<tr>
<td>6 months to 1 year</td>
<td>19</td>
<td>17.4</td>
<td>19.4</td>
</tr>
<tr>
<td>1 to 2 years</td>
<td>25</td>
<td>22.9</td>
<td>25.5</td>
</tr>
<tr>
<td>2 to 3 years</td>
<td>14</td>
<td>12.8</td>
<td>14.3</td>
</tr>
<tr>
<td>More than 3 years</td>
<td>53</td>
<td>30.3</td>
<td>33.7</td>
</tr>
<tr>
<td>Sub Total</td>
<td>98</td>
<td>89.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Never completed a BLS course</td>
<td>11</td>
<td>10.1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>109</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Nurses represented in Table 4.4 have completed their initial BLS course through various different methods of application. In fact, 54.1% of those who attended to BLS training, completed their initial BLS training through a personal application
(n=53). Table 4.5 shows the distribution of the different methods of application for initial BLS courses for all respondents.

<table>
<thead>
<tr>
<th>Method of application</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part of the nursing course</td>
<td>15</td>
<td>13.8</td>
<td>15.3</td>
</tr>
<tr>
<td>Part of another? Course</td>
<td>5</td>
<td>4.6</td>
<td>5.1</td>
</tr>
<tr>
<td>Compulsory</td>
<td>25</td>
<td>22.9</td>
<td>25.5</td>
</tr>
<tr>
<td>Personal initiative</td>
<td>53</td>
<td>48.6</td>
<td>54.1</td>
</tr>
<tr>
<td>Sub Total</td>
<td>98</td>
<td>89.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Never completed a BLS course</td>
<td>11</td>
<td>10.1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>109</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Individuals who attend to BLS courses are encouraged to attend refresher courses at different intervals depending on the awarding organisation. In this regard, from the respondents who completed training more than 3 years ago (n=33) only four did not attend to refresher courses. Distribution of respondents with regards to attendance to refresher training is presented in Table 4.6.

<table>
<thead>
<tr>
<th>Distribution of attendance to refresher training for all respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
</tr>
<tr>
<td>------------</td>
</tr>
<tr>
<td>Never completed a BLS course</td>
</tr>
<tr>
<td>Certification still valid</td>
</tr>
<tr>
<td>Attended refresher programme</td>
</tr>
<tr>
<td>Never attended a refresher course</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

### 4.4 Awareness, knowledge and significance of resuscitation guidelines

#### 4.4.1 Awareness of resuscitation guidelines

In the first section of the questionnaire, questions were asked to evaluate nurses' awareness of resuscitation guidelines as well as to evaluate their knowledge of these guidelines. As represented in Figure 4.1A, 81.7% of the respondents are aware of the resuscitation guidelines published by the European Resuscitation
Council or the American Heart Association (n=89). However, as shown in Figure 4.1B, 12.8% of these respondents are not aware of the latest updates as published in 2005 (n=7).

![Figure 4.1A Awareness of resuscitation guidelines (n=109)](image)

![Figure 4.1B Awareness of latest updates to the guidelines (n=89)](image)

4.4.2 Knowledge of resuscitation guidelines

The correct responses to the seven items in the questionnaire related to knowledge (section A, questions 4 to 10) were converted into a score from 0 to 7 (0 marks for no correct answer, up to 7 marks for all correct answers). Descriptive analysis
calculated an overall mean score for knowledge of 4.87, with a standard deviation of +/- 1.45 and a 95% confidence interval of 4.60 – 5.15. Figure 4.2 shows the distribution of scores for the knowledge questions.

![Figure 4.2 Knowledge of resuscitation guidelines](image)

With regards to the knowledge questions, 65.1% of all respondents answered correctly to five, six or seven questions (n=71). The number of respondents who gave correct answers to the individual questions is presented in Figure 4.3. While it is not the aim of this study to go in detail into answers given by respondents for each individual question, an overview of the answers given for each question is presented in Appendix 7.
A chi-square test for independence was carried out to identify any association between “awareness of resuscitation guidelines” (as the independent variable) and “knowledge of resuscitation guidelines” (as the dependent variable). The test indicated that there is an association between the two variables (p=0.02) and cross-tabulation indicated higher scores for respondents who are aware of the guidelines.

4.4.3 Significance of resuscitation guidelines

Further to awareness and knowledge of resuscitation guidelines, the significance of these guidelines to the daily practice is an important factor influencing nurses’ attitude towards training. Thus, participants were asked to rate the significance of these guidelines to their practice. Figure 4.4 shows how nurses rated the significance of guidelines to practice.
A chi-square test for independence was carried out to identify any possible association between "significance of guidelines" as the dependent variable and on the other hand "work setting" and "years of experience" as independent variables. Both tests indicated that there is no significant association between the variables, obtaining chi-square results of $p=0.52$ and $p=0.85$ respectively. This suggests that resuscitation guidelines are generally significant in guiding nurses during resuscitation situations, irrespective of the "work setting" or "years of experience".

Respondents gave various explanations to why they perceive guidelines as significant or otherwise. Following thematic-content analysis, the major recurring themes from the responses obtained were identified. Table 4.7A shows the themes identified from responses (n=59) given by respondents who consider guidelines as "Very Significant" and "Significant".
### Table 4.7A

*Significance of resuscitation guidelines*

(Responses for “Very Significant” and “Significant”)

<table>
<thead>
<tr>
<th>Theme</th>
<th>Excerpt from respondents responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular resuscitation situations (n=32)</td>
<td>• “We come across CPR’s on our wards on a regular basis.” (Respondent 1)</td>
</tr>
<tr>
<td></td>
<td>• “Resuscitation is carried out frequently in our unit.” (Respondent 11)</td>
</tr>
<tr>
<td></td>
<td>• “Since I work in A&amp;E and resuscitations occur very often...” (Respondent 65)</td>
</tr>
<tr>
<td></td>
<td>• “Patients deteriorate constantly in our unit.” (Respondent 29)</td>
</tr>
<tr>
<td></td>
<td>• “…useful when caring for the critically ill patient who frequently go into asystole / vf.” (Respondent 20)</td>
</tr>
<tr>
<td>Increased confidence (n=2)</td>
<td>• “...help me feel confident in what I do.” (Respondent 8)</td>
</tr>
<tr>
<td></td>
<td>• “…as you feel confident in dealing with such situations.” (Respondent 10)</td>
</tr>
<tr>
<td>Better performance / skill (n=22)</td>
<td>• “If I am not up to date with the new guidelines I will not be able to ... perform resuscitation properly.” (Respondent 14)</td>
</tr>
<tr>
<td></td>
<td>• “Where the guidelines are followed there is less delay in delivery of care.” (Respondent 41)</td>
</tr>
<tr>
<td></td>
<td>• “It is important to keep updated to practice the best possible so patients can benefit more.” (Respondent 49)</td>
</tr>
<tr>
<td></td>
<td>• “…it is important to keep up to date.” (Respondent 15)</td>
</tr>
<tr>
<td></td>
<td>• “…it is essential to be prepared and updated.” (Respondent 65)</td>
</tr>
<tr>
<td></td>
<td>• “Makes my practice more efficient by being up to date with what is happening / evolving.” (Respondent 40)</td>
</tr>
<tr>
<td>Standardised practice (n=8)</td>
<td>• “If I am not up to date with the new guidelines I will not be able to work as a team...” (Respondent 14)</td>
</tr>
<tr>
<td></td>
<td>• “…being able to do resuscitation simultaneously with other colleagues.” (Respondent 82)</td>
</tr>
<tr>
<td></td>
<td>• “…important for standardisation of care.” (Respondent 9)</td>
</tr>
<tr>
<td>Standardised practice (n=8)</td>
<td>• “Guidelines provide a common base for all staff ... thus procedures are more uniform and smooth.” (Respondent 74)</td>
</tr>
<tr>
<td>Better resuscitation outcomes (n=8)</td>
<td>• “…updated guidelines have been proved through research as methods of increasing the chance of survival.” (Respondent 17)</td>
</tr>
<tr>
<td></td>
<td>• “…in order to give the patient the best care and chance of survival.” (Respondent 76)</td>
</tr>
</tbody>
</table>

All four responses given by respondents who consider guidelines as “Not Significant” were analysed and categorised under themes as highlighted in Table 4.7B.

### Table 4.7B

*Significance of resuscitation guidelines*

(Responses for “No: Significant”)

<table>
<thead>
<tr>
<th>Theme</th>
<th>Excerpt from respondents response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presentation of patient (n=3)</td>
<td>• “Patients in ITU are already intubated and ventilated and cardiac massage is done continuously till there is a pulse.” (Respondent 53)</td>
</tr>
<tr>
<td></td>
<td>• “CPR in ITU is different, no rescue breaths.” (Respondent 56)</td>
</tr>
<tr>
<td>Follow doctors’ orders (n=1)</td>
<td>• “In ITU we have ventilated patients and usually our resuscitations require only chest compressions.” (Respondent 57)</td>
</tr>
<tr>
<td></td>
<td>• “During resuscitation we follow the direct orders of the present medical officer.” (Respondent 54)</td>
</tr>
</tbody>
</table>
4.5 Skill, confidence and perceived competence

Participants were asked to rate their basic life support skills on a four item scale from very poor to very good. Findings show that 86.2% of the respondents (n=94) rated their skills at either very good (n=18) or good (n=76). Table 4.8 shows the distribution of responses for self-evaluation of skill.

<table>
<thead>
<tr>
<th>Self evaluation of resuscitation skills</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Good</td>
<td>18</td>
<td>16.5</td>
</tr>
<tr>
<td>Good</td>
<td>76</td>
<td>69.7</td>
</tr>
<tr>
<td>Poor</td>
<td>13</td>
<td>11.9</td>
</tr>
<tr>
<td>Very Poor</td>
<td>2</td>
<td>1.8</td>
</tr>
<tr>
<td>Total</td>
<td>109</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Participants were also asked to rate their confidence when they participate in a resuscitation attempt. While 78% of the respondents (n=86) feel confident (n=62) or very confident (n=24), 19.3% of the respondents (n=21) feel they are not confident but are able to cope anyway as highlighted in table 4.9.

<table>
<thead>
<tr>
<th>Confidence</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Confident</td>
<td>24</td>
<td>22.0</td>
</tr>
<tr>
<td>Confident</td>
<td>62</td>
<td>56.9</td>
</tr>
<tr>
<td>Not Confident but Cope</td>
<td>21</td>
<td>19.3</td>
</tr>
<tr>
<td>Not Confident</td>
<td>2</td>
<td>1.8</td>
</tr>
<tr>
<td>Total</td>
<td>109</td>
<td>100.0</td>
</tr>
</tbody>
</table>

In a similar way, participants were asked to rate their perceived competence when dealing with a cardiac arrest. Results obtained, as shown in Table 4.10, are similar to those obtained for confidence with a slightly higher percentage of nurses who perceive themselves as not competent (n=6).
Table 4.10

<table>
<thead>
<tr>
<th>Perceived Competence</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Competent</td>
<td>20</td>
<td>18.3</td>
</tr>
<tr>
<td>Competent</td>
<td>67</td>
<td>61.5</td>
</tr>
<tr>
<td>Unsure</td>
<td>16</td>
<td>14.7</td>
</tr>
<tr>
<td>Not Competent</td>
<td>6</td>
<td>5.5</td>
</tr>
<tr>
<td>Total</td>
<td>109</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Following the similar results obtained for confidence and perceived competence, a chi-square test for independence was performed to identify any association between the two variables. The test indicated that there is a highly significant association between "confidence" and "perceived competence" (p=0.000).

Further chi-square tests were also carried out to explore any other association between confidence as the dependent variable and other independent variables namely, knowledge, skill and experience. All three tests suggested an association between the dependent variable and the independent variables, results for each test are shown in the Table 4.11.

Table 4.11

<table>
<thead>
<tr>
<th>X² Results for Confidence * Independent Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent Variable</td>
</tr>
<tr>
<td>----------------------</td>
</tr>
<tr>
<td>Knowledge</td>
</tr>
<tr>
<td>Skill</td>
</tr>
<tr>
<td>Experience</td>
</tr>
</tbody>
</table>

In view of the association between confidence and perceived competence identified by the chi-square test, further analysis was carried out on scores obtained from two detailed nine-item scales for confidence and perceived competence (Questions 14 and 15). Scores within each scale were summed up to give a total score for confidence and a total score for perceived competence, each ranging from 9 to 36. Since the aim of this study is not to analyse in detail each
individual resuscitation skill, results presented here will only deal with the total scores obtained. Descriptive analyses for scores of confidence and perceived competence are presented in Table 4.12 below.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confidence</td>
<td>28.51</td>
<td>+/- 5.40</td>
<td>27.48 – 29.54</td>
</tr>
<tr>
<td>Perceived Competence</td>
<td>28.92</td>
<td>+/- 5.15</td>
<td>27.93 – 29.14</td>
</tr>
</tbody>
</table>

As suggested by Pallant (2007), a scatterplot was generated (Figure 4.5) to provide a visual impression of the relationship and ensure that there is no curvilinear relationship between the variables prior to calculating the correlation coefficient.

![Figure 4.5: Relationship between confidence and perceived competence](image)

Having ensured a linear relationship between confidence and perceived competence, Pearson product-moment correlation coefficient was used to investigate the strength and direction of the relationship. Results confirmed a strong positive correlation between the two variables, r=0.907, n=107, p=0.000, with high levels of confidence associated with high levels of perceived
competence. To ensure that knowledge of resuscitation guidelines was not influencing the relationship between confidence and perceived competence, partial correlation was used to observe the effect of this additional variable on the correlation coefficient between the other two variables. The additional variable produced a small decrease from $r=0.907$ to $r=0.901$ (n=104), suggesting that the relationship between confidence and perceived competence is not merely due to the influence of knowledge of the guidelines.

4.6 Views and perceptions on resuscitation training

Views and perceptions explored through the questionnaires and presented here include:

- The perceived effect of training on performance
- The perceived importance of regular training
- The perceived importance of keeping updated

In section 3, the issue of “better performance” was suggested as one of the reasons why guidelines are significant for respondents. In this section, questions were asked to explore respondents’ views on the effect of training on performance. In support to the theme of “better performance” 98.2% of the respondents indicated that they think that training affects performance (n=107). While one participant did not give a response to the question, another one did not agree that training affects performance and argued that “it takes more than just training” and included “exposure to real life situations” as factors that affect performance.
Table 4.13 shows the themes identified following thematic-content analysis of responses given by respondents in favour of “training affects performance”.

<table>
<thead>
<tr>
<th>Theme</th>
<th>Excerpt from respondents response</th>
</tr>
</thead>
</table>
| Better performance and better skill (n=55) | “Nurses will know more what to do…” (Respondent 53)  
• “...practice improves your skill once you need them.” (Respondent 28)  
• “The better the training, the better the performance.” (Respondent 59)  
• “…preparation for the scenario at hand.” (Respondent 1)  
• “…more likely to perform at the desired level.” (Respondent 11)  
• “Decreases panic among staff.” (Respondent 4)  
• “…a rush-free environment makes things beneficial…” (Respondent 43)  
• “…keeps the nurse in control of the situation.” (Respondent 61)  
• “…one can practice under supervision and inaccuracies are corrected.” (Respondent 33)  
• “…you might be doing something wrong and regular training makes you aware.” (Respondent 49)  
• “…improves skills in performing CPR.” (Respondent 55) |
| Practice up to the latest guidelines (n=26) | “It is very important to keep up to date with skills and the latest guidelines.” (Respondent 6)  
• “…training keeps us updated.” (Respondent 8)  
• “…helps the healthcare team to keep updated…” (Respondent 17)  
• “…it is important to keep updated for a high performance.” (Respondent 27) |
| Increased confidence (n=38) | “Improves confidence…” (Respondent 55)  
• “Training … helps me increase confidence especially in the pre-hospital setting.” (Respondent 67)  
• “…the more competent and confident one becomes.” (Respondent 98)  
• “…to gain confidence and competence.” (Respondent 75) |
| Better resuscitation outcomes (n=4) | “…resus will be more effective.” (Respondent 53)  
• “…will improve the chance for a better outcome in patient’s survival.” (Respondent 41) |

Following the above responses, cross-tabulation between “training affects performance” and the actual attendance to initial BLS training highlighted that 89.8% of those who agree that training affects performs had actually completed BLS courses (n=97) while only 9.3% had not attended to BLS courses though they still responded in favour of “training affects performance”. One respondent who did not fully agree to this argument (respondent 2) had still attended to a BLS course. With regards to the above, nurses were asked to indicate why they did not attend to BLS courses. Four nurses gave their response and results are shown in Table 4.14.
Table 4.14
Reasons for not attending BLS courses

<table>
<thead>
<tr>
<th>Theme</th>
<th>Excerpt from respondents response</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLS was omitted from nursing course (n=1)</td>
<td>• “Was omitted from nursing course.” (Respondent 29)</td>
</tr>
<tr>
<td>Time / Opportunity (n=3)</td>
<td>• “Never had the opportunity to do so.” (Respondent 34)</td>
</tr>
<tr>
<td>Financial issues (n=1)</td>
<td>• “I don’t have the chance.” (Respondent 106)</td>
</tr>
<tr>
<td></td>
<td>• “...not much time off.” (Respondent 65)</td>
</tr>
<tr>
<td></td>
<td>• “Too expensive...” (Respondent 65)</td>
</tr>
</tbody>
</table>

Following the significance of training to enhance performance, participants were also asked if they feel that beyond initial training, regular training is also important. While 10.1% of the participants (n=11) did not give a response, 89.9% agreed that regular training is important (n=98). As shown in Table 4.6, 33.7% of these respondents required recertification (n=33) and only 4.1% did not attend to refresher courses (n=4). Statements given in support of regular training are shown in Table 4.15.

Table 4.15
Responses in relation to regular training

<table>
<thead>
<tr>
<th>Theme</th>
<th>Excerpt from respondents response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refresh knowledge and improve skill (n=49)</td>
<td>• “When you train you remember theory.” (Respondent 35)</td>
</tr>
<tr>
<td></td>
<td>• “From time to time skills need to be perfected...” (Respondent 43)</td>
</tr>
<tr>
<td></td>
<td>• “Training helps to improve one’s knowledge.” (Respondent 65)</td>
</tr>
<tr>
<td></td>
<td>• “Regular training provides retention of knowledge and skills...” (Respondent 48)</td>
</tr>
<tr>
<td></td>
<td>• “To maintain high performance and good skills.” (Respondent 27)</td>
</tr>
<tr>
<td></td>
<td>• “Training helps the nurse to perform better.” (Respondent 58)</td>
</tr>
<tr>
<td></td>
<td>• “Practice makes perfect” (Respondent 1)</td>
</tr>
<tr>
<td></td>
<td>• “To become competent, not only in theory but also in practice.” (Respondent 54)</td>
</tr>
<tr>
<td>Increased confidence (n=10)</td>
<td>• “The more one trains the more one becomes confident and competent.” (Respondent 61)</td>
</tr>
<tr>
<td></td>
<td>• “You will get more confidence...” (Respondent 51)</td>
</tr>
<tr>
<td></td>
<td>• “Lack of training can result in lack of confidence...” (Respondent 67)</td>
</tr>
<tr>
<td></td>
<td>• “Regular training...enhances confidence.” (Respondent 48)</td>
</tr>
<tr>
<td>Keep updated with the latest research (n=26)</td>
<td>• “Changes are more frequent due to more studies being done. It also helps keep you up to date with what is going on.” (Respondent 13)</td>
</tr>
<tr>
<td></td>
<td>• “...regular training is important as this will keep staff updated to new techniques.” (Respondent 41)</td>
</tr>
<tr>
<td></td>
<td>• “It is important so that one may gain up to date information...” (Respondent 55)</td>
</tr>
</tbody>
</table>
Regular practice in view of low exposure (n=15)

<table>
<thead>
<tr>
<th>Reason</th>
<th>Excerpt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course not available</td>
<td>“In certain words it could be very rare to have resuscitation situations.” (Respondent 10)</td>
</tr>
<tr>
<td>Course not available</td>
<td>“What you don’t use you loose...” (Respondent 11)</td>
</tr>
<tr>
<td>Course not available</td>
<td>“Skills may be lost if not regularly used.” (Respondent 69)</td>
</tr>
<tr>
<td>Course not available</td>
<td>“In areas where such skills are rarely used it would be difficult to retain the skills therefore regular training is necessary...” (Respondent 41)</td>
</tr>
</tbody>
</table>

Following reasons given supporting the importance of regular training, reasons for not attending refresher courses are highlighted in Table 4.16.

<table>
<thead>
<tr>
<th>Theme</th>
<th>Excerpt from respondents response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Courses not available</td>
<td>“Refresher courses are not organised.” (Respondent 27)</td>
</tr>
<tr>
<td>Courses not available</td>
<td>“No refresher courses were available yet.” (Respondent 44)</td>
</tr>
<tr>
<td>No opportunities to attend courses</td>
<td>“I applied but they did not call for me.” (Respondent 54)</td>
</tr>
<tr>
<td>No opportunities to attend courses</td>
<td>“I applied once... it was fully booked.” (Respondent 33)</td>
</tr>
<tr>
<td>No time to attend courses</td>
<td>“When courses were offered I was not free to take part.” (Respondent 20)</td>
</tr>
<tr>
<td>No time to attend courses</td>
<td>“No time available...” (Respondent 31)</td>
</tr>
<tr>
<td>Lack of interest</td>
<td>“Lack of interest and initiative.” (Respondent 28)</td>
</tr>
<tr>
<td>Lack of interest</td>
<td>“Lack of initiative.” (Respondent 32)</td>
</tr>
<tr>
<td>High exposure to resuscitation situations</td>
<td>“Frequent CPR on unit.” (Respondent 24)</td>
</tr>
<tr>
<td>High exposure to resuscitation situations</td>
<td>“Don’t feel the need for one as I am constantly updated on stuff concerning CPR and practice BLS regularly.” (Respondent 89)</td>
</tr>
</tbody>
</table>

The issue of keeping updated is very closely related to the degree of retention as well as the rate by which the guidelines are being revised and updated. In this regard, the perceived importance of keeping updated with the latest guidelines beyond attending to courses has also been explored. While one participant did not give a response to the question, all respondents rated keeping updated with the latest guidelines as important (n=14) or very important (n=94). Figure 4.6 shows this distribution of responses for “very important” and “important”.

81
Views on training with regards to attendance were also explored, and presented here in the following order:

- Compulsory training
- Formal / Informal training
- Factors which hinder participation
- Factors which promote participation

The issue of compulsory in-service training on resuscitation has been suggested by various authors. In support of compulsory in-service training, data obtained from the questionnaires shows that 97.2% of the respondents are in favour of compulsory training (n=106) while only 2.8% disagree (n=3). Only one reason was given by one of the three respondents who did not fully agree with compulsory training, stating that “it depends on the setting” (respondent 70). 82 of the 106 respondents in favour of compulsory training gave arguments to support their position, as presented in Table 4.17.
Participants were also asked to suggest the general organisational structure they would prefer for BLS courses from three options; formal, informal or a combination of both. Frequencies for each option are shown in Table 4.18.

<table>
<thead>
<tr>
<th>Formal / Informal Training</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal</td>
<td>17</td>
<td>15.6</td>
</tr>
<tr>
<td>Informal</td>
<td>2</td>
<td>1.8</td>
</tr>
<tr>
<td>Combination of both</td>
<td>90</td>
<td>82.6</td>
</tr>
<tr>
<td>Total</td>
<td>109</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 4.19A, highlights reasons put forward by respondents in support of formal training.

<table>
<thead>
<tr>
<th>Theme</th>
<th>Excerpt from respondents response</th>
</tr>
</thead>
<tbody>
<tr>
<td>More knowledge (n=2)</td>
<td>“More information and better skill.” (Respondents 6 and 27)</td>
</tr>
<tr>
<td>More structure (n=3)</td>
<td>“A structured course provides less distractions.” (Respondent 13)</td>
</tr>
<tr>
<td>People take formal training more seriously (n=4)</td>
<td>“The more importance it is given the better as it is an important topic.” (Respondent 1)</td>
</tr>
<tr>
<td></td>
<td>“A formal structured course is taken more seriously and will make the nurse read and research especially if there is an exam...” (Respondent 78)</td>
</tr>
</tbody>
</table>
Only two respondents are in favour of informal training exclusively. Only one reason was given to this choice by one of the respondents, who explained that informal training is “easier to attend” (Respondent 34).

Table 4.19B, highlights reasons put forward by respondents in support of a combination of both formal and informal training.

<table>
<thead>
<tr>
<th>Theme</th>
<th>Excerpt from respondents response</th>
</tr>
</thead>
</table>
| Informal reinforces the formal (n=59) | • “it reinforces learning” (Respondent 8)  
• “Hands on practice is important as it gives confidence to the individual and on the other hand certain guidelines to follow should be outlined.” (Respondent 33)  
• “It is important that practical training is done in their unit, but formal lectures where change in techniques and guidelines are also important.” (Respondent 41)  
• “Theory and practice should be amalgamated.” (Respondent 45)  
• “Formally for the possibility to identify weak points and needed training and informally to retain and refresh.” (Respondent 48)  
• “A structured course would involve theory and practice as well as an exam to assess the capacity of the individual. Informal training on the ward would increase confidence as training is done on scenarios similar to a real CPR.” (Respondent 55) |

Participants were asked to state examples of factors which promote or hinder participation to resuscitation courses. Examples of promoting factors (n=81) and hindering factors (n=87) are presented in Tables 4.20 and 4.21 respectively.
<table>
<thead>
<tr>
<th>Theme</th>
<th>Excerpt from respondents response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highlight the importance of BLS training and increase awareness (n=24)</td>
<td>- “Awareness of importance of such training.” (Respondent 19)</td>
</tr>
<tr>
<td></td>
<td>- “Knowing that by having knowledge one can improve the chances for that patient to survive.” (Respondent 69)</td>
</tr>
<tr>
<td></td>
<td>- “Knowing that having the right skills could help save lives.” (Respondent 63)</td>
</tr>
<tr>
<td></td>
<td>- “Show positive outcomes of successful CPRs.” (respondent 1)</td>
</tr>
<tr>
<td>Make course more interesting with needs for nurses (n=18)</td>
<td>- “Interesting courses.” (Respondent 16)</td>
</tr>
<tr>
<td></td>
<td>- “Including interactive material such as videos and slides.” (Respondent 17)</td>
</tr>
<tr>
<td>Availability and publicity of resuscitation courses (n=22)</td>
<td>- “Flyers to wards and emails to staff.” (Respondent 4)</td>
</tr>
<tr>
<td></td>
<td>- “Informing staff regarding courses being available…” (Respondent 20)</td>
</tr>
<tr>
<td></td>
<td>- “Organise frequently to accommodate groups…” (Respondent 11)</td>
</tr>
<tr>
<td></td>
<td>- “Availability of courses.” (Respondent 15)</td>
</tr>
<tr>
<td></td>
<td>- “Try to find alternative times for those who cannot leave their children behind.” (Respondent 18)</td>
</tr>
<tr>
<td></td>
<td>- “Repetition of courses throughout the year.” (Respondent 22)</td>
</tr>
<tr>
<td>Cover expenses (n=8)</td>
<td>- “Supported by department financially…” (Respondent 2)</td>
</tr>
<tr>
<td></td>
<td>- “Lower costs.” (Respondent 11)</td>
</tr>
<tr>
<td></td>
<td>- “Monetary subsidies.” (Respondent 68)</td>
</tr>
<tr>
<td>Facilitated attendance during working hours (n=30)</td>
<td>- “Nurses should be able to do it during working hours…” (Respondent 9)</td>
</tr>
<tr>
<td></td>
<td>- “Training nurses while on duty.” (Respondent 13)</td>
</tr>
<tr>
<td></td>
<td>- “… give an opportunity to send nurses on their day duty if possible.” (Respondent 18)</td>
</tr>
<tr>
<td>Incentives / Rewards (n=32)</td>
<td>- “…paid OT or awarded TIL…” (Respondent 9)</td>
</tr>
<tr>
<td></td>
<td>- “TIL when attending from off duties.” (Respondent 10)</td>
</tr>
<tr>
<td></td>
<td>- “…incentives like CPD points.” (Respondent 11)</td>
</tr>
<tr>
<td></td>
<td>- “Study leave available.” (Respondent 12)</td>
</tr>
<tr>
<td></td>
<td>- “TIL off work to do the course.” (Respondent 36)</td>
</tr>
<tr>
<td>Managers attitude to encourage attendance (n=24)</td>
<td>- “Managers should promote attendance and encourage it.” (Respondent 9)</td>
</tr>
<tr>
<td></td>
<td>- “Support from managers.” (Respondent 12)</td>
</tr>
<tr>
<td></td>
<td>- “Appraisal.” (Respondent 14)</td>
</tr>
<tr>
<td></td>
<td>- “Support and encouragement from managers.” (Respondent 15)</td>
</tr>
<tr>
<td></td>
<td>- “Encouragement from nursing officers.” (Respondent 35)</td>
</tr>
<tr>
<td>Make courses compulsory (n=9)</td>
<td>- “It needs to be compulsory…” (Respondent 9)</td>
</tr>
<tr>
<td></td>
<td>- “Compulsory courses.” (Respondent 10)</td>
</tr>
<tr>
<td></td>
<td>- “Being a requirement for other courses,” (Respondent 11)</td>
</tr>
<tr>
<td></td>
<td>- “Making it compulsory.” (Respondent 35)</td>
</tr>
<tr>
<td>Personal motivators (n=2)</td>
<td>- “Interest taken from nurses.” (Respondent 15)</td>
</tr>
<tr>
<td></td>
<td>- “Interest of the person.” (Respondent 25)</td>
</tr>
<tr>
<td></td>
<td>- “Increased confidence and being able to react in different situations.” (Respondent 59)</td>
</tr>
<tr>
<td></td>
<td>- “Personal satisfaction.” (Respondent 60)</td>
</tr>
<tr>
<td>Certification (n=9)</td>
<td>- “Recognised certification.” (Respondent 10)</td>
</tr>
<tr>
<td></td>
<td>- “Certificates.” (Respondent 16)</td>
</tr>
<tr>
<td></td>
<td>- “Certificate of attendance.” (Respondent 60)</td>
</tr>
<tr>
<td>Theme</td>
<td>Excerpt from respondents response</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Lack of awareness on the importance of BLS training (n=10)</td>
<td>• “Some people think it is a waste of time to attend to such courses.” (Respondent 30)</td>
</tr>
<tr>
<td></td>
<td>• “Some nurses think that they don’t need to refresh...” (Respondent 50)</td>
</tr>
<tr>
<td>Courses offered do not meet our needs (n=3)</td>
<td>• “Not too much interesting courses.” (Respondent C1)</td>
</tr>
<tr>
<td></td>
<td>• “BLS courses at the moment always repeat the same things and do not guide the nurses and hospital staff with the new guidelines and other new methods, they always use the old guidelines.” (Respondent C9)</td>
</tr>
<tr>
<td>Availability and publicity of resuscitation courses (n = 14)</td>
<td>• “Not aware of courses being done.” (Respondent 20)</td>
</tr>
<tr>
<td></td>
<td>• “Not informed...” (Respondent 27)</td>
</tr>
<tr>
<td></td>
<td>• “Lack of advertisement of BLS.” (Respondent 52)</td>
</tr>
<tr>
<td></td>
<td>• “Availability of courses.” (Respondent 36)</td>
</tr>
<tr>
<td></td>
<td>• “Not enough available dates.” (Respondent 62)</td>
</tr>
<tr>
<td>Financial issues (n=16)</td>
<td>• “Need to pay them by themselves.” (Respondent 2)</td>
</tr>
<tr>
<td></td>
<td>• “Courses are expensive.” (Respondent 7)</td>
</tr>
<tr>
<td>No attendance from work (n=48)</td>
<td>• “Training offered on off duties.” (Respondent 43)</td>
</tr>
<tr>
<td></td>
<td>• “From ward will not be allowed to go.” (Respondent 4)</td>
</tr>
<tr>
<td></td>
<td>• “Might be on duty and unable to go for lectures.” (Respondent 20)</td>
</tr>
<tr>
<td>No incentives are offered (n=13)</td>
<td>• “Time in lieu.” (Respondent 54)</td>
</tr>
<tr>
<td></td>
<td>• “No time in lieu offered.” (Respondent 10)</td>
</tr>
<tr>
<td></td>
<td>• “Lack of incentives.” (Respondent 11)</td>
</tr>
<tr>
<td>No encouragement from management (n=13)</td>
<td>• “Lack of support from their nursing manager...lack of appreciation.” (Respondent 75)</td>
</tr>
<tr>
<td></td>
<td>• “Lack of support and encouragement from management.” (Respondent 15)</td>
</tr>
<tr>
<td></td>
<td>• “Lack of encouragement and support from senior nurses.” (Respondent 40)</td>
</tr>
<tr>
<td>Not compulsory (n=4)</td>
<td>• “Not compulsory.” (Respondent 54)</td>
</tr>
<tr>
<td>Time (n=46)</td>
<td>• “Lectures are done on our off or rest duties.” (Respondent 7)</td>
</tr>
<tr>
<td></td>
<td>• “Lack of time.” (Respondents 11 and 75)</td>
</tr>
<tr>
<td></td>
<td>• “Time.” (Respondent 54)</td>
</tr>
<tr>
<td></td>
<td>• “Juggling between work and family.” (Respondent 16)</td>
</tr>
<tr>
<td>Lack of interest / motivation (n=30)</td>
<td>• “Lack of interest...” (Respondent 1)</td>
</tr>
<tr>
<td></td>
<td>• “Lack of interest taken from nurses themselves.” (Respondent 15)</td>
</tr>
<tr>
<td></td>
<td>• “Lack of motivation.” (Respondents 28 and 75)</td>
</tr>
<tr>
<td>Lack of staff / overworked (n=20)</td>
<td>• “…if done during the duties there are shortages of staff.” (Respondent 13)</td>
</tr>
<tr>
<td></td>
<td>• “Stress from work.” (Respondent 25)</td>
</tr>
<tr>
<td></td>
<td>• “Short of staff. Lot of work.” (Respondent 26)</td>
</tr>
<tr>
<td></td>
<td>• “Lack of staff.” (Respondent 57)</td>
</tr>
<tr>
<td>Lack of opportunity to attend courses (n=5)</td>
<td>• “Applied for a CPD course in BLS but was not accepted.” (Respondent 29)</td>
</tr>
<tr>
<td></td>
<td>• “Lack of opportunities.” (Respondent 50)</td>
</tr>
</tbody>
</table>
4.7 Views and perceptions on current course structures

Two issues were explored under this title, namely course duration and course content. Data collected on the duration of BLS courses showed that for 59.4% of respondents who completed BLS training courses were 4 to 6 hours in duration (n=57). Distribution across the different duration categories is shown in Table 4.22.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 4 hours</td>
<td>5</td>
<td>4.6</td>
</tr>
<tr>
<td>4 to 6 hours</td>
<td>57</td>
<td>52.3</td>
</tr>
<tr>
<td>More than 6 hours</td>
<td>34</td>
<td>31.2</td>
</tr>
<tr>
<td>Sub Total</td>
<td>96</td>
<td>88.1</td>
</tr>
<tr>
<td>Never completed a BLS course</td>
<td>11</td>
<td>10.1</td>
</tr>
<tr>
<td>No Response</td>
<td>2</td>
<td>1.8</td>
</tr>
<tr>
<td>Total</td>
<td>109</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Participants were asked if the duration of the course was enough to reach the specified course objectives. From the participants who completed BLS training (n=98), 38.8% do not think that the duration was enough (n=38), however 60% consider that the duration was enough to reach the specified objectives (n=60).

Cross-tabulation between “course duration” and “duration enough to reach objectives” indicated that the shorter course was associated with a higher rate of “duration not enough to reach objectives”. Furthermore a chi-square test confirmed an association between the two variables (p=0.008). A chi-square test carried out to evaluate the association between course duration and enough time for practice also confirmed an association between these two variables (p=0.024). Following these results, cross-tabulation values of the three possible combinations
between course duration, enough time to reach objectives and enough time for practice were used to design Figure 4.7, which shows the association between the longer courses and "enough duration to reach objectives" and practice.

![Figure 4.7 Course duration](image)

With regards to the content covered during the course, participants were asked whether they think that the current course fulfils their needs to meet the demands of resuscitation situations in their setting, whether they need training in supplemental skills to function better during resuscitation situations and whether they need training in advanced resuscitation skills. Figure 4.8 shows a comparison between results for the three variables.

![Figure 4.8 Course Content](image)
Although it is not the aim of the study to discriminate between the four settings, results confirmed that views are not generally dependent on the setting but are similar across the four setting. Figures 4.9 show this similar distribution for the variables of “training meets needs” across the four settings.

![Figure 4.9 - Training Meets Needs (n=102)](image)

Three major themes were identified within responses given to support that training does not meet the needs, namely that each department has specific training needs, training needs to be more focused towards the in-hospital situation and identification of the nurses’ role during resuscitation. Table 4.23 shows examples of excerpts within these themes.

<table>
<thead>
<tr>
<th>Table 4.23</th>
<th>Current courses do not meet needs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Theme</strong></td>
<td><strong>Excerpt from respondents response</strong></td>
</tr>
</tbody>
</table>
| Training requirements (n=31) | • “Casualty nurses need also to be trained in ALS.” (Respondent 16)  
| | • “Certain areas require a more advanced course.” (Respondent 60) |
| Training content (n=5) | • “During the course one should include ward based scenarios according to the nurses individual needs.” (Respondent 15)  
| | • “...they should be more focused towards the hospital environment.” (Respondent 48)  
| | • “BLS is basic, suitable for the lay person...” (Respondent 75) |
| Role Identification (n=1) | • “...need to know the nurses' role as doctors are always present in ITU.” (Respondent 1) |
Figure 4.10 shows the distribution for the variable “training beyond BLS” across the different departments. The distribution of the variable “training supplemental to BLS” across the four settings is not explored further since there was 99.1% agreement between 107 respondents from all of the four settings, as shown in Figure 4.8.

![Figure 4.10 - Need for Training Beyond BLS (n=103)](image)

Various themes were identified as reasons given in support of supplemental and advanced training. Responses for each of these categories are highlighted in Table 4.24A and 4.24B respectively.
<table>
<thead>
<tr>
<th>Table 4.24A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Supplemental Training</strong></td>
</tr>
<tr>
<td><strong>Theme</strong></td>
</tr>
</tbody>
</table>
| More confidence and better competence (n=16) | - "To be able to handle all situations confidently and competently." (Respondent 29)  
- "More knowledge = more competence = better results." (Respondent 23)  
- "In resuscitation you must work as the need arises and must be competent in all." (Respondent 62) |
| Enhance the effectiveness of CPR (n=51) | - "Patients will be helped more ..." (Respondent 10)  
- "...defibrillation and drugs might save the patient's life and improve prognosis." (Respondent 16)  
- "...BLS with adjuncts until ALS arrives improves success rates..." (Respondent 20) |
| To be able to assist doctors better (n=23) | - "Helps us to be more helpful." (Respondent 8)  
- "...a nurse can prepare things to earn much needed time." (Respondent 50) |
| To keep up to the latest standards (n=9) | - "To be up to date with the latest medical information." (Respondent 6)  
- "To be up to date with the latest standards." (Respondent 27) |
| Personal interest (n=8) | - "Knowledge is always beneficial." (Respondent 12)  
- "Personal interest." (Respondent 79) |

<table>
<thead>
<tr>
<th>Table 4.24B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advanced Training</strong></td>
</tr>
<tr>
<td><strong>Theme</strong></td>
</tr>
</tbody>
</table>
| Increased competence / better performance (n=7) | - "Enhances the delivery of CPR within a team and boosts the confidence of all involved." (Respondent 68)  
- "BLS is for the general public...nurses who are the first responders at in-hospital arrests should be able to perform better than that since they have the tools to do so." (Respondent 11) |
| Better chance of survival (n=50) | - "The patient will benefit from it ..." (Respondent 13)  
- "Better patient survival rate." (Respondent 23)  
- "If higher standard of life support is given, the better the chance of better outcome." (Respondent 41)  
- "Nurses are often the first on site, early defibrillation increases the chance for the patient and therefore if nurses had these skills they would be able to help the patient more." (Respondent 69) |
| Critical nature of patients (n=8) | - "In different settings such as A&E the nurse is continually resuscitations..." (Respondent 17)  
- "Only for nurses that are at high risk environments such as A&E, ITU, CCU etc..." (Respondent 50) |
| Higher training is not necessary in certain settings (n=13) | - "It may not be useful in certain settings." (Respondent 12)  
- "Not always beneficial for the patient." (Respondent 46)  
- "In wards it would be unnecessary" (Respondent 51)  
- "In wards it is not necessary as the CPR team quickly takes over." (Respondent 62) |
4.8 Findings from the focus group interview

Some of the data obtained from the questionnaires as reported in the above sections, was further explored by a focus group interview. Three main categories were identified following thematic content analysis of the focus group interview transcript, namely general issues with regards to training, training needs and factors affecting motivation to attend to courses. Tables below show the major themes identified with each category and excerpts from the focus group transcript are used as examples to highlight meaning within each theme. Table 4.25A shows themes and excerpts related to training programmes, Table 4.25B shows themes and excerpts related to training needs and Table 4.25C shows themes related to motivation to attend courses.

<table>
<thead>
<tr>
<th>Themes</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal training is limited</td>
<td>• &quot;...with regards to training as such, training is limited.&quot; (Statement 1)</td>
</tr>
<tr>
<td></td>
<td>• &quot;...we know what we know through experience not because we had a lot of training. You get involved in situations from which you learn.&quot; (Statement 3)</td>
</tr>
<tr>
<td></td>
<td>• &quot;CPR is not included in the induction programme. It is important that CPR is included in the induction programme.&quot; (Statement 4)</td>
</tr>
<tr>
<td></td>
<td>• &quot;...the training we had was not formal, it was informal, you get from asking and what people tell you. I still think we need formal training.&quot; (Statement 10)</td>
</tr>
<tr>
<td>Training must be compulsory</td>
<td>• &quot;BLS training needs to be compulsory.&quot; (Statement 11)</td>
</tr>
<tr>
<td></td>
<td>• Compulsory training won’t help. Once we had a lecture which was compulsory, and nurses didn’t turn up as a protest.” (Statement 51)</td>
</tr>
<tr>
<td></td>
<td>• &quot;Compulsory not in the way of you must go. In my opinion it should be, you need an amount of credits or points to continue being, to continue working here...” (Statement 52)</td>
</tr>
<tr>
<td></td>
<td>• &quot;If you don't reach the required points, you get either penalised or they withhold your licence. We need to keep a standard.” (Statement 54)</td>
</tr>
<tr>
<td></td>
<td>• &quot;It is even unfair on the patient. If there is an interested nurse who is trained, if there is nurse A, a particular patient is cared for in one way and if there is nurse B a patient is cared for in another way.” (Statement 55)</td>
</tr>
<tr>
<td></td>
<td>• &quot;There needs to be an amount of supervision. There must be someone supervising and auditing both training and practice.”</td>
</tr>
</tbody>
</table>
**Table 4.25B**

*Category 2: Training Needs*

<table>
<thead>
<tr>
<th>Themes</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training needs depend on the setting</td>
<td>“Skills required for us are different, for example intubation and monitoring, because the patient is already intubated and monitored in our setting.” (Statement 9)</td>
</tr>
<tr>
<td></td>
<td>“The frequent rotation of house officers with little experience puts the nurse (who is more experienced) at a position where he needs to help the house officer to make some decisions.” (Statement 17)</td>
</tr>
<tr>
<td></td>
<td>“The skills required depend on the setting…” (Statement 73)</td>
</tr>
<tr>
<td></td>
<td>“In our setting, you cannot follow these guidelines as the practice is different, but when you are in the wards …” (Statement 76)</td>
</tr>
<tr>
<td></td>
<td>“Pre-hospital is not an extension of the in-hospital. You need training to function in in-hospital resuscitation and you need training to function in pre-hospital resuscitation.” (Statement 60, 61, 62)</td>
</tr>
</tbody>
</table>
Chapter 4: Findings

- “Resuscitation skills are the same, it’s the decisions you make, when you make them, how you make them.” (Statement 81) “In the pre-hospital you have many decisions to make.” (Statement 83)
- “Doctors in some instances might take longer to come to see patients, so you need to know what to do and be able to take initiatives.” (Statement 89)

A higher level of training is required
- “A higher level of training than BLS would be useful, especially in the pre-hospital setting.” (Statement 12)
- “…ALS in resuscitation you need it.” (Statement 13)
- “There is lack of knowledge, especially in the junior nurses, for example that defibrillators can be used to pace and for cardioversions etc… In BLS these are not covered. It is important that at least if you don’t get trained to ALS level, at least you are trained on how certain equipment works.” (Statement 20)

Higher training to function (in an assistive role)
- “You need to anticipate, you are not deciding yourself what drugs will be given, the anaesthetist will decide in reality. But for example you frequently see junior nurses unable to function while someone senior is preparing drugs and anticipate what the doctor will ask for.” (Statement 21)
- “You also prepare for intubation…you prepare all the equipment, prepare the drugs, and you have everything ready for administration.” (Statement 22)
- “For example, if you need to prepare drugs, going out to ask someone else wastes time.” (Statement 14)
- “As such, we prepare everything, for example, we set the settings on the defibrillator so you need to know how the specific machine works.” (Statement 19)

Higher knowledge to function in an active role
- “You need to understand what’s going on to get involved in the resuscitation.” (Statement 15)
- “I still wouldn’t feel comfortable just obey orders without knowing why.” (Statement 75)
- “When you know why a drug is given before that shock, how it is prepared…I am not taking decisions, as nurses we do not take on leading roles, you never lead a resuscitation, but the fact that you know what’s going makes you more confident and enhances your performance.” (Statement 34)
- “You need to know what you are looking for to be able to identify deterioration.” (Statement 87)

Table 4.25C
Category 3: Motivation to attend to courses

<table>
<thead>
<tr>
<th>Themes</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation influences attendance to training</td>
<td>“Everybody would like to receive training.” (Statement 24) “Most nurses understand the need for training but there are many limitations and factors influencing attendance.” (Statement 67)</td>
</tr>
<tr>
<td>Lack of attendance to courses</td>
<td>“The problem is that most of the training is carried out in off duties and you might have other commitments.” (Statement 25) “I think that training must be carried out during working hours.” (Statement 28) “Coming from off duties is concerning for many nurses, because TIL is no: always awarded and you might have other commitments.” (Statement 29A)</td>
</tr>
</tbody>
</table>
| Support, encouragement and appreciation from colleagues and managers | "I think it’s more that you have to come from off duties which is concerning, because when we are offered TIL and some nurses still don’t attend." (Statement 29B)  
"The problem is lack of interest and motivation." (Statement 30)  
"It is more the lack of motivation. If you are not motivated you will not be interested." (Statement 36) |
| --- | --- |
|  | "If you try to seek more knowledge, you will find barriers, people will consider you a threat and if you personally don’t put your mind at it and do it many will try to hold you back. Furthermore, after you do it, it won’t be appreciated.” (Statement 32)  
"If you have individuals who have other jobs, personal life, they will say as long as I am getting my pay…once the department is not appreciating or motivating, why should I bother. With or without knowledge I will still be getting paid.” (Statement 33)  
“When someone enrols onto a course, managers do not try to make things easier for the individual.” (Statement 41)  
“Lack of encouragement is the greatest demotivatory factor.” (Statement 69)  
“Nursing officers need to be knowledgeable about their areas…although they have to fulfil their administrative responsibilities they still need to keep hands on to be able to appreciate our needs.” (Statement 40) |
| Nature of the work | "Being given time in lieu could be an issue, but I think our environment is so demanding that you will end up demotivated.” (Statement 27)  
“The fact that your work is not appreciated. It is irrelevant how much you work and how you do your work, they still try to find details in anything you do.” (Statement 38)  
“Unit managers are always ready to criticise …but they never appreciate and acknowledge the good work we do.” (Statement 39)  
“We need clear guidelines with regards to resuscitation attempts. For example, a patient is resuscitated in the ward and transferred to ITU and then they decide to issue a DNR order. You then end up demotivated as you are using your energy on taking care of patients a poor prognosis but would not benefit from intensive care.” (Statement 42) |
| Financial issues | "Why should I pay for something as basic as BLS, when it is an in-hospital skill that I need to know?” (Statement 45)  
“The financial aspect affects very much. Once I was collecting a list of nurses interested in doing BLS course…when I told them the cost the list went down from around 20 to around 5.” (Statement 47)  
“When I applied for the ALS course, some of those who did not apply were due to financial reasons.” (Statement 68) |
| Gain | "If it is something you really want to do material gain would be irrelevant…but most people put their material gain prior to their actual need for training.” (Statement 71&72) |
| Identifying the need and receiving relevant training | "Nurses working in critical care units, are usually interested in the area and the nature of the work makes you feel you need more training.” (Statement 37)  
"Identifying that you need more training and receiving training which is relevant for your practice is a motivational factor in
4.9 Conclusion

In this chapter, statistical analysis of the quantitative data was carried out using SPSS – Version 17, as advised by a statistician, and reported using tables and figures. Qualitative data from the questionnaires was analysed using thematic – content analysis as described by Burnard (1991) and presented in tables showing major themes identified through the responses. In tables, these themes are highlighted by excerpts from responses within the questionnaires. The focus group interview transcript was analysed and reported using the same approach. Findings from the focus group interview are also presented in tables showing major themes within each category, supported by statements from the interview transcript. Findings presented in this chapter, will be discussed in the next chapter and compared to literature reviewed in the literature review in light of the objectives of the study.
Critical care nurses’ perceptions and attitudes towards adult resuscitation training

Chapter 5

DISCUSSION
5.1 Introduction

Throughout this chapter, the findings of the study presented in Chapter 4 are discussed in comparison to literature presented in the literature review and in light of the objectives of the study. Data obtained both from the questionnaires during the first phase of data collection and the focus group interview in the second phase of data collection, are combined to allow a better interpretation of the findings. In this way a deeper explanation of nurses’ perceptions and attitudes towards resuscitation training can be achieved.

5.2 Resuscitation training

Recognising the importance of resuscitation training to be able to deliver the required performance during resuscitation attempts is a primary assumption within adult learning theories (Knowles, 1990). The significance of resuscitation guidelines for critical care nurses and the actual knowledge of these guidelines are two major components forming the attitudes and dispositions of critical care nurses’ towards resuscitation training. As highlighted in the literature review, while authors (Devlin, 1999; Brown et al., 2006) have explored and audited nurses’ knowledge of resuscitation guidelines, the significance these guidelines have in guiding practice discussed in the next section, has not been identified in articles reviewed during literature search for this study.
5.2.1 Awareness and significance of resuscitation guidelines

Findings show that most of the critical care nurses who participated in the study (81.7%) are aware of the publication of resuscitation guidelines, the majority of whom (84.3%) are also aware of the latest updates to these guidelines as published in 2005. This is supported by the number of nurses who attended to initial and refresher courses during the last four years before data collection (Chapter 4, Tables 4.4 and 4.6), and thus it could be expected that most of the participants are knowledgeable and up-to-date with the content of the latest resuscitation guidelines. As reported in Chapter 4 (Figure 4.4), these guidelines are considered significant by critical care nurses and valuable in guiding nurses during resuscitation situations. Furthermore, as suggested by statistical tests carried out and presented in Chapter 4 (Section 4.3.4) the significance these guidelines have in guiding practice, is not related to the work setting or work experience. This could be due to the common characteristics between the four settings, which make exposure to resuscitation situations equal across all the settings, while the changes to the guidelines applied in 2005 put all participants who completed training in the past four years at close par with regards to the use of these guidelines in real situations. From responses given to the questionnaire one can identify that respondents appreciate the importance of these guidelines in view of the frequency of resuscitation situations encountered in the critical care settings and thus the regular need to implement these guidelines in practice, as highlighted in the following excerpts from the questionnaires…
“Patients deteriorate quickly in our unit.” (Respondent 29)

“We come across CPR’s on our wards on a regular basis.”

(Respondent 1)

Further to the frequent resuscitation situations, excerpts below show that the sequence of actions to be followed presented in these guidelines could provide a higher sense of security and enhance confidence when dealing with real situations...

“...you feel confident in dealing with such situations.”

(Respondent 10)

“Where the guidelines are followed, there is less delay in the delivery of care.” (Respondent 41)

The sense of security offered by the guided sequential actions presented in the guidelines could be perceived as a way to increase active participation during resuscitation efforts and a way to enhance a better performance during resuscitation situations. This association between the utilisation of guidelines and confidence has not been exclusively identified in literature reviewed for this study, however, Bhaskarabhatla (1999) and Saravanan and Soar (2005) argue that poor confidence has been attributed to a lack of knowledge of resuscitation guidelines. Furthermore, the simplification of resuscitation guidelines has been attributed to better performance, highlighting that knowledge of resuscitation
guidelines does indeed affect performance during actual cardiac arrest situations (Hamilton, 2005).

While the relationship between confidence and actual performance is discussed later throughout the discussion, “misplaced confidence” can have negative effects on the perceived need to attend to resuscitation training leading to outdated practice, ineffective skill and poor performance (Nyman & Sihoven, 2000). This can also be observed in responses to the questionnaire, which suggests that nurses are aware of the importance of evidence based practice, in this case to enhance a better outcome following cardiac arrest. Excerpts below highlight the responses given in the questionnaire to support the significance of resuscitation guidelines.

“...updated guidelines have been proven through research as methods of increasing the chance of survival.” (Respondent 17)

“...make my practice more efficient by being up to date with what is happening / evolving.” (Respondent 40)

The role of resuscitation guidelines in standardising practice across the board for all professionals has also been identified through the questionnaires and suggests that some nurses are aware of the importance of coordination to enhance better performance and the smooth running of resuscitation attempts...
"Guidelines provide a common base for all staff, thus procedures are more uniform and smooth."
(Respondent 74)

"If I am not up to date with the new guidelines, I will not be able to work as a team."
(Respondent 14)

Despite the value given to resuscitation guidelines across all four settings as discussed above, major concerns were identified with regards to their application in certain settings in view of the different presentation of the patient, as highlighted by the following excerpts. Such an attempt to explore significance of guidelines for specific settings has not been identified in literature reviewed for this study.

"Patients in *** are already intubated and ventilated and cardiac massage is done continuously..."  (Respondent 53)

5.2.2 Knowledge of resuscitation guidelines

As mentioned in the first part of this section, together with significance of resuscitation guidelines, knowledge of these guidelines is an essential component shaping attitudes and dispositions towards resuscitation training. Lack of knowledge of resuscitation guidelines and poor competence have been highlighted in literature (Crunden, 1991; Crouch & Graham, 1993; Devlin, 1999).
Results for knowledge score obtained in this study are close to results obtained by Broomfield (1996). While in this study an average score of 69.6% (4.87 out of 7) was obtained, Broomfield (1996) obtained a score of 57.3% (14.9 out of 26). The scale used in this study (7 – item scale) is narrower than the one used by Broomfield (1996) (26 – item scale), which could explain the difference in the scores obtained. Both scores for knowledge are higher than 50% and despite that 65% of respondents to this study answered correctly to five or more questions, the importance of knowledge of this subject for health care professionals requires that scores as close as possible to the maximum score are obtained to imply knowledge of the guidelines (Crouch & Graham, 1993). In this regard, findings from this study are close to findings obtained by Crouch & Graham (1993) who also used a seven-item scale to evaluate knowledge. In the study by Crouch & Graham (1993), only 9.5% answered correctly to all seven items and in this study only 11% answered correctly to all seven items. While in this study assessment of nurses’ knowledge of resuscitation guidelines is very minimal compared to the study conducted by Broomfield (1996), findings presented in Chapter 4 and discussed in this chapter could provide an indication of critical care nurses’ knowledge of resuscitation guidelines (keeping in mind all concerns regarding the reliability of unsupervised multiple choice tests in questionnaires). Data obtained allowed an attempt to explore relationships between knowledge and other variables such as significance and confidence. For instance, while the effect of knowledge on confidence is discussed later in this chapter, results show that despite nurses appreciate the importance and understand the significance of
resuscitation guidelines, their current knowledge of these guidelines is not enough to deliver the required performance during cardiac arrest situations.

5.2.3 Attendance to resuscitation training

Poor knowledge and skill have been frequently attributed to low participation to resuscitation training. However, poor retention of knowledge and skill following courses has been explored and identified as another major factor contributing to a gradual decrease in confidence and competence over time (Hamilton, 2005). In this regard, authors advocate for mandatory resuscitation training for all healthcare professionals, with periodical retraining to maintain consistent standard of practice at all times (Leah, 2001; Gabbott et al, 2004).

Findings obtained with regards to attendance to initial and refresher BLS courses, describe the current situation (chapter 4, table 4.6). Most of the respondents have completed initial or refresher basic life support training within the last three years (n=94), thus these respondents have been trained in resuscitation using the latest guidelines as published four years ago. Only a small percentage never attended BLS training (10.1%, n=11) or have attended BLS training more than three years ago using older guidelines however they (find a better word) never attended refresher training (3.7%, n=4). This implies that most critical care nurses participating in the study are up-to-date with the latest resuscitation guidelines as published in 2005.
The importance of refresher training to maintain skills and refresh knowledge has been highlighted in the literature review. Researchers (Broomfield, 1996; Semerero, Signore & Cerchiari, 2005; Wollard et al, 2006; Beckers et al., 2007) identified a degree of deterioration in skills following courses and recommend regular re-training to aid in the retention of basic life support skills and knowledge. Despite that basic life support certificates are valid for three years authors suggest that refresher training for basic life support knowledge and skills should be done as frequently as every six to twelve months (Hamilton, 2005; Flisher, 1992; Moser & Coleman, 1992; Leah, 2001). In accordance with these authors, responses obtained through the questionnaires suggest that critical care nurses appreciate the importance of refresher training to maintain knowledge and improve skill as well as to keep updated with the latest research. Excerpts below highlight nurses’ responses with regards to this theme…

"Regular training provides retention of knowledge and skills"

(Respondent 48)

"Changes are more frequent due to more studies being done. It also helps keep you up to date with what is going on."

(Respondent 13)

Further to improved knowledge and skill, Murphy & Fitzsimons (2004), through interviews, identified that nurses attribute an increased sense of confidence during cardiac arrest situations to regular resuscitation training.
"The more one trains the more one becomes confident and competent." (Respondent 61)

In this regard, Beckers et al. (2006) obtained increasing scores for confidence following refresher training every six months. While an association between confidence, perceived competence and attendance to refresher training was not examined in this study due to the small number of nurses who required refresher training after initial certification, it was identified that issues of increased confidence and perceived increased competence, especially in the event of low exposure to resuscitation situations, are also attributed to regular retraining by local critical care nurses. This suggests that local critical care nurses are aware of the need of regular resuscitation training to increase and maintain confidence, competence and ensure better performance...

"Lack of training can result in lack of confidence."

(Respondent 67)

"In areas where skills are rarely used it would be difficult to retain the skills therefore regular training is necessary."

(Respondent 41)

In contrast with this discussion in favour of regular training, some respondents highlighted reasons why they failed to attend refresher training (Chapter 4, Table...
4.16). On one hand organisational issues related to lack of availability of courses and no opportunities to attend to courses, and on the other hand personal issues related to lack of time and lack of interest. It was also observed that two respondents do not appreciate the need to attend to regular training in view of regular exposure to resuscitation situations...

"Frequent CPR on unit." (Respondent 24)

"Don’t feel the need for one as I am constantly updated on stuff concerning CPR and practice BLS regularly."

(Respondent 89)

In accordance with these findings, Saravanan and Soar (2005) identified similar findings to why respondents failed to attend refresher courses. In their study, they observed that nurses similarly believe they already have the necessary skills and so do not need to repeat training. Furthermore, personal issues such as financial problems, lack of time or lack of interest and organisational / managerial issues were also identified in their study as factors which negatively influence participation to resuscitation training. Themes identified in this study with regards to why nurses fail to attend to refresher training were also identified within factors hindering participation. These were further explored in the focus groups and are discussed in subsequent sections of this chapter.
5.2.4 The perceived effect of training on performance

Authors agree that training affects performance during resuscitation situations (Hamilton, 2005; Gabbot et al., 2004). This was also highlighted throughout the questionnaires where most respondents agreed that in a way or another training affects or influences performance during an actual situation. As highlighted in the findings chapter (Table 4.13), issues of better performance, improved skill, increased confidence and better resuscitation outcomes were put forward as explanations why training affects performance. In accordance with these findings, Dane, Russell-Lindgren, Parish, Durham and Brown (2002) identified that when a cardiac arrest is witnessed by nurses who are appropriately trained, there is a higher survival-to-discharge rate. Lack of training in basic life support has been identified as a contributing factor to poor performance and poor resuscitation outcomes (Dwyer & Williams, 2002). In contrast with these views, two respondents did not fully agree that training affects performance one of whom commented that “it takes more than just training...exposure to real life situations is more important”.

This perception that training affects performance is also reflected by the high number of critical care nurses who claimed that they have completed initial and refresher resuscitation training. Together with the number of nurses who completed resuscitation training on a personal initiative, this could suggest that the current situation sets an appropriate scenario in accordance with Knowles’ adult learning theory. Nurses appreciate the need to attend to training sessions in
order to gain the required knowledge and skill for enhancing a better performance and possibly achieving a better outcome following resuscitation attempts. While this was confirmed in the focus group interview (as highlighted by the excerpt below), it was also suggested that there are other issues influencing nurses’ disposition towards participation to resuscitation training, which are discussed in the subsequent sections of the discussion...

"Most nurses understand the need for training, but there are many limitations and factors influencing attendance."

(Statement 67)

5.3 Perceived Competence and Confidence

Nurses’ self concept, the way they grade their skill and their perceived competence during resuscitation situations, greatly influences their confidence and their perceived need to attend to resuscitation training (Nyman & Sihoven, 2000). Present findings suggest that critical care nurses who participated in the study have a positive perception of their skills, their confidence and perceived competence when it comes to resuscitation skills. These results are in contrast with results reported by O’Donnel (1990), Crunden (1991) and Crouch and Graham (1993) who obtained low scores for self-evaluation of skills, confidence and perceived competence. This difference could be due to the different settings in which the studies were conducted. For instance, while the population involved in the studies carried out by these authors was composed of nurses working in
general care settings, the population of this study were critical care nurses who are exposed more frequently to resuscitation situations. Findings (Table 4.11) show an association between work experience and higher confidence scores, suggesting that frequent exposure to resuscitation situations enhances confidence. In this case, due to the frequency of cardiac arrest situations in critical care settings, work experience can be translated into a higher number of encounters with resuscitation situations. This was confirmed in the focus group interview, in which nurses argued that...

“since we encounter a lot of CPRs, you become more confident”

(Statement 8)

“nurses who practice frequently become more confident, but it takes time.” (Statement 56)

Similar findings in support of these arguments were reported by Marteau, Wyne, Kate and Evans (1990), who also identified this in their study, that doctors who attended more frequently to resuscitation situations produced higher confidence scores.

In addition to the above findings, it was also noted that knowledge and self-evaluation of skill have positive effects on confidence. For instance, nurses who obtained a higher score for knowledge questions and nurses who evaluated their skill at a higher level produced a higher confidence score than others. This study
also revealed a strong positive correlation between confidence and perceived competence. While a similar association was also identified by O’Donnell (1990) and Crouch and Graham (1993), authors warn that there is a major difference between self-appraisal and actual knowledge, skill performance and actual competence in resuscitation (O’Donnel, 1990; Crunded, 1991; Crouch & Graham, 1993). O’Donnel (1990) further states that confidence has been shown to have little correlation with actual competence when assessed using objective measures as shown in the studies carried out by Crunden (1991), Crouch and Graham (1993) and Nyman and Sihoven (2000). Thus, further research comparing self-appraisal of skill, perceived competence and confidence compared to objective assessment of knowledge, skill and performance is recommended.

Following the above discussion, while self-evaluation of resuscitation skills, confidence, experience and training do not reflect actual performance; there is still a possible influence of experience and training on confidence and perceived competence. As highlighted by Marteau, Wynne, Kaye and Evans (1990) and Nyman and Sihoven (2000), this “misplaced confidence” could result in nurses failing to identify the need for training, influencing the first assumption within Knowles’ Theory of Adult Learning (1990), leading to ineffective skill and poor performance.
5.4 Learning content of resuscitation courses

Within an adult learning perspective, providing training which directly fulfils nurses’ needs during resuscitation situations could enhance participation to resuscitation training sessions. Knowles (1990) argues that adults tend to be more interested in learning skills that will assist them solve everyday problems. Thus, lack of attendance to training sessions could be improved upon by designing adequate resuscitation training programmes for nurses and doctors, tailor-made to fulfil the demands of different specialities and different environments (Bhaskarabhatla, 1999; Saravanon & Soar, 2005). In this way, performance could be enhanced by providing the necessary knowledge and required skills as well as emphasising the desired behaviour during resuscitation situations and the desired attitude towards resuscitation training.

From the findings of this study one can identify that a large number of respondents (68.6%) feel that training currently offered does not meet the needs of nurses working in critical care areas. Similar results were obtained by O’Donnel (1990) who identified that 76% were also dissatisfied with their resuscitation training. Despite of this, a large number of participants in this study had completed resuscitation courses available locally and regularly attend to refresher courses as required. This could be due to the fact that BLS courses still provide the essential basic elements required in any resuscitation situation and provide the skills required to enhance ALS efforts...
Throughout the questionnaires, three major themes were identified as reasons why nurses do not feel that courses fulfil their needs. The first theme is that the content of the current courses does neither reflect nor highlight what is required of critical care nurses. A second theme identified is that the current courses are designed to focus on individual skills as such and not focused towards resuscitation within the hospital setting. In conjunction with these two themes, a third theme identified highlights that a clarification of the nurses’ role during resuscitation is required to facilitate the development of an image of the nurse during resuscitation. With regard to these findings, Crunden (1991) also identified that “training issues” and “role identification” are major factors influencing the development of an image of the nurse during resuscitation. In this regards, he argues that while performance is highly influenced by training, the behaviour displayed is influenced by the perception of the nurses’ professional role during resuscitation (Crunden, 1991). These themes have been further explored in the focus group interview, which highlighted that “training requirements” and “role identification” are dependent on the particular setting, due to the different presentation of patients and the different organisational situation within each setting. Table 5.1 highlights the major views within each theme as identified in the questionnaires and explored through the focus group interview. These are also compared with findings obtained by Crunden (1991).
<table>
<thead>
<tr>
<th>Theme</th>
<th>Questionnaire</th>
<th>Focus Group</th>
<th>Crunden (1991)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training requirements</td>
<td>“Certain areas require a more advanced course” (Respondent 60)</td>
<td>“Skills required for us are different, for example intubation and monitoring, because the patient is already intubated and monitored in our setting.” (Statement 9)</td>
<td>Performance is highly influenced by training, so consistent and up to date training is vital.</td>
</tr>
<tr>
<td>Role identification</td>
<td>“…need to know the nurses’ role as doctors are always present in …” (Respondent 1)</td>
<td>“The frequent rotation of house officers with little experience puts the nurse (who is more experienced) at a position where he needs to support the house officer to make some decisions.” (Statement 17)</td>
<td>Nurses present an image of being capable and competent and display a behaviour which is in line with their perceived professional role</td>
</tr>
<tr>
<td>Course content</td>
<td>“During the course one should include wards based scenarios according to the nurses individual needs.” (Respondent 15)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>“...they should be more focused towards the hospital environment.” (Respondent 48)</td>
<td></td>
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</tr>
</tbody>
</table>

In support of the above statements, almost all respondents (99.1%) agreed that further training in skills supportive to basic life support are required as these will enhance confidence, competence and produce better resuscitation outcomes. This has been further explored through the focus group interview, which expanded this view from issues related to confidence, competence and positive resuscitation outcomes to higher issues related to involvement and participation during resuscitation efforts. While the success of supplemental training could indeed be reflected through increased confidence and competence, supplemental training
could also provide the necessary knowledge and understanding to enhance a more active role during resuscitation efforts, as highlight by the excerpts below...

<table>
<thead>
<tr>
<th>Questionnaire</th>
<th>Focus Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;...early defibrillation and drugs might save the patient's life and improve prognosis.&quot; (Respondent 16)</td>
<td>&quot;You need to understand what is going on to get involved in the resuscitation.&quot; (Statement 15)</td>
</tr>
<tr>
<td>&quot;...BLS with adjuncts until ALS arrives improves success rates...&quot; (Respondent 20)</td>
<td>&quot;When you know why a drug is given before that shock, how it is prepared...I am not taking decisions, as nurses we do not take on leading roles, you never lead a resuscitation, but the fact that you know what's going makes you more confident and enhances your performance.&quot; (Statement 34)</td>
</tr>
<tr>
<td>&quot;To be able to handle all situations confidently and competently.&quot; (Respondent 29)</td>
<td></td>
</tr>
<tr>
<td>&quot;In resuscitation you must work as the need arises and must be competent in all.&quot; (Respondent 62)</td>
<td></td>
</tr>
</tbody>
</table>

With regards to findings discussed above, while higher scores for knowledge and confidence were obtained by Scapigliati et al. (2006) and Murphy and Fitzsimons (2004) respectively following an Intermediate Life Support course, Murphy and Fitzsimons (2004) further identified that skill deployment did not improve following the course. This implies that while advanced training could increase confidence and knowledge, it does not necessarily produce a better performance as perceived by participants to this study.

While issues related to knowledge and confidence have been highlighted throughout various parts of the study, the nurses' need to be able to respond promptly to directions given by the lead doctor have also been expressed during the focus group interview.
This could give a more practical view of the nurse’s role during resuscitation situations, as highlighted by the excerpts...

"You need to anticipate, you are not deciding yourself what drugs will be given, the anaesthetist will decide in reality. But for example you frequently see junior nurses unable to function while someone senior is preparing drugs and anticipate what the doctor will ask for." (Statement 21)

"As such, we prepare everything, for example, we set the settings on the defibrillator so you need to know how the specific machine works." (Statement 19)

As highlighted in the last statement, nurses seem to be also concerned about their familiarity with equipment. This has also been identified in the study carried out by O’Donnell (1990), in which participants expressed concern regarding unfamiliarity with equipment used during resuscitation. This issue was further explored during the focus group interview, as indicated by the excerpt below...

"There is lack of knowledge, especially in the junior nurses, for example that defibrillators can be used to pace and for cardioversions etc… In BLS these are not covered. It is important that at least if you don’t get trained to ALS level, at
least you are trained on how certain equipment works.”

(Statement 20)

From knowledge of the research area and the research population as well as personal involvement in resuscitation training, responses discussed above were expected and anticipated. Thus, questions were posed to identify nurses’ views on the perceived need and effectiveness of advanced training in resuscitation. In fact, a relatively high number of respondents (86.4%) argued that training more advanced than basic life support (such as intermediate or advanced life support) would be appreciated. In this regard, Quinn (1998) argues that issues regarding advanced life support training for nurses need to be discussed and audited in view of improved positive outcomes following cardiac arrests. As highlighted by Kenward, Castle and Hodgetts (2002), defibrillation (considered an advanced resuscitation skill) has already become an expected role rather than an extended role for nurses with improved positive outcomes following cardiac arrest situations.

Following thematic analysis of the questionnaires, it was identified that the need for advanced training seems to be considered as setting-dependent. While “better performance” and “better resuscitation outcomes” were identified as major themes in support of advanced training, there could be a debate on the need for advanced resuscitation training for acute settings. While critical care nurses require advanced training in view of the critical nature of their patients and the higher frequency of resuscitation situations, advanced training could not be necessary in
acute settings, where the resuscitation team quickly takes over and initiates advanced life support. The following excerpts highlight the content within these themes...

“Nurses are often the first on site, early defibrillation increases the chance for the patient and therefore if nurses had these skills they would be able to help the patient more.” (Respondent 69)

“BLS is for the general public...nurses who are the first responders at inhospital arrests should be able to perform better than that since they have the tools to do so.” (Respondent 11)

“Only for nurses that are at high risk environments such as A&E, ITU, CCU etc...” (Respondent 50)

“In wards it is not necessary as the CPR team quickly takes over.” (Respondent 62)

With regard to the above findings, positions from leading authors as well as audits following resuscitation efforts might promote advanced training for all nurses in light of improved rates of survival. However, in accordance with findings from this study, Gabbott et al. (2005) argue that resuscitation training must address the needs of nurses to function within their expected clinical responsibilities as opposed to general training across the board for all nurses within the different
clinical settings. As discussed throughout this section, this could not only enhance performance and possibly obtain a better outcome following resuscitation attempts. In line with adult learning theories (Knowles, 1990), such a problem-focused approach to programme development could enhance attendance to resuscitation training and facilitate the development of the appropriate image of the nurses' role during resuscitation in line with the needs of each individual setting.

5.5 Readiness to learn

5.5.1 Compulsory resuscitation training

Resuscitation training should form an important part of a standard training programme as required for staff according to their needs and responsibilities (Leah, 2001). While the issue of compulsory resuscitation training for all healthcare professionals is advocated by various authors (Leah, 2001; Gabbott et al., 2005; Hamilton, 2005), interviews carried out by Crunden (1991) revealed that nurses were strongly in favour of voluntary attendance to continuing education as opposed to mandatory training. This is in contrast with findings obtained from this study, where the majority of respondents (97.2%) are in favour of compulsory resuscitation training. A major factor shaping this different attitude could be that locally training for critical care nurses is limited. This was highlighted by nurses themselves during the focus group interview who maintained that…
“we know what we know through experience not because we had training, you get involved in situations from which you learn”

(Statement 3)

“it is important that CPR is included in the induction programmes.” (Statement 4)

The perceived importance of compulsory resuscitation training has been identified through the questionnaires and explored during the focus group interview. The following excerpts highlight major views supporting this statement...

“CPR is an extremely important skill” (Respondent 51)

“it is a part of the nurses’ role...we encounter these situations on a daily basis” (Respondent 1)

“every nurse should be proficient and updated to the latest knowledge.”

Following thematic – content analysis of the interview transcript it was observed that while there was a general agreement that “resuscitation training needs to be compulsory”, the discussion revealed that compulsory training should be more associated with a number of compulsory credits required to maintain or renew
your registration rather than forced attendance. The following excerpts highlight this major point in the discussion…

“Compulsory not in the way of you must go. In my opinion it should be, you need an amount of credits or points to continue being, to continue working here…” (Statement 52)

“If you don’t reach the required points, you get either penalised or they withhold your licence. We need to keep a standard.” (Statement 54)

5.5.2 Formal and informal basic life support training

Results from this study show that the majority of respondents (79.8%) prefer a combination of formal and informal resuscitation training sessions, highlighting that informal training is required to reinforce and give context to the formal training. While literature search for this study highlighted that research in this regard is limited, O’Donnell (1990) highlights the importance of both formal courses and informal sessions for basic life support training and argues that both are required for effective training of staff.

While some respondents in this study acknowledge that more knowledge can be obtained from a formal course which offers less distractions and is usually taken more seriously, others feel that informal training will be more ward focused and
people will be more at ease, thus participants learn more. However, in agreement with O'Donnell (1990), the value of a combination of both methods has been highlighted throughout the questionnaires.

With regards to the training design currently used, a major concern identified throughout the focus group interview was that resuscitation courses offered do not reflect the real situations encountered on the wards and thus do not necessarily achieve better skills and better performance. In this regard, one respondent argued that “it takes more than just training to develop resuscitation skills” and included “exposure to real life situations” as factors that affect performance. In agreement, O'Donnell (1990) and Page and Marebeau (1996) argued that basic life support training in a classroom and the reality of a cardiac arrest are very different. While classroom simulations help in developing technical ability, they do not represent the pressures of the real resuscitation situation. In this regard, O'Donnell (1990) suggests that apart from formal lectures, training should be supplemented with regular informal practice sessions at unit level and attachment to CPR teams as observers. This will not only enhance retention of knowledge and skill through regular practice, but also help nurses develop an insight of the real resuscitation situations. Knowles (1990) argues that it is easier for adults to learn new knowledge, develop skills and change attitudes when they are presented in the context of real-life situations, thus by using informal techniques as discussed could help motivate nurses to engage more in resuscitation training.
Throughout the focus group interview the issue of informal training was further explored and it was highlighted that in-house training is preferred and considered more effective. In support of informal training sessions, in-house training could reduce the gap between what is delivered in the training sessions and what is encountered in real situations, as it is designed to meet the needs of the speciality (O’Donnell, 1990; Page & Marebeau, 1996; Gabbott et al., 2005). This has also been identified in the focus group interview transcript as highlighted by the following excerpts...

"Because it is individualised...as situations will be different.”

(Statement 49)

"If there is something provided for A&E, I know it is going to affect me more than if I go to the ITU one.” (Statement 98)

5.6 Motivation to attend to resuscitation courses

An important assumption with regards to adult learning, is that motivational factors influence nurses’ willingness to participate in resuscitation training (Knowles, 1990). Tough (as cited in Knowles, 1990, p.63) argues that adults are innately motivated to “grow and develop”. However, this motivation could be easily blocked by “barriers”. In his theory of adult learning, Knowles (1990) argues that while there are external factors, such as qualification allowances or continuing professional development points which could motivate participation to training
programmes, internal motivatory factors such as an increased self esteem, personal satisfaction after positive resuscitation outcomes or functionality within the resuscitation team are the more potent motivators.

In this study, data on factors perceived as motivating or hindering participation to resuscitation courses has been collected through the questionnaires and an attempt has been made to explore these factors in more depth through the focus group interview. While most of the hindering factors could be identified as problems within the current situation, corrective measures to improve this situation were identified from the motivatory factors. Table 5.2 highlights the major themes identified from responses to the questionnaires. While in the findings chapter, the hindering and motivatory factors where presented separately, in the table below these are presented as a "problem" and a corresponding corrective measure" respectively within a common theme. Excerpts are used to explain the perceived problems and the corresponding corrective measures identified from motivatory factors in the questionnaire and explored through the focus group interview.
### Table 5.2
**Table showing identified hindering factors, suggested corrective measures and explanation from focus group interview**

<table>
<thead>
<tr>
<th>Theme</th>
<th>Excerpts from participants' responses for the questionnaire</th>
<th>Suggested corrective measures (Motivatory Factor)</th>
<th>Excerpts from focus group interview</th>
</tr>
</thead>
</table>
| Awareness on the importance of resuscitation training | “Some people think it is a waste of time to attend to such courses.” (Respondent 30)  
“Some nurses think that they don’t need to refresh...” (Respondent 50) | “Knowing that by having knowledge one can improve the chances for that patient to survive.” (Respondent 69)  
“Knowing that having the right skills could help save lives.” (Respondent 63)  
“Show positive outcomes of successful CPRs.” (respondent 1) | “Nurses working in critical care units, are usually interested in the area and the nature of the work makes you feel you need more training.” (Statement 37)  
“Identifying that you need more training and receiving training which is relevant for your practice is a motivatory factor in itself.” (Statement 92)  
“If you work in a critical care setting and something you should know you don’t you seek knowledge to feel confident.” (Statement 94) |
| Courses do not meet needs                        | “Not too much interesting courses.” (Respondent 90)  
“BLS courses at the moment always repeat the same things and do not guide the nurses and hospital staff with the new guidelines and other new methods, they always use the old guidelines.” (Respondent 93) | “Interesting courses.” (Respondent 16)  
“Including interactive material such as videos and slides.” (Respondent 17) | “Having a resuscitation course provided within the speciality works more. Because it is individualised...as situations will be different”. (Statement 48 & 49)  
“Resuscitation skills are the same, it’s the decisions you make, when you make them, how you make them.” (Statement 81) |
| Availability and publicity of resuscitation courses | “Not aware of courses being done.” (Respondent 20)  
“Lack of advertisement of BLS.” (Respondent 52) | “Flyers to wards and emails to staff.” (Respondent 4)  
“Informing staff regarding courses being available...” (Respondent 20) |  |
| **Financial issues** | “Courses are expensive.” (Respondent 7)  
“Need to pay them by themselves.” (Respondent 2) | “Organise frequently to accommodate groups...” (Respondent 11)  
“Repetition of courses throughout the year.” (Respondent 22) | “Why should I pay for something as basic as BLS, when it is an in-hospital skill that I need to know?” (Statement 45)  
“The financial aspect affects very much. Once I was collecting a list of nurses interested in doing BLS course...when I told them the cost the list went down from around 20 to around 5.” (Statement 47)  
“When I applied for the *** course, some of those who did not apply were due to financial reasons.” (Statement 68) |
| **Attendance** | “Training offered on off duties.” (Respondent 43)  
“From ward will not be allowed to go.” (Respondent 4) | “… give an opportunity to send nurses on their day duty if possible.” (Respondent 18)  
“Try to find alternative times for those who cannot leave their children behind.” (Respondent 18)  
“TIL off work to do the course.” (Respondent 36) | |
| **Incentives** | “No time in lieu offered.” (Respondent 10)  
“Lack of incentives.” (Respondent 11) | “TIL when attending from off duties.” (Respondent 10)  
“…incentives like CPD points.” (Respondent 11) | “If it is something you really want to do material gain would be irrelevant... but most people put their material gain prior to their actual *need for training.” (Statements 71 & 72) |
| Encouragement and motivation from management | “Lack of support from their nursing manager...lack of appreciation.” (Respondent 75) | “Managers should promote attendance and encourage it.” (Respondent 9) |
|  | “Lack of support and encouragement from management.” (Respondent 15) | “Appraisal.” (Respondent 14) |
|  | “Lack of encouragement and support from senior nurses.” (Respondent 40) | “Support and encouragement from managers.” (Respondent 15) |
| Compulsory courses | “Not compulsory.” (Respondent 54) | “Compulsory courses.” (Respondent 10) |
|  |  | “Compulsory not in the way of you must go. In my opinion it should be, you need an amount of credits or points...If you don’t reach the required points, you get either penalised or they withhold your licence.” (Statement 52) |
Some of the factors presented above, have also been identified by Saravanan and Soar (2005). The three common factors identified in both studies are the individual perception on the importance of resuscitation training, problems related to managerial issues with regards to attendance and lack of encouragement and motivation.

A major theme recurring throughout the questionnaires which was confirmed during the focus group interview was that nurses are expected to attend to such training from their off duty. Two main concerns have been identified in this regard. The first concern is that nurses might have other commitments during their off duties and so are not able to attend to courses. The second concern is that sometimes nurses are not given a reward (time-in-lieu, overtime or points) when coming from their off duties. These are highlighted in the following excerpts…

"The problem is that most of the training is carried out in off duties and you might have other commitments." (Statement 25)

"Coming from off duties is concerning for many nurses, because TIL is not always awarded and you might have other commitments." (Statement 29A)

A major problem with attendance from work is that due to the workload on the critical care areas, allowing attendance from work is not always possible. Crouch and Graham (1993) highlighted shortages of staff as a major problem within
clinical areas and identified lack of "replacement staff" as a common problem influencing attendance to resuscitation training. As highlighted by excerpts below, this was also identified from responses to the questionnaire, as expected through personal knowledge of the situation within the critical care areas...

"...if done during the duties there are shortages of staff."

(Respondent 13)

"Stress from work." (Respondent 25)

In support of the above discussion, despite concerns regarding "rewards" which been highlighted both in the questionnaires and in the focus group interview, it has also been discussed during the focused group interview that coming from off duties is much more concerning and influences attendance more than the rewards as such. This is highlighted by the following excerpts from the focus group interview...

"I think it's more that you have to come from off duties which is concerning, because when we are offered TIL, some nurses still don't attend." (Statement 29B)

"Being given time in lieu could be an issue, but I think our environment is so demanding that you will end up demotivated."

(Statement 27)
Further to issues with regards to attendance and in light of the last statement, it was also identified through the focus group interview, that factors influencing attitude towards training are more related to encouragement, appreciation and motivation rather than rewards. Excerpts below highlight examples related to this theme…

“If you try to seek more knowledge, you will find barriers, people will consider you a threat and if you personally don’t put your mind at it and do it many will try to hold you back. Furthermore, after you do it, it won’t be appreciated.”

(Statement 32)

“Unit managers are always ready to criticise…but they seem to never appreciate and acknowledge the good work we do.”

(Statement 39)

This situation confirms that while external factors, such as rewards, influence willingness to attend to resuscitation training, as maintained by Knowles (1990) the more powerful internal factors, such as encouragement and appreciation are given more weight in shaping respondents’ attitudes and dispositions towards training.
5.7 Critique of the study

Issues discussed throughout this chapter need to be considered in view of the limitations at various stages within the study. Thus, a critique of some of these issues will be used to discuss some of the limitations within this study and highlight attempts to overcome them.

A mixed methods approach was used in this study. The combination of a qualitative method to a quantitative method was used to provide deeper understand of the situation under study. While quantitative methods such as questionnaires can offer a broad overview of a situation, they fail to generate a deeper understanding of the phenomenon under study. This was overcome by a focus group interview, which was used to further explore findings generated from the questionnaires, thus providing deeper understanding and a more real description of critical care nurses’ attitudes and perceptions towards training in adult resuscitation (Foss & Ellefsen, 2002).

The questionnaire used in this study was designed following the literature review. Face validity ensured that the questionnaire addressed all the objectives set for this study. Furthermore, content validity by a panel of experts in resuscitation training ensured that the subject content was adequately covered and their assistance was valuable in guiding the development of the tool. The questionnaire was also tested for stability and internal consistency by a test-retest and Cronbach’s Alpha Coefficient. While such methods were used to ensure that data
collected was true and reliable, some questions within the questionnaire did not fulfil criteria for stability and this could have compromised generalisability of the findings.

In this study, the population of nurses working in critical care areas as defined by the inclusion and exclusion criteria were recruited as sample for the questionnaire (n=222). This was done to make up for any possible lack of response to the questionnaire, and in this way ensure representativeness of the population, reduce sample bias and enhance generalisability of findings to the whole population. Despite this effort to ensure as high response as possible, a response rate of 49.1% was obtained (n=109). In this regard, Bowling (2002, p.264) argues that while there is no agreement on the minimum acceptable response rate to questionnaires, a good response rate is considered to be above 75% of the recruited sample. Therefore, in this study, representativeness of the whole population could not be ensured due to the extent of non-response to the questionnaire and also in view of the possible different characteristics of the non-respondents (Bowling, 2004). This non-response rate could be considered as a source of sample bias, which could have compromised the generalisability of the findings to the whole population.

Questionnaires were delivered and collected by key persons within each setting, as requested by hospital administration in view of data protection issues. This could have influenced the low response rate obtained and possibly contributed to a non–response bias within the findings. The questionnaire was unsupervised, thus participants had the opportunity to look for answers for knowledge questions
within the questionnaire or discuss the answers, which could have decreased the validity of the findings.

Lack of experience in conducting interviews, could have influenced the way the discussion was conducted. Furthermore, the focus group interview was not piloted due to time constraints. However, after thematic content analysis of the interview transcript, two of the participants were asked to review the categorisation system to confirm that the way the data was analysed and the findings produced reflect the discussion during the focus group interview. In view of the non-response by the cardiac care setting for the focus group interview, views from nurses within this setting were not explored. Only one focus group interview was conducted due to time constraints. In this regard, Sim (1998) argues that a minimum of two focus group meetings are required to observe if similar issues and concerns emerge. This could have led to missing out some data not collected through consecutive interviews, while similarities cannot be observed.

5.8 Conclusion

Throughout this chapter, findings reported in chapter 4 were discussed in light of literature presented in the literature review and the research objectives for this study. Together with the findings, this discussion provides an overview of the current situation with regards to resuscitation training for critical care nurses, describing perceptions towards training and identifying factors shaping up attitudes and dispositions towards resuscitation training.
Throughout the discussion, it was highlighted that nurses appreciate the significance and value of knowledge of resuscitation guidelines to increase confidence and enhance a better performance during resuscitation situations. As highlighted by the findings and the discussion, it appears that nurses value resuscitation training as important in acquiring the necessary knowledge and skill to function competently during resuscitation situations. Furthermore, they appreciate the importance of regular resuscitation training sessions to keep up to date with the latest research and to maintain a high level of skill and performance. In this regard, it is a general consideration that a compulsory training programme for resuscitation is required with both a formal component to ensure an adequate level of knowledge and skill and an informal component to ensure that training addresses the needs of the individual critical care setting. While this need for training seems to be a general concern for all the critical care areas, there are factors which shape attitudes and dispositions towards resuscitation training and thus influence nurses’ willingness to attend to resuscitation training sessions.
Critical care nurses' perceptions and attitudes towards adult resuscitation training

Chapter 6

CONCLUSION
6.1 Summary of the study

The significance of resuscitation training for nurses is reflected in actual cardiac arrest situations within critical care settings, where nurses are constantly at the bedside of the patient and thus the first to identify a cardiac arrest. In such situations, the delivery of immediate and appropriate interventions is essential to preserve life (Page & Meerabeau, 1996). It is therefore essential that critical care nurses have the necessary knowledge and the skills required to perform resuscitation efficiently, effectively and competently whenever necessary (Broomfield, 1996).

The purpose of this study was to explore and describe critical care nurses' perceptions and attitudes towards resuscitation training. To achieve this purpose, a sequential – explanatory design was used. Data collection took place in the four critical care areas within Mater Dei Hospital; namely the accident and emergency department, the intensive care unit, cardiac care units and the anaesthesia department. Data was collected by means of a questionnaire, which aimed at collecting data on variables making up perceptions and attitudes, identified through the literature review. This was followed by a focus group interview, which aimed at exploring further issues identified in the questionnaires and to assist in the interpretation of the findings. This mixed methods approach allowed for a deeper explanation of critical care nurses' perceptions and attitudes towards resuscitation training in the local setting.
An adult learning perspective was adopted throughout the various stages of the research process, in which assumptions within Knowles’ Adult Learning Theory (1990) were used as main constructs for this study.

From an adult learning point of view, nurses need to understand the importance and significance of resuscitation guidelines to engage in resuscitation training. In this regard, local critical care nurses consider these guidelines as significant for their daily practice and are aware that resuscitation training influences their performance during resuscitation situations. Furthermore, a large number of respondents have completed resuscitation training in the last three years before data collection, suggesting that in accordance with Knowles’ first assumption, local critical care nurses appreciate the need and do participate in resuscitation training.

Another major characteristic that influences attendance to resuscitation training is how nurses view themselves with regards to their confidence and perceived competence when participating in resuscitation attempts. Results show that local critical care nurses have a positive view of their confidence and their perceived competence. This misplaced confidence and perceived competence could jeopardize nurses’ awareness of their need to attend to resuscitation training. However, responses obtained with regards to attendance to resuscitation training show that local critical care nurses consider regular resuscitation training important for the retention of knowledge, maintenance of skill and up to date practice, irrespective of experience, exposure or work setting.
Local critical care nurses are aware of the importance of resuscitation training to maintain a high level of performance required during resuscitation situations. In this regard, critical care nurses consider that a compulsory resuscitation training programme is required. Such a programme should be composed of both formal lectures and informal sessions. While formal lectures are essential to deliver the required knowledge within resuscitation guidelines and reach the desired level of skill, informal sessions are essential to put what is learnt in the classroom into perspective of the real situations within each setting.

Within an adult learning perspective, providing training which directly fulfils nurses’ needs during resuscitation situations could enhance participation to resuscitation training sessions. In this regard, critical care nurses do not feel that the current courses available fulfill the demands of their settings. It was suggested that the content within resuscitation course curricula is adapted to meet the requirements of each individual setting and focused towards the role of the nurse within each particular setting.

A final but important assumption within Knowles’ adult learning theory, highlights that there are factors which influence nurses’ willingness to participate to resuscitation training. This was confirmed in the study, as issues which influence nurses’ dispositions towards participation to resuscitation training where identified. A common factor identified and stressed throughout both the questionnaires and the focus group interview is that nurses are usually expected to attend from their off duties and this interferes with other commitments nurses
might have during their off duties (e.g. family commitments). Furthermore, while the issue of rewards was mentioned, it was not as highly stressed as issues of encouragement, motivation, support and appreciation. In line with Knowles’ adult learning theory these internal motivators were considered as major issues influencing dispositions and attitudes towards training.

6.2 Recommendations

6.2.1 Recommendations for further research

Literature shows that knowledge is a major factor influencing competent practice and this study highlighted that it is also an important factor influencing attitudes and perceptions. This study explored knowledge of resuscitation guidelines only to a limited extent, so research and audits on knowledge and skill are recommended to identify deficiencies in practice and need for further training.

While in this study the association between confidence and perceived competence has been highlight, actual competence was not evaluated. Thus, research on confidence, perceived competence and actual competence could indicate the influence of independent variables, such as previous training, experience, exposure and work setting, on these three dependent variables.

In this study, it has been highlighted that the current courses do not meet the requirements within the different critical care settings. Further research is
recommended to highlight nurses’ perceived needs within each individual setting and recommendations made to develop courses more orientated towards nurses’ needs.

6.2.2 Recommendations for education

As highlighted through this research study, efforts need to be made to emphasise the importance of resuscitation training to enhance better performance during resuscitation situations and possibly produce a better outcome following resuscitation attempts. While initial resuscitation training for nurses completing their undergraduate qualification locally is compulsory as it forms part of the nursing curriculum, refresher / update training is not mandatory. Thus the importance of regular refresher training needs to be emphasised and enforced. Furthermore, findings show that critical care nurses are in favor of a compulsory in-service training programme in resuscitation consisting of both formal and informal session. Furthermore, it was highlighted that as initial resuscitation training, basic life support skills should be introduced into “speciality induction programmes”.

6.2.3 Recommendations for practice and management

Healthcare institutions have a legal and an ethical obligation to ensure effective resuscitation opportunities to their patients (Gabbott et al., 2004). In this regard,
authors (Gabbott et al., 2004) argue that failure to provide effective resuscitation opportunities may be considered as a clinical risk and thus a failure in the duty to care. As outcomes from resuscitation efforts remain poor, institutions should ensure that clinical staff receives regular training to maintain a level of competence appropriate to each practitioner's abilities and responsibilities (Gabbott et al., 2004). In this regard, audits should be encouraged and aimed at identifying deficiencies in practice and training, and consequently to be able to identify and implement appropriate actions to improve performance.
Critical care nurses’ perceptions and attitudes towards adult resuscitation training

REFERENCE LIST


Critical care nurses' perceptions and attitudes towards adult resuscitation training

BIBLIOGRAPHY


Critical care nurses' perceptions and attitudes towards adult resuscitation training

APPENDICES
Thank you for accepting to participate in the study. Please answer all questions in the order provided, according to your opinions without consulting any colleague or text.

Part 1: Awareness and Knowledge of Resuscitation Guidelines

1. Are you aware of the resuscitation guidelines issued by the European Resuscitation Council or the American Heart Association?  
   Yes ☐  No ☐

2. Are you aware of the latest changes in these resuscitation guidelines as issued in 2005?  
   Yes ☐  No ☐

3. What significance do these guidelines have to your daily nursing practice?  
   Very significant ☐  Significant ☐  Not Significant ☐

   Please explain your answers

4. Which of the following is not a sign of cardiac arrest?  
   Loss of consciousness ☐  Gasping ☐  Cyanosis ☐  Coughing ☐

5. Number the following according to what you think is the correct sequence of action when you find a patient in cardiac arrest?  
   Shout for assistance _______  
   Get trolley and connect monitor/defibrillator _______  
   Start CPR with bag-valve-mask device and oxygen _______  
   Call CPR team _______
6. What is considered as a gold standard for airway management during “in-hospital resuscitation”?
   - Head tilt – chin lift □
   - Oropharyngeal Airway □
   - Laryngeal Mask Airway □
   - Endotracheal Intubation □

7. What is the correct rate of chest compressions when performing resuscitation?
   - 100 compressions per minute □
   - 60 compressions per minute □
   - 30 compressions per minute □
   - 15 compressions per minute □

8. What is the correct ratio of chest compressions : ventilations when performing basic life support (BLS)?
   - 30 compressions : 2 ventilations □
   - 15 compressions : 2 ventilations □
   - 15 compressions : 1 ventilation □
   - 5 compressions : 1 ventilation □

9. Chance of survival decreases if basic life support is not started immediately. True □ False □

10. Chance of survival decreases rapidly every minute defibrillation is delayed. True □ False □

**Part 2: Confidence and Perceived Competence**

11. How do you rate your resuscitation skills?
    - Very good □
    - Good □
    - Poor □
    - Very Poor □

12. How confident do you feel when participating in resuscitation attempts?
    - Very confident □
    - Confident □
    - Not confident but cope □
    - Not Confident □
13. How competent do you feel when working as part of the resuscitation team?

- Very competent □
- Competent □
- Unsure □
- Not Competent □

14. Rate your **competence** in performing the following skills (4 = most competent):

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15. Rate your **confidence** in performing the following skills (4 = most confident):

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Part 3: Perspectives towards training

16. Have you ever attended to a basic life support course?  Yes ☐  No ☐
If no, why?
______________________________________________________________
______________________________________________________________
______________________________________________________________
(If NO, go to question 22)

17. Was this course…
   Compulsory  ☐
   Personal initiative  ☐
   Part of another course  ☐
   Part of the nursing course  ☐
   Other  __________________________

18. How long ago did you complete your first basic life support course?
   < 6 months ago  ☐
   6 months – 1 year ago  ☐
   1 – 2 years ago  ☐
   2 – 3 years ago  ☐
   > 3 years ago  ☐

19. What was the duration of the course?
   < 4 hours  ☐
   4 – 6 hours  ☐
   > 6 hours  ☐

20. Do you think that the duration of the course was enough to reach the specified objectives?  Yes ☐  No ☐
Please give reasons for your answer
______________________________________________________________
______________________________________________________________
______________________________________________________________
21. Was the time allowed for practice enough for you to acquire the skills practiced?  

Yes ☐  No ☐

22. Do you think that training in resuscitation affects performance during a cardiac arrest situation?  

True ☐  False ☐

Please give reasons for your answer

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________

23. Did you attend refresher courses after your first BLS course?  

Yes ☐  No ☐

If no, why?

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________

(If NO, go to question 25)

24. How often?

- Every 6 months  ☐
- Every year  ☐
- Every two years  ☐
- Every three years  ☐
- Other ______________________

25. Do you think refresher courses are useful for retention of the skills and knowledge learnt in the first course?  

Yes ☐  No ☐

Please give reasons for your answer

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
26. How do you rate the importance of keeping up to date with skills and the latest guidelines?

- Very important ☐
- Important ☐
- Not Important ☐

Please give reasons for your answer

_________________________________________________________________________

_________________________________________________________________________

_________________________________________________________________________

27. Do you think that resuscitation training should be compulsory for all nurses?  

- Yes ☐  
- No ☐

Please give reasons for your answer

_________________________________________________________________________

_________________________________________________________________________

_________________________________________________________________________

28. Do you think that resuscitation training should be delivered as:

- A formally structured course ☐
- Informal training on the ward ☐
- A combination of both ☐

Please give reasons for your answer

_________________________________________________________________________

_________________________________________________________________________

_________________________________________________________________________

29. Please give examples of factors which hinder nurses from participating to resuscitation courses?

_________________________________________________________________________

_________________________________________________________________________

_________________________________________________________________________
30. Please give examples of factors which promote participation to resuscitation courses?

_____________________________________________________________________

_____________________________________________________________________

31. Do you think that the current resuscitation courses offered meet the demands of the different settings?  
Yes ☐  No ☐ 
Please give reasons for your answer 

_____________________________________________________________________

_____________________________________________________________________

32. Do you think that training in skills supplemental to basic life support (e.g. defibrillation or drugs) would be beneficial?  
Yes ☐  No ☐ 
Please give reasons for your answer and examples 

_____________________________________________________________________

_____________________________________________________________________

33. Do you think that nurses need to be trained to a higher standard of life support than basic life support (e.g. intermediate life support)?  
Yes ☐  No ☐ 
Please give reasons for your answer 

_____________________________________________________________________

_____________________________________________________________________

165
Appendix 1: Original Questionnaire

Part 4: Demographic data

Nursing qualification

☐ Traditional EN Training
☐ Traditional SN Training
☐ EN to SN Conversion Course
☐ Certificate in Nursing Practice
☐ Diploma in Nursing Studies
☐ BSc (Nursing)
☐ Post Graduate Diploma
☐ Post Graduate Degree (MSc)

Professional status

☐ Enrolled nurse
☐ Staff nurse
☐ Deputy / Nursing Officer

Work experience

☐ < 1 year
☐ 1 – 3 years
☐ 3 – 6 years
☐ 6 – 9 years
☐ > 9 years

Work Setting

☐ Emergency Care
☐ Intensive Care
☐ Cardiac Care
☐ Anaesthesia

Further comments:

________________________________________________________________________
________________________________________________________________________
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THANK YOU FOR YOUR PARTICIPATION
Thank you for accepting to participate in the study. Please answer all questions in the order provided, according to your opinions without consulting any colleague or text.

Part 1: Awareness and Knowledge of Resuscitation Guidelines

1. Are you aware of the resuscitation guidelines issued by the European Resuscitation Council or the American Heart Association?  
   Yes ☐  No ☐

2. Are you aware of the latest changes in these resuscitation guidelines as issued in 2005?  
   Yes ☐  No ☐

3. What significance do these guidelines have to your daily nursing practice?  
   Very significant ☐  Significant ☐  Not Significant ☐

   Please explain your answers

4. Which of the following is not a sign of cardiac arrest?  
   Loss of consciousness ☐  Gasping ☐  Cyanosis ☐  Coughing ☑

5. Number the following according to what you think is the correct sequence of action when you find a patient in cardiac arrest?  
   Shout for assistance 1  
   Get trolley and connect monitor/defibrillator 3  
   Start CPR with AmbuBag® and Oxygen 2  
   Call CPR team 4
6. What is considered as a gold standard for airway management during “in-hospital resuscitation”?
   - Head tilt – chin lift ☐
   - Oropharyngeal (Guedel®) Airway ☐
   - Laryngeal Mask Airway ☐
   - Endotracheal Intubation ☒

7. What is the correct rate of chest compressions when performing resuscitation?
   - 100 compressions per minute ☒
   - 60 compressions per minute ☐
   - 30 compressions per minute ☐
   - 15 compressions per minute ☐

8. What is the correct ratio of chest compressions : ventilations when performing basic life support (BLS)?
   - 30 compressions : 2 ventilations ☒
   - 15 compressions : 2 ventilations ☐
   - 15 compressions : 1 ventilation ☐
   - 5 compressions : 1 ventilation ☐

9. Chance of survival decreases if basic life support is not started immediately. True ☒ False ☐

10. Chance of survival decreases rapidly every minute defibrillation is delayed. True ☒ False ☐

Part 2: Confidence and Perceived Competence

11. How do you rate your resuscitation skills?
    - Very good ☐
    - Good ☐
    - Poor ☐
    - Very Poor ☐

12. How confident do you feel when participating in resuscitation attempts?
    - Very confident ☐
    - Confident ☐
    - Not confident but cope ☐
    - Not Confident ☐
13. How competent do you feel when working as part of the resuscitation team?

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<td>Competent</td>
<td>☐</td>
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<tr>
<td>Unsure</td>
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<tr>
<td>Not Competent</td>
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14. Rate your **competence** in performing the following skills (4 = most competent, 1 = least competent):

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15. Rate your **confidence** in performing the following skills (4 = most confident, 1 = least confident):

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Part 3: Perspectives towards training

16. Do you think that training in resuscitation affects performance during a cardiac arrest situation?  
   True □    False □  
   Please give reasons for your answer  
   ________________________________________________________________  
   ________________________________________________________________  
   ________________________________________________________________  

17. How do you rate the importance of keeping up to date with skills and the latest guidelines?  
   Very important □  
   Important □  
   Not Important □  
   Please give reasons for your answer  
   ________________________________________________________________  
   ________________________________________________________________  
   ________________________________________________________________  

18. Do you think regular training is important for retention of skills and knowledge?  
   Yes □    No □  
   Please give reasons for your answer  
   ________________________________________________________________  
   ________________________________________________________________  
   ________________________________________________________________  

19. Have you ever attended a basic life support course?  
   Yes □    No □  
   If no, why?  
   ________________________________________________________________  
   ________________________________________________________________  
   ________________________________________________________________  

(If you answered “NO” to question 19, please go to question 28.)
20. How long ago did you complete your first basic life support course?
   < 6 months ago  ☐
   6 months – 1 year ago  ☐
   1 – 2 years ago  ☐
   2 – 3 years ago  ☐
   > 3 years ago  ☐

21. Was this course...
   Compulsory  ☐
   Personal initiative  ☐
   Part of another course  ☐
   Part of the nursing course  ☐
   Other _________________________

22. What was the duration of the course?
   < 4 hours  ☐
   4 – 6 hours  ☐
   > 6 hours  ☐

23. Do you think that the duration of the course was enough to reach the specified objectives
   Yes ☐  No ☐
   Please give reasons for your answer
   ___________________________________________
   ___________________________________________
   ___________________________________________

24. Was the time allowed for practice enough for you to acquire the skills practiced?
   Yes ☐  No ☐

25. Did you attend refresher courses after your first BLS course?
   Yes ☐  No ☐
   (If no to question 25, please go to question 27)

26. How often?
   Every 6 months  ☐
   Every year  ☐
   Every two years  ☐
   Every three years  ☐
   Other _________________________
27. If no, why?

____________________________________________________

____________________________________________________

____________________________________________________

28. Do you think that resuscitation training should be compulsory for all nurses?  
Yes ☐  No ☐

Please give reasons for your answer

____________________________________________________

____________________________________________________

____________________________________________________

29. Do you think that resuscitation training should be delivered as:
   A formally structured course ☐
   Informal training on the ward ☐
   A combination of both ☐

Please give reasons for your answer

____________________________________________________

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30. Please give examples of factors which hinder nurses from participating in resuscitation courses?

____________________________________________________

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31. Please give examples of factors which promote participation in resuscitation courses?

____________________________________________________

____________________________________________________

____________________________________________________
32. Do you think that the current resuscitation courses offered meet the demands of the different settings? Please give reasons for your answer

Yes ☐ No ☐

33. Do you think that training in skills supplemental to basic life support (e.g. defibrillation or drugs) would be beneficial? Please give reasons for your answer and examples

Yes ☐ No ☐

34. Do you think that nurses need to be trained to a higher standard of life support than basic life support (e.g. intermediate life support)? Please give reasons for your answer

Yes ☐ No ☐
Part 4: Demographic data

Nursing qualification
☐ Traditional EN Training
☐ Traditional SN Training
☐ EN to SN Conversion Course
☐ Certificate in Nursing Practice
☐ Diploma in Nursing Studies
☐ BSc (Nursing)
☐ Post Graduate Diploma
☐ Post Graduate Degree (MSc)

Professional status
☐ Enrolled nurse
☐ Staff nurse
☐ Deputy / Nursing Officer

Work experience
☐ < 1 year
☐ 1 – 3 years
☐ 3 – 6 years
☐ 6 – 9 years
☐ > 9 years

Work Setting
☐ Emergency Care
☐ Intensive Care
☐ Cardiac Care
☐ Anaesthesia

Further comments:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

THANK YOU FOR YOUR PARTICIPATION
10th January 2009

Dear Colleague,

I am a final year student at the Institute of Health Care, reading for a Master of Science Degree in Nursing. As partial fulfilment of my course, I am conducting a study on critical care nurses’ perceptions and attitudes towards training in adult resuscitation.

I would greatly appreciate if you could answer the attached questionnaire, which should not take more than 20 minutes to complete. While your participation is extremely valuable for the successful outcome of the study, you have the right to choose not to participate. If you choose to participate, may I remind you the importance of reading the questions carefully and answering them according to your opinions and views without consulting any colleague or text.

Please return the completed questionnaire and this letter separately, as soon as possible before the 30th of January 2009. Furthermore, it is important that you do not write your name or mark any part of this questionnaire. Your responses will not be divulged to anyone except my academic research supervisor since some of the responses might be quoted to add value to the presentation of results and discussion in the dissertation. However, all measures will be taken so that no individual respondent is identified. After completion of the study all questionnaires will be destroyed.

Following collection of data from the questionnaires a focus group interview will be held to discuss the results obtained and to obtain further data on your particular clinical setting. The focus group interview should not take longer than 75 to 90 minutes. If you would like to participate to the focus group interview, please fill in the form below as appropriate.

Thank you in advance for your participation.

Best Regards,

Trevor Abela Fiorentino
7933 4404, tabe0002@um.edu.mt

I would like to participate in the study by completing the questionnaire.
I would like / not like* to participate in the focus group interview.
I would like / not like* the focus group interview to be audio recorded.

Name & Surname ___________________________ Unit ___________________________

Contact No ___________ Email ___________ Signature ___________

* Delete as appropriate.
**Focus Group – Interview Schedule**

1. What are your views about resuscitation training with reference to your setting and how important is it as part of your practice?

2. How do you think that resuscitation training influences confidence, competence and performance in general?

3. Can you describe how real cardiac arrest situations influence your perceptions and attitudes towards resuscitation training?

4. In the questionnaires it was identified that while most nurses consider resuscitation guidelines as significant for their practice, some argued that within particular settings it is difficult to follow resuscitation guidelines due to three main reasons:
   - Different presentation of the patient
   - Different role of the nurse (also with regards to number of nurses)
   - Constant presence of doctors in some areas
   What are your views?

5. Do you think that the current resuscitation courses (mainly BLS) are effective in preparing you to fulfill the demands of your particular settings during a cardiac arrest situation?

6. Do you think that learning skills supplemental or more advanced than BLS will enhance your performance during a cardiac arrest situation? (e.g. defibrillation, drugs, advanced airway techniques, intermediate life support, advanced life support)

7. In the questionnaires, it was identified that most nurses value the importance of compulsory training in resuscitation. Do you agree and how do you think this would influence attendance and performance?
8. In the questionnaires it was identified that most nurses consider that a combination of formal and informal sessions would be more effective in teaching resuscitation skills. Do you agree? And how do you consider the relevance of both teaching methods to your situations?

9. What are the factors, which motivate your participation to BLS courses?

10. What are the factors, which hinder your participation to BLS courses?
Return the completed application to your faculty Research Ethics Committee.

To be completed by Faculty Research Ethics Committee
We have examined the above proposal and advise

Acceptance  Refusal  Conditional acceptance

For the following reason(s):

Signature: [Signature]
Date: 06/11/2007

To be completed by University Research Ethics Committee
We have examined the above proposal and grant

Acceptance  Refusal  Conditional acceptance

For the following reason(s):

Signature: [Signature]
Date: 7/12/04
20th October, 2007

Mr. Emmanuel Bezzina
Manager Nursing Services
St Luke’s Hospital/Mater Dei Hospital

Dear Mr. Bezzina,

I am a final year student at the Institute of Health Care, reading for a Master of Science Degree in Nursing. As partial fulfillment of my course, the Nursing Board of Studies approved my proposed title for a dissertation: “Maltese Nurses’ Perspectives of Training in Adult In-hospital Resuscitation”. The aim of the study is to explore nurses’ perspectives of training in adult in-hospital resuscitation and identify their perceived needs concerning such training programmes.

The population under study will be nurses working in all adult wards, units and departments at St Luke’s Hospital or Mater Dei Hospital. Data will be collected by means of a self-administered questionnaire, followed by two focus group meetings so that the different demands of each setting and the different needs of nurses within these settings can be highlighted. Each setting will be represented by one nurse chosen randomly from those who consent to be included in the focus group. This would not only identify issues specific to each setting but also add quality to the data obtained.

Throughout the research process measures will be taken to ensure that ethical issues will be adhered to at all times, especially issues related to anonymity, confidentiality and consent. Furthermore, during the whole research process I will be guided by my academic supervisor, Mrs. Rita Borg Xuereb. A complete proposal will also be forwarded to the University Research Ethics Committee for their approval.

With regards to the above study, I would like to ask your permission to conduct the study at St Luke’s Hospital or Mater Dei Hospital.

Thank you in advance,

Best Regards,

Trevor Abela Florentino
2760 0117/7933 4404
theo8902@um.edu.mt