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THE SCIENTIFIC JOURNAL OF THE HELLENIC REGULATORY BODY OF NURSES

The Hellenic Journal of Nursing Science is the official journal of the Hellenic Regulatory Body of Nurses. It is a peer-reviewed, multi-disciplinary journal that aims at promoting Nursing Science in Greece.

Through this specific scientific publication, the Hellenic Regulatory Body of Nurses both contributes to the promotion of the scientific nursing knowledge and signals a new era for the contemporary Greek Nursing history.

Under this framework, this scientific journal intends to:

- promote Nursing Science
- contribute effectively to the quality of concern for people as individuals, groups and the society as a whole in every healthy and sick condition
- scientifically highlight and broaden Scientific Nursing issues
- produce Nursing Policy and Policies and
- reinforce Nursing Research

The Hellenic Journal of Nursing Science (HJNS) constitutes a reliable, contemporary, quarterly-published scientific journal, available both in electronic and paper format

under a symbolic fee to every interested researcher; university professor or student, to the whole Nursing community as well as the Higher and Highest Academic Greek and Foreign Institutions .At the same time, it signifies an invaluable tool of scientific knowledge for the Greek nurse, those still studying Nursing, professionals from other Health and Behaviour Sciences as well as every reader that desires to be scientifically updated and educated.

Concurrently, it provides new scientists with the opportunity to access knowledge and Nursing progress easily while it comprises the scientific step for those nurses who work either in the field of Education or Clinical Nursing so as to publish their work and feel open to accept constructive reviews. At a second level, it sensitizes other scientists towards the cognitive domains of Nursing and generally promotes the coordination of health services.

The journal welcomes research studies, surveys, novel treatises as well as reviews of literature in the following areas:

- Nursing Research
- Health Management
- Nursing Education

- Clinical Nursing
- Community Nursing
- Ethics in Nursing
- Regulation and Legislation in Nursing

The Scientific Editorial Board of the Journal:

- 1.** claims that the open access to research, reviews and other articles widely contributes to the advancement and evolution of Nursing Science having as a final aim the quality of the provided nursing care.
- 2.** engages to maintain the quality of the journal at a high level and promote the scientific knowledge
- 3.** provides the necessary tools and knowledge for the sound organization and presentation of the publication
- 4.** promotes free and open access to the scientific knowledge for health workers
- 5.** acknowledges the scientific needs of the Nursing community and contributes to their satisfaction through the creation of the present journal.

■ editorial

Dr. Kyriakos Kouveliotis
Editor - in - Chief

The second issue of the Hellenic Journal of Nursing Science of the Hellenic Regulatory Body of Nurses has completed the first quarter of its operation and has remained loyal to its aims and objectives always under the principle to promote nursing science in Greece.

In this framework, the Editorial and Scientific Boards are working towards maintaining the quality of the Journal to the highest standards, promoting scientific knowledge, offering the necessary tools and the expertise for the proper organization and presentation of papers, promoting the free and open access to research for health professionals and highlighting the work of young scientists.

In the future goals of the Hellenic Journal of Nursing Science is included, among other things, the integration to material of special thematic domains such as the administration of services and health units, the nursing education and the application of international quality standards in the area of health.

Didactical Procedures and Experiential Learning Interventions in Bioethics for Nurse Students

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ABSTRACT

Background: This study focuses on the presentation of a didactical suggestion regarding nurse education. It presents an experiential learning intervention in 'Bioethics', with the participation of 41 undergraduate nurse students.

Objectives: The learning objectives were the students' development on personal, social abilities and skills, problem solving and decision making, and the development of their self-esteem.

Design: A multidimensional educational context that emphasized on (a) students' active participation, (b) lesson's flexibility to changes according to team's needs and (c) support of the team has been of major importance. The followed pedagogical methodology was based on the principles of interdisciplinarity, critical thinking and creating opportunities for the development of learning activities in the classroom for 'Bioethics', while the learning process was based on the principles of team work and team dynamics, active and experiential learning methods through the use of the students' personal experiences.

Methods: At the end of the semester 41 students were asked to fill a "text of free writing", where they wrote about their experience, their thoughts and their emotions during lessons. These texts were put in context analysis.

Results: After the texts' analysis, seven categories were developed and classified. Consequently, the six categories were represented with 51 analysis units for "Cognitive skills development", 51 for "Social skills development", 34 for "Emotions-experience", 10 for "Profession development", 39 for "Assessment on the teaching methodology" and 19 for "Holistic development" experienced during and through lessons.

Conclusion: Concisely, it was observed that motivation (emotional preparation, interest), argumentation, (when presenting and analyzing different issues), and speculation, (while strengthening different issues during lessons) were developed through this didactical - experiential approach.

Key words: Bioethics, Experiential learning, Didactical approach, Active learning, Team dynamics, Nurse students

Introduction

This study focuses on the presentation of a didactical suggestion regarding nurse education. More specifically, it presents an educational-experiential approach, regarding 'Bioethics' (Ioannidi, 2008), which is being taught to students of Nurse Department at the University of Peloponnese (during the A' semester of school year 2006-2007 41 undergraduate students attended the 2-hour weekly classes in Bioethics). Inspiration for this research study has been a similar research-experience in Environmental Education (Mpakirtzis, 2002).

In other words, this study concerns the attempt of the lesson's teacher to urge the students to participate in an experiential learning intervention, which aims at a deeper understanding of "bioethics" through motivation to express thoughts, emotions, questions, experiences, etc. That learning procedure motivates the senses, and those two modify behavior:

It is worth mentioning that Bioethics, as a new interdisciplinary approach of scientific, technological, social, political and ethical problems that occur due to the application of genetic and technological innovation and practice, provides an appropriate field for such a pedagogical

approach to the interscientific nature of this discipline, as education and culture are the most important issues at which every social matter is referred to (Alachiotis, 2004; Johnstone, 2005).

The goals of the lesson include: (a) Understanding basic bioethical issues and the concept of interdisciplinarity, as aspects of the holistic approach of health issues and their connection to the productive powers of society. (b) Acceptance, on behalf of health professionals and teachers, of the expansion of their discipline. (c) The development of the ability to communicate and cooperate between health professionals and teachers, in an interpersonal and scientific level. (d) The development of the ability to modify educational programs regarding health and health education, based on interdisciplinarity.

The learning objectives are: firstly, the development of abilities and skills such as composing, critical and creative thinking, communicating and participating in the classroom (short-term basis), and secondly, the development of self-esteem, problem solving and decision making (long-term basis).

Team dynamics and experiential learning

Modern literature underlines that despite the fact that learning and personal development appear to be a personal achievement, they are in fact built within the community (Matsaggouras, 2003). Therefore, in the field of experiential learning, team dynamics concern teachers and educators.

The term "team dynamics" reveals the fact that relationships and interactions between its members are not static, and moreover, affect and modify the effectiveness of teaching and learning (see Lavin, Ruebling, Banks, Block, Counte, Furman, Miller, Reese, Viehmann, Holt, 2001). Determinant factors that affect team dynamics are considered to be the team's size and making up, as well as inner- and inter-personal relationships. Research has shown that as a team size grows, procedures become time-consuming, communication becomes harder, attention is more easily distracted, active participation is less and, thus, teaching is obstructed. Nonetheless, for the team size assessment the educators should take under consideration the members' age and experience and the duration of the activities they are planning (Matsaggouras, 2003).

The theory of experiential learning emphasizes on the important role of "experience" (experiences and emotions, the way someone conceives life) in the learning process, as well as the bonds between the trainee, his everyday life and social environment (Dedouli, 2002; Kolb, Boyatzis, Mainemelis, 2001).

The definition of "experiential learning" includes several concepts. Initially, it relates to the knowledge, attitude and behavior that a person has already formatted through his experiences and cognitive mechanisms- that is the way of learning- that has developed. According to Cognitive

Psychology, inner cognitive structures have important role in learning. The inner cognitive structures occur through the person's interaction with the environment. In particular, according to Piaget, knowledge is constructed upon previous knowledge and experiences and learning is the reconstruction of previous experiences and is related to things already known (Kassotakis, Flouris 2005).

The formatted cognitive base and inner learning procedures - cognitive mechanisms, that are certainly different among people, reveal the value of the subjective personal experience in learning, as undoubtedly affect someone's ability to conquer new knowledge and change of his behavior; and for that reason, they should come into consideration in every educational procedure. Thus, a learning process is experiential when it gives the student the chance to relate his new experience to his previous knowledge (Matsaggouras, 2003).

In education, according to pedagogists such as Dewey, the term "experiential learning" refers to the way a learning process is organized: the term "learning by doing" reveals the connection which Dewey attributes between education and learning (Dedouli, 2002). This theory suggests that teachers should create for their students (and trainees in general) appropriate environments, in which they could create experiences through active participation in the learning process. Active learning means participating in activities where someone has the chance to explore, observe, examine, study, construct, argue about, create, etc. In this context, experiential learning means giving the students the opportunity to experience what they are taught (Kamarinou, 2000), a fact that will help them to appropriate knowledge through understanding and active interaction with the subject.

Another aspect of experiential learning refers to the need to develop the students' personality as a whole, and not to focus only on their mental development. "The educator's role in this process is to encourage the students, through the activities, to think over their emotions, ideas, values, behaviors in a context of respect and acceptance" (Kamarinou, 2000).

Consequently and according to Dedouli (2002) the basic principles of experiential education could be summarized as follows: (a) it uses students' experiences and produces new ones, (b) encourages the student to participate actively in the process, (c) urges him/her to

explore, discover; activate his/her imagination and creativity, (d) suggests the pursue and development of subjectively understanding meanings, instead of memorizing information, (e) aims at the deconstruction of the mental and emotional process motivating the student mentally and emotionally, since it is well known that learning is based upon the relationship and the interaction between knowledge and emotional procedures, (f) helps the student to conceive the role of social, economic, historical and cultural factors to the formation of the social status, and (g) promotes the student's self-knowledge.

Pedagogical Methodology

Based on the aforementioned statements, the relationship between the educator and the student is the most important condition for the educator's pedagogical influence and for the accomplishment of the pedagogical effect by the means of communication (Gotovos, 2002). In this context, it is considered of major importance the multidimensional educational approach for students, that emphasizes on (a) students' active participation, (b) lesson's flexibility to changes according to the team's needs, and (c) support of the team, so that it can work as a whole in an efficient way.

Therefore, believing in a constructive didactical approach we (a) set out specific objectives in connection to the basic concepts and dimensions of Bioethics, (b) used examples in the field of Nursing, (c) encouraged the analysis and strengthening of the given subjects through activities and formatted questions, (d) arrived to conclusions through information from different means, such as internet, media, discussion, etc and (e) explored the students' ability to construct alternative views and opinions and to modify those

already formatted through different interventions.

Consequently, the followed pedagogical methodology was based on similar experience- research and implementations. (see, Georgopoulos, Mpakirtzis, 1998; Mpakirtzis, 1998; Dedouli, Marmarinos, 1999; O'Shea, 2003). This was as follows: (a) The educative context of "Bioethics" was based on the principles of interdisciplinarity, critical thinking and creating opportunities for the development of learning activities in the classroom. (b) As a whole, the learning process was based on the principles of team work and team dynamics, emphasizing on active and experiential learning methods. (c) The academic way of transmitting knowledge was encircled by active learning and team work methods and through the use of the students' personal experiences. Moreover, the learning process was based on two levels. The academic, (information given related to the context and perspectives of the lesson, presentations, slides, questionnaires, tests) and the experiential (activities that encourage creativity, such as brainstorming, story telling, role playing, discussion, deliberate practice).

The study's objectives

Consequently, with reference to the development of knowledge and the promotion of values and skills for the future health professionals, we set as the primary objective of this study the creation of a pedagogical and educative environment, where academic knowledge is attended by emotional development and the formation of attitudes and values. The educational aim followed the connection: "classify, analyze, compose, and assess knowledge" through a procedure of communication and emotiveness. Our main concern was the formation of a wide scientific and

social way of thinking, which will allow decision making without providing sterile specific answers to ethical dilemmas, as they are so complex and hide contradictions (Kushner; Thomasma, 2001). It was expected that this way of thinking will allow responsible personal and professional choices that promote public health. The research hypothesis was as follows: "Students were mentally, socially and emotionally upgraded, through an holistic approach of knowledge in experiential and academic level".

Procedure

At the end of the semester the students were asked to fill a text of free writing, where they could write about their experience, their thoughts and their emotions during lessons. These texts were put in context analysis (Krippendorff, 2004). Context analysis is a research method

that is appropriate for short extend research and is held in order to analyze information given in written material (Graneheim, Lundman, 2004). Moreover, it can be attached and used in any kind of communication form, being this way a useful tool for education research (Verma, Mallick, 1999).

Processing the free - writing texts – Context analysis

Context analysis was used to analyze the free-writing texts, where students wrote down their thoughts, opinions and experiences about the lesson (Vamvoukas, 1988). This research method follows certain procedures and principles (Ryan, Bernard, 2004).

Definition and selection of the analysis unit: Following the thematic analysis (Vamvoukas, 1988) we selected as analysis unit the theme. In other words, the meaning included in a group of words given in the text.

Definition and selection of measurement unit: As Vamvoukas (1988) notes, context analysis' subject is to transform qualitative data to quantitative. This principle is ensured by precisely defining the measurement unit, which we chose to be the frequency at which the themes we study appear in the text. In other words, by transforming qualitative data to quantitative we are able to count a theme as many times as it appears within the students' answers. That given, some times we had to count one theme more than once, as many times as it appeared in the free writing text of a student.

Categorization: In order to transform qualitative data to quantitative, we created a number of categories by which all analysis units were classified according to their meaning (Vamvoukas, 1988). After the texts' analysis, seven categories were developed and all units were classified. These categories were (1) Cognitive skills development, (2) Social skills development, (3) Emotions-experience, (4) Profession development, (5) Assessment on teaching methodology, (6) Holistic development, and (7) Unspecified. (This category includes themes that appeared only once through the texts and could not come under any of the above categories (2 units were counted)).

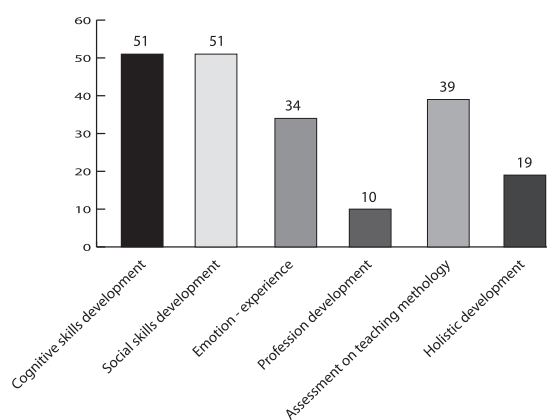


Figure 1. Frequencies of themes for each category.

1. Cognitive skills development

This category summarizes themes – (analysis units) related to the students' development on the cognitive scale, as it was experienced and expressed by them. In other words, this category refers to the impact that specific learn-

ing methodology and activities had on students' previous knowledge transformation and personal ideas' and attitudes' development. On the whole, 51 themes- units were counted under this category. It is worth mentioning that almost all texts included at least once a relevant theme and the majority of students commented that the activity helped them develop new ways of thinking on major issues regarding bioethics.

For example, themes classified under the "Cognitive skills development" category are:

"I learnt to think of every incident of my life under different perspectives"

"I realized some issues that had never occurred to me before"
"We had lots of information and shaped a view over concepts such as ethos, freedom, individuality"

"I discovered that my co-students and I were ignorant"

"We were taught to look through any issue that we hadn't even thought of in the past based on interacting factors"

Under this category were also classified three answers where students had the opinion that the lesson did not have any contribution on their cognitive development:

"I had already treated these issues, so there was nothing new to me"

"I had already known the information given in class"

"The lesson did not contribute on knowledge development"

2. Social skills development

Under this category we included all themes regarding social skills development through processes such as conversation, cooperation, expressing ideas, interaction between the group members, the decisions someone is making as a member of a society. Fifty-one (51) units came under this category. It is a very important category, as it is related not only to the objectives of the specific learning activity, but also to the goals of the learning process in general. We should, furthermore, mention the large number of the answers the students gave having to do with social skills development and specifically the chance the lesson had given to them to express their opinion and emotions freely and with no fear:

For example, themes classified under the "Social skills development" category are:

"Through this lesson I acquired skills that will affect my social life and the relationships I will develop with other people"

"(The lesson) has been the means to express everything I had thought about without fearing that my opinion would be infringed on"

"We developed discussion, democracy and team work"

3. Emotion- experience

This category includes analysis units regarding emotions students experienced and felt during the lessons. We counted 34 relevant themes. The frequency students express the idea that the lesson had motivated their interest is remark-

able, while some of them thank the teacher in the end of the text.

Some of the subject themes classified in this category are as follows:

"It was the best class I have attended"

"I was fascinated by the lesson and I think it is one of my favorite classes"

"I felt totally free during lessons"

"I was impressed by being taught such things"

4. Profession development

Under this category come answers in which students relate the learning activities to their profession identity and underline the benefits that had been gained through the lesson's activities regarding the change to their attitude and ideas as future health professionals.

Under this category 10 subject themes were counted, such as:

"The issues we focused on prepare us to cope with ethical dilemmas in the future as professionals"

"This lesson will be a precious tool to my career"

"I learned about my rights as a professional"

5. Assessment on teaching methodology

This category summarizes the answers in which students express their opinion about the teaching and learning methodology as a procedure. We consider it to be a very important category, as students themselves discover and appreciate the benefits of experiential learning and pinpoint the specific learning activities that were applied (such as team work, active training, research learning). In fact, the themes coming under this category were quite a lot and the answers were given lively and with enthusiasm.

Conclusions

In conclusion, the experiential learning intervention being presented in this study aimed at an holistic approach of the cognitive structures, emotional development and social skills, so that procedures regarding learning, cooperation and communication would be created.

Structural elements of such an educational approach were (a) the motivation of students' interests to adopt knowledge and (b) their will and active participation in the knowledge construction procedures. Furthermore, emphasis was put in developing motives and opportunities to be flexible, regarding issues that were discussed, according to the team's needs and given that members work as a team.

Concisely, through this didactical - experiential approach we observed: motivation (challenge, emotional preparation, interest), argumentation (when presenting and analysis different issues), and speculation, (while strengthening different issues during lessons).

This way, communication became more frequent, dis-

Moreover, students suggested the implementation of these methods by all lessons.

39 themes - units were classified and some of them were as follows:

"I wish all lessons were like this one and not strict to sterile lectures"

"Experiential learning should be implemented in every class"

"The presentations by my co-students were very important"

"I think we were given the chance to discover knowledge by ourselves and not just accept teacher's opinion"

Among 39 units one commented in a negative way the learning procedure:

"In my opinion, the way the issues were raised had no affect on me, (...), I would prefer to have been given a certain way of dealing with such matters so that I can face them as a health professional".

6. Holistic development

Under this category come themes that place the lesson and its context to a wider scale of students' life itself and appreciate the importance of the issues being discussed to social life.

19 subject themes were counted, such as:

"The issues we discussed play an important role in our lives and affect them"

"Bioethics will be a matter affecting all our lives"

"The lesson forced me to expand my horizons"

"Of course the dilemmas we are facing are quite a lot, but we were taught to go through a way that will guide us in any circumstances"

cussion was promoted, emotional involvement was encouraged and, at the same time, knowledge was adopted, common and opposite ideas were accepted and friendships were raised. It is worth mentioning, that communication through learning, the relationship between teacher and student, the teacher as the knowledge administrator and mediator between the young person and the society, are basic matters that occur through the pedagogical relationship, seen as experience that promotes discovery, conquering and developing knowledge. As Mpakirtzis (2002) mentioned, "learning and development through this synthesis of human processes it is affirmed that they are located and processed through the person's emotional nature and function". Conclusively, the pedagogical approach - experiential learning intervention, described in this study, is a continuous strengthening procedure to our educational horizons in an effort to educate future health professional and educators.

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Exercise Protocols in Patients with Chronic Kidney Disease (CKD) and on Renal Replacement Therapy: A Literature Review

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ABSTRACT

The aim of the present study is to look into the renal patients' ability to exercise. Three exercise protocols were found in the literature: at a rehabilitation centre, during haemodialysis session and at the patients' house. The aim of the exercise protocols is cardiorespiratory and muscular strengthening, as well as flexibility. The main principles of the exercise programmes are load, individualization and gradual implementation. In the article the changes in physical status, cardiovascular and muscular system and in endurance are presented. There is also a comparison of the advantages and disadvantages of all exercise protocols.

In conclusion, exercise in a rehabilitation centre has more advantages, as more and different exercises can be implemented. Even though, renal patients should be encouraged to participate in any exercise programme, as the positive outcomes can be seen in their quality of life.

Key words:

Chronic Kidney Disease, exercise protocols, endurance, strengthening, flexibility.

Introduction

Chronic Kidney Disease (CKD) is the progressive impairment of renal function and can be asymptomatic even when 70% of the nephrons are destroyed. The onset of End Stage Renal Disease (ESRD) varies and depends on primary disease and coexisting factors (hypertension, infections and heart failure).

Managing CKD can be conservative, where balancing the dietary intake with the output is required. Thus, sodium and water intake is limited, so as to achieve balance. At this stage, intense exercise or participation in organized programs is prohibited, as during exercise blood supply to the already problematic kidneys is reduced. A light exercise program with daily walking is proposed, for improving muscle strength, aerobic capacity and blood pressure. Nevertheless, exercise does not alter blood parameters

and heart function.

As CKD progresses, patients have to choose Renal Replacement Therapy (RRT). Haemodialysis (HD), a type of RRT, during which the patient's blood, with the help of the Dialysis Machine, passes through a filter, is diluted and returns to him/her «purified». Another method of RRT is Peritoneal Dialysis (PD), during which a solution, similar to extracellular fluid, is infused through a permanent peritoneal catheter in the patients' abdomen. The solution remains for few hours in the peritoneal cavity and toxic metabolites pass from the blood, through the peritoneum into the solution. Then the solution is drained in a special bag and the cycle is repeated, some hours later. Optimal treatment of CKD is Transplantation (Tx), during which a congenital or cadaveric kidney is transplanted to a patient in HD or PD

Exercise programmes

Patients with CKD have severe functional limitations (reduced cardio-respiratory capacity, fatigue, poor physical condition) and various psychosocial problems that increase the medical care cost and constitute risk factors and indicators of poor quality of life (Gutman et al., 1981, Moore et al., 1993a, Kouidi, 2001, Konstantinidou et al., 2002). One of their most important problems is reduced physical capacity, which restricts any physical activity and exercise (Kouidi, 2001).

Renal patients' aerobic capacity (VO_{2peak}) is 15.0 to 21.0 ml/ Kg/min, half of a healthy persons' (35.0-40.0 ml/Kg/min) (Konstantinidou et al., 2002). These values do not improve, even when patients undergo HD or PD (Banea et al., 1980, Painter et al., 1986a), or when erythropoietin agents (ESAs) are administered (for anaemia correction). It is shown, that oxygen is not the only factor affecting renal patients' aerobic capacity. There is problematic functional capacity of HD and PD patients with co-morbidities (diabetes mellitus, cardiovascular diseases) (Evans et al., 1985, Mayer et al., 1989, Painter, 1994).

Since the late '70s and early '80s researchers started to investigate renal patients' ability to exercise aiming at improving their quality of life (Fitts et al., 1999, Kouidi, 2002). The trends were two: exercise in the days between HD sessions (Goldberg, 1980, Hagberg, 1983) and exercise during HD (Painter, 1986b). The newest trend is exercise at home. The objective of the exercise programs is the cardiorespiratory and muscle strengthening and flexibility. The

principles that rule are load, individualization and gradual implementation.

Prior to starting an exercise program, renal patients undergo full physical examination and exercise test (stress test) with spirometry in order to spot possible myocardial ischaemia. The test is carried out with low intensity protocols, preferably Nephron. In this protocol the patient starts with 3' walking, speed 2.4Km/h and inclination 0%, continues with increasing inclination of 3.3% every 3' and a steady speed until the slope reaches 10%. At this point speed and inclination is increased gradually until the person is exhausted. The protocol aims in longer duration of exercise (Kouidi, 2002).

Simple tests can be performed in order to determine patients' functional capacity, group type, baseline values. The seat-stand test is performed to a patient sitting with straight back and hands folded on the chest. The patient sits down and stands up for 1' without using his/hers hands. The leg extent test is applied to sitting person, which is extending and bending each leg during 1'. The range of motion is measured in degrees for each leg using a special instrument. The hand muscular strength test is performed with a special instrument. The Kidney Disease Quality of Life (KDQOL) test is a modified form the SF-36 questionnaire that investigates risk and quality of life (Martin et al., 2003). Following the initial tests, an exercise program depending on individual clinical and functional capacity is implemented. Renal patients exercise programs are described below:

Exercise program in an organised rehabilitation centre

In a rehabilitation centre a team of experts (physical education trainers, physiotherapists, medical and nursing staff) supervise and exercise renal (HD, PD and Tx) patients. The exercise schedule consists of 3 times a week exercise, for 60-90' on the days between HD. The program consists of 10' warming up on a ramp or bicycle (low

cardiovascular load), 60' aerobic exercises, 10' muscle strains and 10' recovery (Kouidi et al., 1998). After the first trimester of aerobic capacity and muscle strength is improved, and muscle loss is minimised. Then some stretching with light resistance exercises (Kouidi et al., 2000, Castaneda et al., 2001, Copley, 2001), light weight lifting

and rhythmic strengthening exercises can be added. Muscular strength can be achieved with lighter weights and more repetitions, while muscular strengthening is improved with the use of heavier weights and fewer repetitions. In the second trimester sports (swimming, football, volleyball and basketball) can be added once a week. Attention should be paid to gradually increase of exercise intensity, which usually reaches 70-80% of the, achieved during the exercise test, heart rate (Kouidi et al., 1998).

Exercise during haemodialysis

This type of exercise was applied for the first time in 1982 in the Dialysis Unit of the Borgess Medical Center. Static bicycles were adjusted to patients' chairs or beds and patients exercised for 15-30' aiming at muscle and cardiovascular strengthening. During this programme the exercise coordinator is responsible for organising and cooperating with medical and nursing staff who will implement it. The coordinator is cooperating with the hospitals' physiotherapist for planning and purchasing of bicycles used. The selection of patients is either voluntarily or after referral by the doctors (Martin, 2003).

The programme begins with cycling (passive and later active), without resistance (gradually increased), takes place 3 times a week for 70', starting with 5' warming up. Then the main programme starts with bicycle and some exercises for muscle strengthening, flexibility, coordination and stretching and finishes with 5' recovery (Painter, 1986,

Participation in rehabilitation centre exercise programme is low because it is hard to convince the HD patients to participate on the non dialysis day (not interested, do not want to "close" other days of the week for exercise). Twenty percent of the participants stop for transportation problems, lack of time and changes in the health status (Shalom et al., 1984, Williams et al., 1991, Tawney, 2000, Konstantinidou et al., 2002).

Kutner et al, 2000). The intensity of the programme is 60-70%, achieved with the exercise test, heart rate. The exercise programme should be applied during the first 2 hours of the HD session, because it is common to have hypotension episodes at the 3rd and 4th hour of HD. Researchers emphasise that exercise in the first two hours increases the urea removal and offers better quality of life (Doutsiou et al., 2004).

Exercise during HD is effective and convenient for patients. No more days of exercise are needed and no additional transportations are required as the patients come to the HD unit three times a week, already (Kouidi, 2001, Konstantinidou et al., 2002, Kouidi, 2002). Painter et al (1986b) found that participation and retention in similar programmes reached 75% during the second trimester of exercise, while Konstantinidou et al (2002) indicate 16.7% rate of interruption.

Exercise at patients' home

Exercise programmes at the patients' home are performed without the supervision of qualified personnel. This form of exercise costs less in an organized rehabilitation centre, is more convenient and practical for the person (no more transportation) and promotes independence. After the person is subjected to the necessary tests a static bike is delivered and the exercise programme is taught by a member of the training team. The programme includes cycling for 15'-30', 5 times/week

and then exercises for flexibility and muscle stretches of the upper limb. The intensity of the programme is 60-70% of the actual heart rate.

Exercise at home is a good alternative for patients who live away from the dialysis unit and for those with transportation problems (Tawney, 2000, Konstantinidou et al., 2002, Kouidi, 2002). Compliance with the exercise programme and correct implementation depends on the individual and the family support.

Outcome of exercise programmes

There are no complications listed from musculoskeletal and cardiovascular system due to exercise (Konstantinidou et al., 2002). Instead there are reported improvements in fatigue, activities of daily life, symptoms of peripheral neuropathy and myopathy, depression and anxiety (Kouidi

et al., 1997, Kouidi et al., 1998, Painter et al., 2000). An important finding is a trend to improve blood sugar control (glucose and resistance to insulin sensitivity) in HD patients (Cappy et al., 1999, Goodman et al., 2004).

Aerobic capacity

All forms of exercise (centre, HD, home) have positive effects on renal patients' aerobic capacity (VO₂). A significant increase in VO₂max (20-40%) was found during exercise programmes lasting 3-12 months (Zabetakis et al., 1982, Goldberg et al., 1983, Shalom et al., 1984, Deligiannis et al., 1999), but is still lower than healthy individuals (20-

23ml/Kg/min). Maximum aerobic capacity (VO₂peak) after 6-12 months of exercise is improved in HD and PD patients (15-20% and 15-40%, respectively) (Hagberg et al., 1983, Kouidi, 2001, Konstantinidou et al., 2002) due to peripheral adjustments rather than central haemodynamic changes.

Cardiovascular System

Cardiovascular system benefits are greater in patients exercising in a rehabilitation centre, due to exercise variety and different load of each session. The programme includes a combination of aerobic and strengthening exercises and sports activities. Recent surveys indicate that long-term, moderate intensity exercise increases the heart rate variability (HRV) in HD patients and reduces heart arrhythmias (Coats et al., 1990, Goldsmith et al., 1992, Shi et al., 1995, Deligiannis et al., 1999, Kouidi, 2002, Goodman et al.,

2004). Exercise programmes are causing morphological and functional adjustments in left ventricle, fraction extrusion, pulse volume and heart output (in calm and in sub-maximal exercise). It is found that exercise reduces blood pressure, mainly due to reduction of peripheral vascular resistances (Kouidi, 2001, Konstantinidou et al., 2002, Goodman, 2004).

Muscular System

Muscle weakness, fatigue and cramps that renal patients face every day dramatically restrict the everyday life activities. The reasons for muscular atrophy are multifactorial: malnutrition, uraemic neuropathy and myopathy, neurohormonal disorders, uraemic toxins, and limited mobility (Brandley et al., 1990, Moore et al., 1993a, Kouidi et al., 1998, Kouidi, 2002).

Researchers have shown that exercise causes changes in skeletal muscles histology, metabolism, endurance (Brandley et al., 1990, Moore et al., 1993b, Kouidi, 2002) and bears optimal sport output (Kouidi et al., 1998, Cappy et al., 1999). Studies made by muscle biopsy in renal patients undergoing exercise programmes, have shown an increase

in type I and II muscle fibres after endurance and empowerment exercise (Castaneda et al., 2001, Kouidi, 2002). Moreover, fiber regeneration, increase in small vessels transparency and changes in mitochondria structure and number are described. Exercise improves maximum leg isometric strength, as well as conductivity of stimuli to the peripheral nerves (Kouidi et al., 1998, Cappy et al., 1999, Castaneda et al., 2001, Kouidi, 2002). These findings are in contrast to Moore et al (1993 a+b) which did not identify significant morphological changes in HD patients skeletal muscles probably due to the fact that the research lasted 12 weeks and involved only cycling.

Endurance

Konstantinidou et al (2002) in a study of patients that were exercising in a rehabilitation centre, HD unit and at home found increased endurance to running ramp (33%,

22% and 14% respectively) showing that systematic exercise improves renal patients' daily life and quality of life.

Epilogue

There are no evidence to clearly answer about the effects of exercise on the prognosis and development of kidney disease. The benefits are functional (in cardiovascular and autonomic nervous system) as well as practical (reduce of heart disease risk). In conclusion, exercise in a rehabilitation centre has better results than all other methods due to the fact that more and different exercises are implemented. Nevertheless, patients should be encouraged to participate in exercise programmes

according on their needs and daily schedule. The first positive changes in functional capacity appear after 4 weeks and maximum adjustments in 16-26 weeks. Central and peripheral adjustments in exercise cause an increase in functional capacity (easier and more pleasant everyday activities). Moreover, improvement of endocrine and metabolic disorders, anaemia, mood and social relationships are found, leading to a better quality of life. Patients should be encouraged to include physical activity in their daily lives.

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Perioperative Haemodynamic Monitoring In Cardiac Surgical Patients & Nurse Interventions: Policy Review

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ABSTRACT

This paper stresses the role of the anaesthesiology nurse in the monitoring of the patients' haemodynamic status. As a Policy review it focuses on nursing practice, in the cardioanaesthesiology department. Pubmed search keys were <Anaesthesia nursing care>, <Electrocardiogram >, <Haemodynamic monitoring >, <Invasive pressure, Non-invasive pressure>, <Pulse oxymetry>, <Pulmonary artery catheter>, <Transesophageal echocardiography>. Out of the one hundred twenty five papers were found, fifty were included in this review. Exclusion criteria were non-English papers and publication date later than 1993. Results: The preparation and the management of all the necessary equipment, which will be used during the operation and the procedures for the monitoring of the electrocardiogram (ECG), the pulse oxymetry (SpO₂), the arterial blood pressure (AP)-invasive and non invasive method- as well as the introduction of the pulmonary artery catheter (PAC) and the transesophageal echocardiogram (TEE) are aforementioned. The interpretation and dealing with the data and the detection and prevention of possible complications as part of the nurses' work are understressed. Conclusion: The anaesthesiology nurse works on models of expert nursing care by providing optimal quality services for the greater safety of the cardiac surgical patient.

Key words:

• Anaesthesia nursing care • Electrocardiogram • Haemodynamic monitoring • Invasive pressure , Non-invasive pressure • Pulse oxymetry • Pulmonary artery catheter • Transesophageal echocardiography

Statements of:

What is already known about the topics?

- The existence of an ill recognized anaesthesia nurse skill
- Existence of various monitoring methods

What does this paper add?

- Nursing role in the preparation of the operating theatre.
- Nursing role in the advanced monitoring of the anaesthetized patients.

Introduction

The anaesthesia specialty fills the gap of the need for continuous monitoring of the vital parameters and their minute-to-minute variations during the course of the operation.

Nowadays, the application of various monitoring techniques, in everyday practice has led to a more effective treatment of patients with many, until then, unpredictable fluctuations of their general condition. It has also allowed for a more comprehensive evaluation and prevention of the treatment side effects. (Boldt, 2002; Pinsky and Payen, 2005)

The 1970s' was declared as the decade of invasive monitoring. The need for continuous monitoring of the patient's haemodynamic parameters is determined by the clinical status and the severity of the surgical procedure. (Sandham, 2003)

During cardiac surgery, continuous recording and monitoring of the patients' cardiovascular parameters is done by the attending anaesthetist and the expert nurse. Cardiac surgery demands a more specialized haemodynamic monitoring, namely continuous electrocardiography, pulse oxymetry, invasive and non-invasive blood pressure monitoring, use of pulmonary artery catheter and transesophageal ultrasonography.

Therefore, the aim of this review is to understress the essential role of the anaesthesiology nurse in the cardioanesthesiology department in the monitoring of the patients' haemodynamic condition. This aims to improve the quality of the services provided for the patients' greater safety, and additionally the provision of specialized nursing care.

I. Electrocardiogram

The electrocardiogram (ECG) is a safe, non-invasive monitoring method of heart rate, and detection of arrhythmias, myocardial ischemia, conduction disorders and pacing disturbances perioperatively. (Meek, 2002)

The depolarisation and the repolarisation of myocardial cells produce electrical potentials which are recorded on the body surface. The body surface electrodes detect the depolarization of myocardial cells by measuring the potential difference between the electrodes.

I.1. Placing the electrodes

On arrival in the operating theatre, an O₂ mask is fitted and the patient is connected to an ECG monitor.

The electrodes are placed in specific positions on the surface of the body. The electrodes of the arm are placed on the shoulders as close as possible to the point where the arm and the trunk are connected, whereas the lower limb electrodes are placed in the midaxillary line or above the hips. (Jacobson, 2003)

The electrodes are coloured. For the right shoulder the electrode has red colour; for the left shoulder is yellow. The left leg is encoded with green colour; the right leg with black and for the precordial electrode, the white colour is used. Also, the electrodes are marked by the initials of the placement sites (RA, RL, LA, LL, V). The coding simplifies the nurse's work and avoids improper placement. A false cable connection will cause morphological changes in the electrocardiogram. (Velisvan, 2007; Rudiger, 2007; Conrath, 2007) The I2 lead ECG is the most important detector of acute myocardial ischemia. (Finlay, 2007; Jahrs, 2005) It is also important to connect the patient to a defibrillator via 3 limb leads, as cardiac surgery patients have a high incidence of fatal arrhythmias. (Wahr, 1999)

In reoperations and high risk patients, an intraaortic pump is also connected via 5 leads.

I.2. The selection of parameters

The choice and the number of the monitoring leads determine the diagnostic sensitivity. Ideally, leads II and V5 monitored. Lead II is used for rhythm recognition and detection of inferior wall ischemia. Lead V5 is invaluable for detecting anterior wall ischemia. (Klic, 2007) Continuous monitoring is necessary. Arrhythmogenic factors include endotracheal intubation, central venous catheter insertion and electrolyte disturbances. (Szahó, 2003)

The automated analysis of ST segment on the monitor is considered necessary in cardiac surgery patients, since disturbances are frequent. Changes of the ST segment and the T wave are an early sign of myocardial ischemia, such as ST elevation of more than 1mm or reversal of the T wave. (Hersi, 2003)

The I2 ECG lead monitoring and the analysis of the ST segment offer an overview of the heart function. (Enseleit, 2006; Adams-Hamoda, 2003) The automated analysis of the Q-T space is currently available in the latest generation of monitors, indicative of ventricular arrhythmias. (Drew, 2004)

I.2. Interference reduction

One of the possible causes of a pathological ECG is the artefacts, and it is essential to be removed in order for an accurate reproduction and a recording of ECG signal to be achieved. For this purpose, a good contact between the electrodes of the surface and the patient is to be assured, by cleaning and scrubbing the skin with alcohol, in order for the desquamated cells to be removed, by shaving if necessary, or by using an inductive cream. The electrodes are placed on a dry skin surface and not in a moist one, as the resistance increases. The correct position of the electrodes is selected, the one that allows them to get the maximum of the heart's electrical signal. It is selected in a bony surface and not in areas with loose skin. The protection of the electrodes with adhesive tape is required, if they are located near to the surgical field in order not to get wet. (Conrath, 2007; Duffy-Gross, 1997) (Table I)

2. Pulse oxymetry

The pulse oxymetry (SpO₂) is a simple, non-invasive monitoring method of the percentage saturation of haemoglobin with oxygen. Pulse oxymetry is considered to be an essential monitoring parameter in patients who are to be operated on. (Jubran, 1999)

Immediately following the ECG placement, the pulse oxymetry is applied as patients are often premedicated and thus sedated.

2.1. Contraindications and precautions

There is no absolute contraindication for the pulse oxymetry. There are some cases where the measurements can be interpreted incorrectly and the nurse must be able to act accordingly. (Havell, 2002) Diminished peripheral blood flow produced by peripheral vasoconstriction, hypovolemia, severe hypotension, hypothermia, heart failure, shock, cardiac arrest provide poor or no signal, as movement produces artefacts (Monnet, 2005) Increasing levels carbomonoxihaemoglobin and methaemoglobinaemia show falsely elevated levels of SpO₂. The use of methylene blue in surgical procedures, can lead to falsely low levels of SpO₂. (Respir, 1999) Having an arterial line inserted is wise as the presence of a blood pressure cuff for the direct measurement of arterial blood pressure in the same limb the sensor has been placed, results in intermittent cessation of blood flow. The exposure of the photo detector to strong ambient light should be avoided. (Fearnley, 1995) Blue, black or green nail polish hue all affects the pulse oxymetry. (Rodden, 2007) Very small

fingers or very large nails may cause difficulty in applying the probe. Skin pigmentation usually does not affect the accuracy of pulse oxymetry. However, the pulse oxymetry may be affected in patients with fairly dark skin. The pulse oxymetry is accurate in haemoglobin levels to 2-3g / dl. (A greater degree of anaemia affects reading by 0.5% only). (Attin, 2002)

2.2. Nurse interventions

Select the appropriate sensor in relation to the size of the patient. There are disposable sensors, for infants, children and adults depending on their size. The most common position for adults is the index finger. In patients with long nails the sensor is applied to the lateral surfaces of the finger.

The accuracy of the measurements depends on the proper placement of the sensor. The two light sources must be facing the photo detector. The sensor must be well secured as access to it during surgery is difficult. (Tschupp and Fanconi, 2003)

2.3. Instructions in case of problems

In case of measurement difficulties, care must be given to the circulation, capillary refill, colour and temperature of the measuring site. Re-examine the sensors' correct position. Reduce the light of the environment (e.g. Operating Lights) covering the probe square. If the problem continues, try changing the position, the type of sensor or test the cable connection to the monitor. (Hill, 2000) (Table 2)

3. Invasive and non-invasive measurement of the arterial pressure

The blood pressure is a general indicator of the function of the cardiovascular system. There are two methods for measuring the blood pressure (AP): a) the invasive and b) non-invasive.

3.1. Non-invasive measurement of blood pressure

In all patients, undergoing surgery, a non-invasive measurement of the arterial blood pressure is required. (Hoover, 2000)

3.1.1. Techniques of measurement

The indirect measurement of the blood pressure is done by using an inflatable cuff device. The pressure cuff is wrapped around the arm or the leg and the bladder inflates in order a pressure to be created, compressing the underlying artery. Then the cuff is being deflated slowly, allowing the circulation of the blood to the compressed artery. The blood pressure is defined either by detecting sounds, which are produced, (auscultatory method) or by recording the arterial pulse (oscillometry). (Pickering, 2002) (Table 3)

3.1.2. Dimensions of the pressure cuff

In order for the best pressure recording to be ensured, the cuff should be homogeneously inflated over the underlying artery. This depends on the size of the bladder in comparison to the size of the limb. Its' length should be at least 80% and its width should be at least 40% of the circumference of the upper limb. If the size of the cuff is very small in reference to the perimeter of the limb, the measurements of the pressure will be falsely high, while the opposite occurs with the larger cuff. (Bur, 2003)

3.1.3. Disadvantages-contraindications

Disadvantages of the technique include the delay and even the failure in measurement, caused by movement, arrhythmia, bradycardia, etc. Inaccurate readings are custom in overweight patients. Under ideal conditions, bloodless methods tend to underestimate the systolic pressure and to overestimate the diastolic. (Araghi, 2006) Particular attention is paid in applying the cuff, the tighter will record falsely high pressure, the looser one will record the AP lower. (Bur, 2000)

The cuff should not be placed at the same with the intravenous line limb, because the flow is interrupted during measurement, while blood reciprocates in the infusion line. Also, the pulse oxymeter is not placed at the same limb with the pressure cuff, because the tracing ceases during pressure measurement.

3.2. Invasive measurement of the blood pressure (AP)

The invasive measurement of AP requires the cannulation of a peripheral artery and provides a beat by beat reading of the blood pressure. Indications for the cannulation of the peripheral artery are the accurate and the continuous monitoring of blood pressure, the continuous monitoring of the response to vasoactive drugs and the frequent arterial blood sampling for the measurement of the arterial blood gases.

3.2.1. Puncture sites for the placement of the arterial catheter

The puncture sites for the placement of the arterial catheter depend on the surgical procedure and on the anaesthesiologists' preference. The right radial artery is the most commonly selected position for the cannulation because the vessel is superficial and easily accessible, it accepts retrograde blood flow from the ulna artery and the accuracy of the recordings is not affected by the manipulations done for the internal mammary grafting. Arterial access follows the venous one. (Mignin, 2006)

3.2.2. General precautions for vascular access

The following recommendations are applied during the placement of vascular catheters:

The hands must be washed before the placement of the vascular catheter. Protective gloves must be used in all cannulations. Surgical gown and protective glasses are not necessary, unless droplets of blood are expected to be spilled. These measures do not reduce the incidence of sepsis, associated with the catheters. The recapping and removal of the needle from a syringe by hand are avoided. The sharp objects are put immediately after their use in a special plastic container. (Rossoll, 1999)

4. Pulmonary artery catheter

In the late 70's HJG Swanz and W. Ganz developed a special catheter which carried at the end an air cuff, which enabled it to be driven by the blood flow to the pulmonary artery.

Despite the initial widespread use of the catheter, nowadays it is not generally recommended. The pulmonary catheter plays a central role in the management of high risk patients. (Kaluski, 2003)

The cannulation of the pulmonary artery is usually done after the induction of anaesthesia, or depending on

3.2.3. Measurement System

After the placement of the arterial catheter, the catheter is connected with the system, which includes heparin solution pressurized to 300 mmHg, a flush device, stop-cocks, tubing and a transducer:

To ensure accuracy of the hemodynamic values obtained from the transducer system, the nurse must level, zero and check the mechanics of the system.

Levelling is performed to eliminate the effects of hydrostatic pressure on the transducer. The transducer should be in level with the right atrium (at the point where the midaxillary line meets the 4th intercostal space). The levelling should be done prior to zeroing and calibration, before and after connecting the pressure system to the patient and after any significant changes in patient's haemodynamic variables. (Duffy-Gross, 1997)

Zeroing is performed to eliminate the effects of the atmospheric pressure on the transducer. Zeroing should be performed before and after connecting the pressure system to the patient, after any levelling, and whenever there is a significant change in the hemodynamic variables. (Ahrens, 1995)

Wave test (square wave), is a quick flush of the catheter-tube system, done to determine if the monitoring system can accurately reproduce patient's cardiovascular pressures. It identifies problems such as: air bubbles, kinking in the tubing, loose connections, catheter potency, length etc. (Ghee, 2001) (Table 4.5)

3.2.4. Complications of the arterial pressure measurement

Air embolism can occur when the tubes and the transducer are not thoroughly flushed before connected with the arterial catheter. If the connections are loose or the catheter is dislodged there may be severe loss of blood. Imprecise measurements of pressure occur from a wrong placement of the pressure's transducer; if the zeroing isn't accurate, if there are air bubbles in the system. Dumping of the waveform occurs when the tip of the probe touches the inner surface of an artery or when blood clot is formed, when the probe bends or if air is in the system. Infection can occur, unless an aseptic technique is followed or if there are. (Ahrens, 1995; Ghee, 2001; Beate, 2000)

the clinical status of the patient it is done so in advance.

4.1. Central venous access

The accessing sites for the insertion of the pulmonary artery of the catheter are multiple. The choice of the position depends on the type of the surgery and on individual preferences. The right internal jugular vein is the most commonly central access site in the cardiosurgical patients, because it is easily accessible and leads directly into the right atrium. The left internal jugular vein is the

most common alternative choice. (Hocking, 2002)

4.2. Basic characteristics of the catheter

The pulmonary artery catheter is a flexible catheter of multiple lumens, carried by the blood flow to the pulmonary artery. There are usually four ports:

The proximal port is approximately 25cm from the tip of the catheter. It lies in the right atrium when in place and measures the central venous pressure (if linked to the pressure's transducer). It can be used for the infusion of IV solutions or drugs, for blood sampling, for the injection of cold solution of known volume for the measurement of the cardiac output. It is coded with a blue colour:

The distal port is known as the lumen of the pulmonary artery. It measures the pulmonary artery and wedge pressure. It can be used for the sampling of the mixed venous blood but should never be used for injections. It is coded with yellow colour. (Pinsky, 2007)

The thermistor is a lumen at the end of the catheter. It connects the pulmonary catheter with the monitor for the measuring of the cardiac output. A special wire transmits the temperature of the blood. It is yellow coloured and carries a red adaptor:

The balloon port is located at about 1cm from the tip of the catheter. When the balloon is inflated with approximately 0,8 -1,5 cc air, it wedges in the pulmonary artery to give a wedge tracing. The balloon is always inflated with air and never with liquid. When deflated, turn the stop-cock to the off position and leave the syringe connected to the port. It is red coloured. (Rogers, 1999)

4.3. Introduction of pulmonary catheter

Before the introduction of the pulmonary catheter the surgical table is placed in a Trendelenburg position at an angle of 15o -20o in order for the pulmonary valve to be at a higher level. (Szahó, 2003) The pulmonary artery catheter is inserted through an introducer which has been placed in the right internal jugular vein. The proximal port is connected to the pressure measuring system. When the PA catheter enters by 20 cm, namely at the junction of the superior cava vena and the right atrium, the balloon is inflated to head in the direction of the right ventricle and the tricuspid valve. The balloon's inflation allows the catheter to flow from the right ventricle (30-35cm) to the pulmonary artery (40-45 mm).

During the introduction of the catheter the ECG must

5. Transesophageal echocardiography

The transesophageal echocardiography is a bloodless method of haemodynamic monitoring. It provides valuable information about cardiovascular anatomy, myocardial and valvular function and various haemodynamical abnormalities. (Click, 2000) It contributes increasingly more and more in the better assessment of the patients, affecting their treatment either from the anaesthesiology or from the surgical side.

be continuously monitored. The waveform of the arterial pressure and the pressure recording from the cavities, from which the tip of the pulmonary catheter passes, must be also continuously monitored. The constant monitoring of the waveform determines the terminal position of the catheter. (Mathews, 2007; Amin, 1993) (Table 4, 6)

4.4. Measurement of the parameters

Through the pulmonary catheter the following parameters will be measured: the cardiac output and the saturation of mixed venous blood.

4.4.1. Measurement of the cardiac output

For the measuring of the cardiac output with the thermodilution technique, a bolus of cold or room temperature injectate is given rapidly (2-4 sec) through the proximal port of the catheter. This bolus of cold injectate produces a variation in pulmonary artery blood temperature which can be sensed by the thermistor and is dependent on right ventricular output at the time of injection. For each assessment of the cardiac output three successive measurements are recorded. (Renner, 1993)

The cardiac output (CO) is more accurate when the solution's volume is 10ml and its temperature 0oC. (Boldt, 1994) (Table 6)

Monitors of new generation are capable of measuring the cardiac output from the invasive arterial pressure recording, analysing its waveform. The cardiac output appears by multiplying the pulse rate and the estimated stroke volume, as determined by the pressure waveform.

4.4.2. Measurement of the saturation of the mixed venous blood (SVO₂)

Another function of the pulmonary catheter is the calculation of the O₂ consumption by recording the O₂ saturation of the mixed venous blood. The determination of SVO₂ is done by taking a sample of blood from the pulmonary artery catheter when wedged or through a special catheter, which bears a special fiber channel for continuous determination of the saturation. (Surum, 2004)

The sampling of mixed venous blood is done after discarding the initial 5 ml of blood rich in heparin. Then, a 2,5 ml syringe is applied and 1 ml of blood is aspirated. The aspiration should be done slowly at all times. In this way, mixing of the mixed venous blood with oxygenated blood from the pulmonary circulation is avoided. (Rossoll, 1999) (Table 6)

(Couture, 2000)

5.1. Probe

A main care of the nurse is the maintenance and the storage the probe. The transducer is very sensitive and in order to avoid any damage special attention is required during its use. Great attention must also be paid during the introduction in the oesophagus, where it must be in a neutral

position; unlocked and any unnecessary manipulations must be avoided. The manufacturer's instructions, regarding the disinfection, must be also followed, in order to avoid contamination.

Before the introduction of the probe at the oesophagus, a careful check at the outer lining must be done for possible damage, deficits and cuts from bites so to avoid mechanical, thermal or electrical damage to the patient. Recognize any contraindications. At the same time, check whether the probe's handler operates and is in the unlocked position. Also, in accordance with the manufacturer's recommendations, a sterile transparent cover is placed over the probe (an additional precaution in order to avoid infection).

The introduction of the probe in a patient with anaesthesia is technically easier: The head of the patient must be placed in middle and slightly flexed position. The tracheal tube should be positioned in one of the angles of the mouth, so that there is enough space for the introduction of the

probe. The oral cavity and at the condition of the teeth are checked. The placement of endoscopic airways will prevent an abrasion at the probe from the teeth. The flexible edge of the probe is lubricated with lidocaine gel, it is introduced and then it is headed blindly in the middle line of the rear part of the pharynx. At the same time the lower jaw is lifted upwards. Often, the use of the laryngoscope is necessary for the introduction of the probe in the oesophagus. (Papadopoulos, 2005)

After each use, the probe is checked for damages, is then washed with water and enzymic detergent for the removal of secretions and is then put in a special disinfectant solution. Through this process viral and bacterial organisms are destroyed.

At the end of this process, the endoscope is washed with distilled water and it is dried well. At its edge a protective sponge cover is placed. It is hanged for storage. (Taillefer, 2002) (Table 7)

6. Conclusion

The advent of Anaesthesiology was inevitable and was done not only thanks to knowledge and the progression of modern technology, but also in a large part due to specialized nursing care.

The anaesthesia nurse is a valuable and skilful partner of the anaesthesiologist, works on models of expert nursing care by providing optimal quality services for the greater safety of the cardiac surgical patient.

Table 1. Electrocardiogram monitoring to the cardio surgical patient

OPERATIVE PREPARATION	
Equipment • ECG monitoring device (monitor) • Defibrillator • Intraaortic pump (if requested) • Single use adhesive electrodes (8 or 12)	
PROCEDURE	RATIONALE
Please check the monitor, connect to mains supply Check all ECG cables Monitor's calibration	Power failure May be damaged, kinked
Set the monitor in order to enable continuous recording of leads II and V5, possibility of I2 lead ECG monitoring and possibility of automated analysis of ST space in relation to time Set monitor device so that the sound of QRS can be heard	Leads II and V5 help for the diagnosis of complex arrhythmias, myocardial ischemia. ST space analysis for diagnosis of ischemia Change in rhythm to be detected
Connect the 5 lead cables	Electrodes coded with different colours Red for the right shoulder • Yellow for the left shoulder • Black on the right leg • Green on the left leg • White for the precordial electrode Application site initials shown on cable ECG (RA, RL, LA, LL, V)
Place 3 lead cables of a defibrillator	The cardiac surgical patients have a high possibility of dangerous to life arrhythmias
Place 5 lead cables ready to connect to intraaortic pump (if is requested by the anaesthesiologist)	Placed in reoperations and high risk patients, where there is a possibility of mechanical support after the cardiopulmonary bypass.

PREOPERATIVE PREPARATION

PROCEDURE	RATIONALE
Apply the electrodes pads to dry skin	Minimize the resistance
Do not use electrodes pads which the conduct gel is dried out	Creates strong resistance
Use induction cream - gel	The conductive gel lowers the skin's electrical and permits good electrical contact
Place the electrodes over bony rather than in areas with loose skin	Loose skin can create contraction artefacts
Seal the electrodes dry	Artefacts - detachment
Place 3 electrodes pads in the right shoulder or 5 if is requested intraaortic pump	The two electrode pads are connected with the monitor; one with the defibrillator and the other two will be connected to the intraaortic pump.
Place 2 electrodes in the left shoulder or 3 if requested intraaortic pump.	One electrode pad is connected to the monitor; the other with the defibrillator and the third will link to the intraaortic pump
Place 3 or 5 electrodes pads if is requested intraaortic pump	Two pads connected with the monitor; the other with the defibrillator and the other two will be connected with the intraaortic pump.

Table 2. Apply pulse oxymetry

PROCEDURE	RATIONALE
Connect the device to mains supply	
Open the device and wait for the automatic control	
Set audio alarms	The pitch of the tone lowers according to SpO ₂ level
Select the appropriate sensor in relation to the size of the patient and the site of application	Disposable sensors for neonates, children and adults, finger, nose and earlobes
Remove any nail polish or dry blood	Imprecise measurements
Apply the sensor to the position selected. To ensure the accuracy of the measurements the two light sources should be opposite to the photo detector	The most common position in the adult is the index finger
Fix the sensor safely around the finger	It reduces the degree of movement but also prevents the light source surroundings (Operating headlights) to affect the accuracy of the analyst
Wait a few seconds for the analyser to detect the pulse and to calculate the oxygen saturation	
Check the waveform	Any digital reading has no sense in the absence of a waveform
Check the emergence of digital reading of SpO ₂ and pulse frequency pulse	

Table 3. Non-invasive pressure monitoring

SELECTION OF BLOOD PRESSURE CUFF

The width of blood pressure cuff should be about 40% of the limb perimeter

The length of blood pressure cuff should be approximately 80% of the limb perimeter: It is about twice the width of the proposed

PROCEDURE

Turn the oscillometry device on.

Choose the appropriate size of the cuff depending on the size of the patient

Level the cuff so as for its' longitudinal axis to be parallel to the longitudinal axis of the arm

Apply the cuff around the arm, over the brachial artery

The cuff should be neither too tight nor too loose

Table 4. Preoperative preparation for arterial line and pulmonary catheter

The basic principles concerning the preparation of equipment and surgical room apply both for cannulation the arterial and the introduction of the pulmonary artery catheter and for they will be analysed together

PREPARATION OF NECESSARY EQUIPMENT Use aseptic technique for the all procedure

PROCEDURE

Pressure System

Heparin solution of 5000 units in 1000 ml of normal saline

A continuous flush device with double transducer and extension pressure tubes

Pressurize the solution at 300 mmHg

RATIONALE

Heparin solution composition follows the individual hospital regime

Need for double transducer if simultaneous measuring of AP and PAP

A continuous flush device is required to prevent clot formation in the catheter and remove air bubbles

Trolley for cannulation

On the top of the trolley

Artery catheters 18-20G

Antiseptic solution

Adhesive tape

Benzoate solution

Sutures

Surgical blades

Guide wire

Sterile adhesive dressing

Special container for sharp objects

Lidocaine 2% for local anaesthesia

Heparinized flush syringes

On the bottom of the trolley:

3 lumen, 4 lumen central venous catheters, introducer, Swan-Ganz catheter

Sterilised gloves

Sterilised dressings

Sterile jugular set (dressings, tools for the cannulation of internal jugular vein)

PREPARATION OF THE SURGICAL ROOM

PROCEDURE	RATIONALE
Check electrical equipment. Check the connections and the condition of the cables	For patient and personal safety
Connect the cables of the monitoring device to the transducers	For the transmission of the signal
Open the monitor's screen and calibrate the system	
Select the appropriate pressure scale	Required to display the waveform and accurate decision-pressure
Ensure that monitor alarms are on at all times	Better security
Level the transducer to the right atrium (at the point where the midaxillary line meets the 4th intercostals space)	Falsely low pressure readings if the transducer is higher than this axis. The opposite if the transducer is placed lower
Ensure secure connections	For any leakage of the system pressure
Continuously flush the system for air bubbles	All bubbles must be removed to ensure the accuracy of transducer
Correctly zero the transducer	Zeroing is performed to eliminate the effects of atmospheric pressure on the transducer

LEVELING - ZEROING

Leveling

PROCEDURE	RATIONALE
Ensure that the transducer is securely attached	To keep the transducer from falling on the floor
Locate correct level (the point where the midaxillary line meets the 4th intercostals space)	Accuracy of the measurements
Place the stopcock(air-fluid interface) of the transducer level with the phlebostatic axis	The pressures recorded using this as a zero reference level. If the transducer is lower there is added hydrostatic pressure on the air-fluid interface, which causing an error high pressure reading. Conversely, occurs when the transducer is higher than the hydrostatic pressure is lower in stopcock which causes error low pressure

LEVELING - ZEROING

Zeroing

PROCEDURE	RATIONALE
<p>Before zeroing, check that transducer is correctly leveled</p> <p>Remove vent cap from stopcock. Keep cap clean</p> <p>Open the stopcock to air</p> <p>Press the "zero" button on the monitor</p> <p>Once the monitor indicates that zeroing has been successful, close the vent port off the atmosphere and replace the cap</p>	<p>For precise measurements</p> <p>Subjects the system to the atmospheric pressure</p> <p>To eliminate the effects of atmospheric pressure in the transducer</p>

Table 5. Intraoperative preparation • potential arterial cannulation

PROCEDURE	RATIONALE
Fit an O ₂ mask to the patient	Necessary because of the effect of premedication to the respiration
Connect the patient with ECG monitor and pulse oxymetry	
Ensure good iv access in place and connect with iv solution	For medication if necessary
Review the point of catheterisation	Look for skin lesions, scars, wounds, swelling, in the presence of vascular disease
Check the efficiency of the collateral circulation of the hand with the Allen test	Reduces the risk ischemia
Place the limb in a supinated position	The artery moves at a more superficial position
Clean the area with antiseptic solution	Reduce risk of infection
Locally infiltrate the point of insertion with Local anaesthetic	Eliminate pain
Assist the anaesthesiologist for the cannulation of artery	Provide for the necessary equipment
Connect heparin syringe with extension	
Fix the catheter with sterile cover	Prevention of infection
Connect the catheter to the pressure transducer	The transducer converts mechanical energy of the wave pressure to electrical signal
Flush the catheter	Cleanse the arterial line from blood remnants
Rezeroe the transducer	
Observe the wave	It is the best way to ascertain the correct position of the catheter
Read digital display of pressure	
Apply wrist plaster cast	For better stabilization of the hand

OBTAIN ARTERY BLOOD SAMPLE

Equipment: 5ml syringe, heparinized syringe 2,5ml.

PROCEDURE	
Wash hands Wear gloves Remove the vent cap from stopcock Attach 5-ml syringe to stopcock Turn the stopcock open Discard the first 5ml of aspirate Close the stopcock Attach 2,5ml heparin syringe	Open the stopcock Aspirate 1ml blood Close the stopcock Remove the syringe Flush the system and the stopcock opening Replace the cap Remove air from the syringe 2,5 ml and send the blood sample for analysis machine gas

Table 6. Intraoperative preparation for pulmonary artery pressure monitoring

The first choice for central venous access is the right internal jugular vein. The cannulation of the pulmonary artery is usually done after the induction of anaesthesia, and depending on the clinical picture of the patient and the possibility or not to have peripheral intravenous line

PROCEDURE	RATIONALE
Apply ECG monitor, a non-invasive blood pressure cuff, pulse oximeter Insert peripheral intravenous line and arterial line Turn the head in the opposite of the cannulation side Place patient in a slight Trendelenburg position Assist the anaesthesiologist to wear sterile gloves and coat Open the jugular set, maintain aseptic technique Give to the anaesthesiologist the catheters Give 2,5ml syringe, surgical blade and suture * Clean the insertion point with antiseptic solution * Cover the head and the area around the point of cannulation with sterile dressings * Cannulate the vein with the technique selected and introduce the catheter (introducer) * Wear new sterile gloves, change the area dressings * Take the pulmonary artery catheter * Put the sheath over the pulmonary catheter Check balloon tip, inflate with approximately 0,8-1,5 cc of air Flush each port of the PA catheter separately * Promote the PA catheter into the introducer for about 20cm and secure it * Fix the introducer and the 3-lumen with a skin suture Maintain sterility of plastic sleeve over catheter Flush each port of the introducer and of the 3-lumen catheter	There is risk of arrhythmia during the introduction of the catheter Dispensing medicines if necessary The vein aligns with a straight line running from the earlobe to the sternokleidomastoid contribution For the vessels to be filled and the embolization risk The syringe will help locate the vein, the blade to open the insertion site and the suture to secure the catheter Break in aseptic technique is the greatest cause infection Balloon may be ruptured Ensure patency and integrity of the catheter

<p>The PA catheter is attached to the pressure line. Then it is inserted through the introducer onto the vena cava. When the PA catheter enters the right atrium, a waveform and pressure registers on the monitor. Inflate the balloon at this point</p> <p>Observe incoming waveforms</p> <p>Monitor for ventricular dysrhythmias</p> <p>*Insert the catheter in the pulmonary artery with balloon inflated</p> <p>Passively deflate balloon after measuring wedge pressure. Turn the stopcock off</p>	<p>Waveform site and appearance change as the catheter advances its way to the pulmonary artery</p> <p>Ventricular dysrhythmias may occur when the tip of the catheter enters the right ventricle</p> <p>Thus the balloon can not rise by mistake</p>
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MEASUREMENT OF CARDIAC OUTPUT

<p>Equipment: Filled syringe 10ml with sodium chloride solution or dextrose 5%</p>	
<p>PROCEDURE</p>	
<p>Remove the tap of the stopcock at the proximal port</p> <p>Attach 10ml syringe of cold injectate or room temperature</p> <p>Press the button <<CO>> on the monitor</p> <p>Administer the injectate rapidly through the proximal catheter port</p> <p>Close the stopcock</p> <p>Look at the digital recording to monitor</p>	

OBTAIN BLOOD SAMPLE OF MIXED VENOUS BLOOD

<p>Collection material: 5ml syringe, heparinized 2,5 ml syringe, sterilized cap</p>	
<p>PROCEDURE</p>	
<p>Wash hands</p> <p>Wear non sterile gloves</p> <p>Remove the cap of the distal PA catheter port</p> <p>Attach 5ml syringe</p> <p>Open the stopcock</p> <p>Discard the first 5ml of aspirate</p> <p>Close the stopcock</p>	<p>Attach the 2,5 ml heparin syringe</p> <p>Open the stopcock again</p> <p>Gently aspirate 1ml blood sample over one minute</p> <p>Close the stopcock and remove syringe</p> <p>Ενεργο Flush stopcock port</p> <p>Καλύψ Replace the cap</p> <p>Remove any air from the 2,5 ml syringe and send the mixed venous blood sample for blood gas analysis</p>

Table 7. Transesophageal Echocardiography

PROCEDURE	RATIONALE
<p>Check the external surface of the probe for damage, deficits and abrasions from bites</p>	<p>To avoid mechanical, thermal and electrical damage to the patient</p>
<p>Check the handler of the probe</p>	
<p>Position the head of the patient in the midline and slight flexed position</p>	<p>For the safe passage of the probe</p>
<p>Fix the TEE on the one side of the mouth</p>	
<p>Check the oral cavity and the condition of teeth</p>	
<p>Put the probe in the special protective cover</p>	<p>Not sterilized merely disinfected, additional precautions to avoid contamination</p>
<p>Lubricate with lidocaine gel</p>	<p>For an easier passage through the mouth and the oesophagus</p>
<p>Apply the endoscopic airways in the mouth of the patient</p>	<p>To avoid probe damage</p>
<p>Unlock the probe, put it into neutral position and avoid unnecessary manipulations</p>	
<p>Enter the probe inside the mouth cavity and then direct it blindly in the midline of the pharynx while lifting the chin upwards</p>	
<p>Use of the laryngoscope if there is difficulty in the introduction will help in removal of the language and to allow the passage of the oesophagus probe</p>	<p>Will may help the introduction by sliding the tongue sideways to allow for the passage of the probe</p>

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Quality Nursing Care: a Selective Review of the Literature of Patients' and Nurses' Interpretations

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SUMMARY

What is already known about the topic?

- Quality nursing care is a concept that attracted the interest of nurse professionals around the world.
- Quality of nursing care is a multidimensional concept which is difficult to define or measure.
- Patients and nurses hold different meanings in relation to quality nursing care.

What this paper adds?

- Despite the different understandings between nurses and patients two aspects of the care were found common, that is being cared for by competent nurses and addressing the patient's needs.
- Contributes to the debate surrounding quality nursing care and fuels the concern for clarity, and accuracy in relation to the conceptualisation of the term.
- Quality nursing care is a context specific term, meaning that many variables deriving from contextual factors influence the way that patients and nurses view quality.

Introduction

Quality nursing care is desired by patients and promised by nurses. However, the complexity and ambiguity of the term which has been highlighted in the literature obstructs nurses moving beyond asserting to assuring that the care they provide is excellent. A main reason for this complexity derives from the many conceptualisation attempts and the lack of a consensus term. The literature review showed that many alternative concepts are used interchangeably with 'quality nursing care'. Another reason for the difficulty of defining quality nursing care is the differences between

patients' and nurses' perceptions of what is important for interpreting and providing of quality nursing care. Researchers have explored the issue of quality mainly from the nurses' perspectives whilst after the 80s there was an emerging body of literature that explored the issue from the patient's perspective. The clinical question which this review attempted to address was whether a consensus understanding in relation to quality nursing care exists between patients and nurses.

Method for reviewing the studies

The method used to review the nursing literature was based on two electronic computer databases (PubMed and Cinahl). The database was searched for articles published from 1993 to 2007 that used the terms quality of nursing care, quality care, quality health care or quality in the title or abstract. Other terms used in the search strategies were "quality definition", "quality indicators", and "perceptions of quality". The electronic search yielded a total of 3417 citations. Coming from a Greek background and considering the reforms that are taking place at the health care systems in Greece and Cyprus I wanted to include any research or literature review articles from Greece and Cyprus. Therefore, the review strategy included 4 additional citations from two nursing journals, *Nosileftiki* and the *Cyprus Nursing Chronicles*, increasing therefore the number of citations to 3421. This set of citations was then limited to articles appearing in nursing journals published in the U.S, U.K, and the Scandinavian countries. The search was limited to studies coming from these countries in order to maintain a specific regional (Europe – USA) focus of the review instead of using data coming from various regions. The resulting set of 97 citations and their abstracts was then reviewed manually to exclude any articles without a clear nursing focus. Furthermore, articles were included in the review based on certain inclusion criteria which included (a) a clear focus on nursing, (b) a description of the concept of quality (c) a clarification of the elements used by nurses and patients to interpret quality and finally (d) inpatient nursing care for adults (19-65+). Furthermore, the methodological quality of the studies was assessed on the basis that the researchers attained validity and reliability with Oxman & Guyatt's index, a validated tool that scores reviews on a seven point scale

(Oxman & Guyatt 1991). Reports were regarded as having serious or extensive flaws if they received a score of 1 to 3, and as having minimal or minor flaws if they received scores from 4 to 7. In terms of the qualitative studies that were included in the review their truth and accuracy were taken into consideration, that is if they established the truth of accounts (in that they represent some reality outside the research itself) and adding to theory (in that the findings are applicable to a population or setting wider than that of the study). Based on these exclusion and inclusion criteria a total of 80 articles were manually eliminated, leaving 17 articles identified from the electronic search.

A noticeable heterogeneity was observed between the studies. Although differences between studies in terms of setting, country, level of nurse training, and the period of time studied were anticipated, much heterogeneity remained after allowing for these factors. This heterogeneity is probably reflected on the diverse ways in which nurses and patients understand the concept of 'quality'. Therefore, comparisons, safe conclusions and generalisations should be made having in mind this limitation.

The abstracts were carefully reviewed and categorised according to major focus, and research or theoretical focus using an inductive qualitative method for categorisation. Articles were separated into 2 categories, with each category including articles with a theoretical focus and a research focus respectively. The research-based articles were sub-divided into 3 categories according to their major focus. The 3 sub-categories consisted of articles exploring the issue of quality from a nursing perspective, from a patient perspective and finally from a combined perspective (nurse-patient).

Articles with a theoretical focus

According to Raya (1994) quality nursing care should be based on the views of the patients, who are the immediate evaluator of the provided care. Patients are those who define and assess quality (p.1). Here lays perhaps the reason why their opinions on what constitutes high quality care or what makes their care inadequate should be taken into

consideration (Leino-Kilpi & Vuorenheimo 1993). However, this according to Gunther & Alligood (2002) impeded the nursing profession to articulate clearly what comprises high quality nursing care because we have been defining it as a product viewed from the patient's perspective rather than a service offered by the profession. Raya (1994) asserts that

quality "is the relative effectiveness of the nursing care, which is considered an aggregation of values and indicators of the health status, within the bounds of preserving or improving the health of the patients" (p. 2). Defining and assessing the quality nursing care appears to be a complex and difficult process, due to the difficulty of defining and measuring nursing itself. It takes knowledge on the nursing process, designation of the nurses' professional competency as well as the nursing adroitness: interpersonal, mental, technical, social, managerial, leadership, collaboration, research, teaching, organisational and self-evaluation. Raya (1994) asserts that the outcomes of the nursing care reflect a key view of the quality of nursing care. Finally, she comments that defining quality nursing care is only the beginning of our efforts to achieve quality.

Raftopoulos & Theodosopoulou (2001) performed a historic review on quality in the health sector. They assert that even if quality has different meanings to different people, there are some common elements in the various definitions which allow its evaluation and assessment. They emphasise that quality is the result of two depended variables: the relationship between patient and nurse. Hence, the patient and the nurse view quality from different perspectives. Quality of care is "the degree to which the health care services provided to the people and populations increase the likelihood of achieving the desired outcomes, based on the current knowledge" (Raftopoulos & Theodosopoulou 2001, p. 21). They assert that the dimensions of quality include: the safety of the environment, accessibility to services, appropriate care, and continuation of care, efficiency, effectiveness and on time care.

Gunther & Allgood (2002) established a framework for defining quality of care based in nursing's unique body of knowledge through identification of nursing actions associated with high quality care. The authors assert that the meaning of quality as it pertains to nursing remains elusive because the frameworks used to define the concept and develop theories emerge from the perspective of people other than those in the nursing profession. The provision of high quality nursing care requires mastering the knowledge of basic life sciences (Gunther & Allgood 2002). Building on this foundation, the nurse adds specialised knowledge from other health care disciplines pertinent to the patient population. In addition, 'high quality nursing care' involves an understanding and utilisation of principles from the social sciences. However, the simple possession of knowledge is not enough to provide quality care. The nurse needs to apply that knowledge in relation to the patient's life (Astedt-Kurki & Haggman-Laitila 1992, Allan 2001). Being provided for by nurses who are up-to-date, well informed and willing to communicate information about both the health problem and the necessary care forms the core of patients' definition (Fitzpatrick et al. 1992, Meister & Boyle, 1996, Ming Ho Lau & Mackenzie 1996). Patients require from nurses to hold certain dispositions in order to provide quality care such as empathy, reliability, responsiveness and caring. Moreover, nurses need to be friendly, kind, objective and possessing a

sense of humour. Reflecting their patients' values, nurses cite the ability to act in the best interest of the patient as the prime indicator of quality. Nurses acknowledge as necessary attributes for the provision of quality nursing care: empathy, dedication, cheerfulness, tact, commitment, confidence, sincerity, humility, subtlety and compassion (Gunther & Allgood 2002).

Contrary to the researchers' opinions expressed above that quality is dependent on the patient and the nurse Normand et al. (2000) concluded that the current debate around the definitions of quality in nursing care is rooted in a wider debate about how health services ought to be organised, in arguments about efficiency and professional skill-mix, and the reorientation of health and social care boundaries. Therefore, the process of defining and measuring the quality of the nursing care is not only about individual practitioners but also about how nursing is organised within health care institutions. Adding to this is the fact that nurses are 'lacking of a well-accepted body of research evidence on which to base their standards of best practice, and it is not clear that approaches to quality prevailing in medical practice are suitable for nursing' (p. 407). The concept of quality has different meanings in the private and the public sector. They considered that the concept of quality in the private sector could be restated as 'customer satisfaction', which is 'the valuation of the extent to which a product or a service conforms to an agreed set of standards and characteristics that should be incorporated into a product or service'. Quality becomes then associated with the success a service has in adjusting to the dynamic needs of customers, who play an important role in helping the service set certain service specifications. Therefore, quality is the result of both conforming to a common standard that can be objectively measure, and it can be defined as the extent to which an organisation can adapt to individual customer preferences. This view expressed conforms to the view expressed earlier by Donabedian (1980) who gave the definition of quality a wider perspective through his classic formulation of system quality around the structure, process and outcome of a service. The conceptualisation of quality in the public sector is focussed on six fundamental elements according to Maxwell's (1984) definition: equity, effectiveness, acceptability, efficiency, access and relevance. This definition of quality incorporates notions of societal benefit and fairness rather than simply 'customer satisfaction', by focusing on access and equity. It was made explicit that a public service has to contribute to social as well as individual goals. Finally, health services should be based on good evidence of clinical effectiveness rather than simply be a desired service.

Currie et al. (2005) performed a literature review exploring the relationship between quality of care and selected organisational variables through a consideration of what is meant by perceptions of quality, whose perceptions are accorded dominance and whether changes in staffing, skill mix and autonomy affect perceptions of quality. In terms of perceptions of quality, researchers have endeavoured to elicit both patient and staff perception of quality through the

use of qualitative approaches (Fosbinder 1994). According to their literature review there appear to be contradicting views on the perceptions of quality expressed by nurses and patients. Some studies (Al-Kantari & Ogundeyin 1998, Clemes et al. 2001) appear to support the estimation that nurses and patients express similar perceptions in relation to quality of care while other studies seem to support otherwise (Ervin et al. 1992, Bassett 2002). Research exploring nurses' perceptions of quality care suggest that there are differences between what patients and nurses perceive to be good care. Nurses appeared to value the interpersonal elements, while patients seemed to value competence, knowledge and technical skills Currie et al. (2005). Research by Ervin et al. (1992) found that patients and staff commonly disagreed on the nature of the health problems, treatments and outcomes. Other studies (Irurita 1999; Attree 2001) reported that patients identified different

levels of quality depended on contextual and intervening conditions linked to the environment, organisation, and the personal characteristics of both staff and patients.

Redfern & Norman (1990) in their review of the methods used to measure the quality of the nursing care they also explored the way nurses view quality. Based on their findings Redfern & Norman (1990) provided a terminology in relation to the concept of quality in health care. They assert that the quality in the context of health care is more than patient satisfaction since the expectations of patients may be low and their knowledge limited. Social and cultural values influence the concept of quality of nursing care and these aspects should be incorporated in any definition. Therefore, quality of nursing care must also incorporate considerations of equity, accessibility, acceptability, efficiency, effectiveness and, perhaps most important, appropriateness.

Research articles

• Nurses' Perspectives

Williams (1998) carried out a grounded theory study of the nurses' perceptions in relation to the delivery of quality nursing care. Ten registered nurses purposively selected from four surgical speciality wards of an acute-care public hospital located in Perth, West Australia were interviewed. Additionally, transcripts of 12 additional interviews were made available for comparison and clarification of categories towards the end of the analysis. Data were analysed with the use of constant comparative method of analysis, whereby collection, coding and analysis occurred simultaneously (Glaser & Strauss 1967). The presence or absence of needs holds a central role in determining the quality of nursing care. Nurses described and assessed the concept in terms of the degree to which the patients' needs were met. Quality nursing care was described as 'meeting all the needs of the patients or clients you are looking after' whilst low quality nursing care was related to the omission of nursing care required to meet patients' needs' (Williams 1998, p. 811). According to the nurses, patients' needs were identified as physical or psychosocial. The physical needs were related to a lack of personal independence in the physical daily functional activities of the person. Psychosocial needs required the nurses to assume a supportive role for the patient. This care involved specific ways of communicating, providing information, caring and advocating for the patient whilst the patient's family and aspects of their social life were also included in this care. The nurses placed great emphasis on meeting patients' psychosocial needs and described the care of these needs in greater detail than care for physical needs (Williams 1998). However, the excessive workload limited the nurses available time for patient care, forcing them to prioritise care providing more emphasis on the physical needs rather than on psychosocial or extra care needs of the patients.

Hogston (1995) explored practicing nurses' perceptions

of quality nursing care and from these to establish a definition. The opportunistically selected sample was consisted of eighteen nurses from a large hospital in the south of England. Data were collected with unstructured interviews and analysed with a modified grounded theory method. Even though the nature of quality in nursing is intricate, nurses have readily identified the infrastructure. The data analysis revealed three categories described as 'structure', 'process' and 'outcome'. This supports previous work on evaluating quality care but postulates that structure, process and outcome could also be used as a framework for defining quality. The category of 'structure' emerged from substantive codes such as skill mix, time, workload (human resources). For nurses the human resources and quality seem to be complimentary. 'Quality of care is depended on having enough staff of the right skill mix, which in turn allows time to be spent with patients' (Hogston 1995, p. 119). The category of 'process' revealed the complexity of nurses' perceptions of quality. Nurses cited teamwork, multi-disciplinary process, and 'being competent' as the most important elements of this category. These findings demonstrate a conviction towards patient-centre, holistic care which is provided by competent nurses. The third category to describe nurses' perceptions of quality is 'outcome'. Here nurses defined quality in terms of patient satisfaction, meeting patient needs and giving information.

McKenna et al. (2006) performed a study which aimed at developing a tool to measure the perceptions of professional hospital staff in the UK regarding the quality of care provided to patients. Cronenwett & Slattery (1999) already developed an instrument in the US and this study aimed at exploring whether the validity of the tool could be transferred to the UK. Five hospitals were randomly selected in Northern Ireland and 4 hospitals in Oxford, England. The participants were consisted of nurses, medical consultant, speech therapist, physiotherapists and social workers. The

results indicate that for professionals in clinical areas both in the UK and in the US, issues related to competency, communication, confidentiality and dignity of patients, cleanliness, and hygiene, expertise and judgement, safety, discharge procedures, information and education, staff morale and continuity of care are important when it comes to determine their perceptions of the quality of care. In the UK, issues such as waiting lists, resources, leadership, and infections rates were also important for the staff whilst for the staff in the US, general attitude and accessibility of staff and collaboration appeared to be important.

• Patients Perspectives

Oermann (1999) asserts that despite the extensive research on defining and measuring health care quality, less attention has been given to consumers' perspectives. Furthermore, she asserts that consumers and providers often hold different perspectives when it comes to define "quality nursing care" (Larrabee 1995, Lynn & Moore 1997, Lynn & McMillen 1999). A convenience sample of 239 consumers was interviewed on their perspectives of quality health care and quality nursing care and data analysed through content analysis. Consumers were recruited from the waiting rooms of clinics and in neighbourhoods of a large metropolitan area in the Midwest. Consumers defined quality nursing care as having nurses who were concerned about them and demonstrated caring behaviours, were competent and skilled, communicated effectively with them and taught them about their care. Consumers defined the quality of health care in terms of access to care, having competent and skilled providers, receiving proper treatment, having freedom to choose their physicians and hospitals, having providers who communicate effectively with them, who teach them about their conditions and treatments and who demonstrate caring behaviours and concern for them as individuals (Oermann 1999).

Oermann et al. (2000) acknowledged the fact that the perceptions of quality nursing care also differ among patients. In-patients have different views of quality care than do consumers in ambulatory facilities. Whilst hospitalised patients describe quality care as hospital staff respecting patients' values and needs, coordination of care, communication and education, physical comfort, emotional support, family involvement and continuity in the transition to home (Edgman-Levitan & Cleary 1996, Ketefian et al., 1997), ambulatory patients are also concerned with issues such as access to care, waiting times, assistance from office staff, and follow-up care and information (Chung et al., 1999, Healy et al., 1995).

Thorsteinsson (2002) performed a phenomenological study in order to investigate how individuals with chronic illnesses perceive the quality of nursing care. Eleven Icelandic participants aged 38-80 years with various chronic illnesses were interviewed and data analysed through the coding and categorisation method. The analysis revealed that there is not a simple definition of the phenomenon "quality of nursing care". The findings emphasise that the quality of nursing care

can not be separated from the nurses who provide the care. When asked to describe their experiences, participants mostly described nurses who had given that care, indicating that participants did not separate the two components. The character of the nurses seemed to play a major role in providing high quality nursing care, as attitude and manner infiltrated all discussion of quality³⁴. This is consistent with findings from various studies (Williams, 1998; O'Connell et al., 1999; Redfern and Norman, 1999) along with clinical competence (Irurita, 1999; Radwin, 2000). The findings also indicate connections between quality and caring. The importance of caring has been highlighted in the nursing literature (Watson, 1988; Benner and Wrubel, 1989). Ludwig-Beymer et al. (1993) state that professional caring in nursing and quality of nursing care are undoubtedly linked, as one essential component of quality seems to be caring.

A grounded theory study by Radwin (2000) aimed at analysing theoretically oncology patients' perceptions of the attributes and outcomes of quality nursing care. The purposive sample comprised 22 oncology patients being treated at an urban medical centre; they were interviewed using semi-structured schedule. Eight attributes of quality nursing care emerged from the data: excellent care was characterised by professional knowledge, continuity, attentiveness, coordination, partnership, individualisation, rapport, and caring. In addition, two outcomes of quality care included increased fortitude and a sense of well-being with its constituents of trust, optimism and authenticity.

Lymer and Richt (2006) chose a phenomenographic approach to describe patients' conceptions of quality care and barrier care. Fourteen adult orthopaedic patients were interviewed. The analysis of the patients' conceptions of quality care resulted in the following categories: nice manners; mutual achievement; being involved; being cured; being cared for; and having safe care. These findings confirmed to a large extent the findings from other studies of quality care (Radwin and Alster, 2002; Attree, 2001; Williams, 1998; Wilde et al., 1993).

Wilde et al. (1993) performed a grounded theory study to develop a theoretical understanding of quality of care from a patient perspective. Thirty-five interviews were conducted with a sample of 20 adult hospitalised patients in a clinic for infectious diseases. Data were analysed according to constant comparative method. The data analysis suggests that patients' perceptions are formed by their encounter with an existing care structure and by their system of norms, expectations and experiences. For patients quality of care 'can be regarded as a number of interrelated dimensions which taken together form a whole'. These dimensions include the 'medical-technical', the 'physical-technical conditions', the 'identity-oriented approach' and the 'socio-cultural atmosphere'. Wilde et al. (1993) assert that

'The content of this whole can be understood in the light of two conditions (core variables) which are labelled as the 'resource structure of the care organisation' and the 'patient's preferences'. The resource structure is of two kinds: person-related and physical- and administrative amenities.

Introduction

Person related qualities refer to the caregivers' (p.115).

The authors comment that with the exception of the 'social-cultural atmosphere' dimension, all the other dimensions have been previously mentioned in the literature (Ware & Snyder 1975, Risser 1975, Hinshaw & Atwood 1981, Brody et al. 1989). This 'social-cultural atmosphere' dimension has not been emphasised by the literature whilst some researchers in their writings seem to cover some socio-cultural aspects of quality (Philips et al. 1990; Donabedian 1980).

• Nurses' and Patients' Perspectives

Charalambous et al. (2008) performed a hermeneutic phenomenological study of quality nursing care as this is perceived by patients, their advocates and their nurses. Data were collected through narratives and focus groups. Data analysis was done by implementing the principles of Ricoeur's interpretation theory and the principles of the hermeneutic circle. The results showed that there are seven common attributes used to interpret quality nursing care:

- Receiving care in easily accessible cancer care services.
- Being cared for by nurses who effectively communicate with them and their families and provide emotional support.
- Being empowered by nurses through information giving.
- Being cared for by clinically competent nurses.
- Nurses addressing their religious and spiritual needs.
- Being cared for in a nursing environment which promotes shared decision-making.
- Patients being with and involving the family in the care.

Kunaviktikul et al. (2001) performed a descriptive study in Thailand in order to develop a definition of quality of nursing care and to determine how it is measured. The first phase used individual interviews and focus groups discussion and the second phase included consultations with quality of nursing care experts. An interview guide was used to structure the interviews and the draft definitions of quality and suggested indicators were used when consulting with the experts in the second phase of the study. Ninety-six nurses were recruited from a university and central hospital. Patients were conveniently recruited from the provincial and central hospitals. The second phase included 31 participants. The data were analysed through coding and categorisation. The main themes were: meeting the physical needs of the patients; providing psychological support; ensuring spiritual needs are addressed; patients are satisfied with the care; nursing care is responsive to the needs as defined by the patient; and ensuring holistic care is given. The definition of quality of nursing care identified by nurse administrators and staff nurses was similar: 'Is the conduct of nurses based on nursing standards to create safety and satisfaction for the patients'. The hospital directors' definition was: 'Quality of nursing care is based on standards of fast and efficient service and the satisfaction of the patient with that service'. Patients provided different perceptions when asked about the quality of the nursing care: 'Is the conduct of qualified

nursing personnel with good service behaviours such as caring behaviour and responsiveness to what the patients wanted' (Kunaviktikul et al. 2001, p.782). These were analysed and summarised into one definition as follows: 'Quality of nursing care is nursing's response to the physical, psychological, emotional, social and spiritual needs of patients provided in a caring manner; so that the patients are cured, healthy, to live normal lives and both the nurses and the patients are satisfied'. These findings support Donabedian's model which views quality within structure, process and outcome frameworks. These elements provide a basis to evaluate and compare health care quality (Mitchell et al. 1998).

Al-Kantari & Ogundeyin (1998) used an exploratory research method and a purposive sample of 109 nurses and 148 patients to test certain hypotheses in relation to quality of care in the 5 main general hospitals in Kuwait. Data were collected using an instrument consisting of the elements of the nursing process. The researchers concluded that 'Quality nursing care is care rendered to patients in a hospital unit based on the appropriate use of the nursing process' (p.918). Furthermore, they found that regardless of the units where patients were admitted quality of care by nurses was similarly evaluated by the patients. The results showed that there was no statistically significant difference in the perception of the quality of nursing care between the patients in the medical and surgical units of the five study hospitals. Finally it was shown by the analysis that there was no significant difference in the perceptions of quality care by nurses according to work experience and by patients in all hospitals regardless of the patients' age and gender.

Redfern & Norman (1999) performed a qualitative study in order to identify indicators of quality of nursing care from the perceptions of patients and their nurses. Three hospitals participated in the study and 96 patients were interviewed from elderly, medical and surgical wards and 80 nurses. The analysis procedure was based on Flanagan's critical incidence technique. The good nurse respects patients and treats them as individuals in a therapeutic ward atmosphere, attends to their emotional needs and need for information, and takes the initiative in providing thorough care. Other qualities singled out by patients are nurses who raise patients' morale by responding promptly to their needs and promoting their autonomy, and who are successful in building a therapeutic environment. Important to nurses is to have colleagues who always strive to do their best and where leadership is effective, nurses are clinically knowledgeable and are committed to clinical teaching and supervision (p.421).

Charalambous & Papastavrou (2006) performed a quantitative study in relation to the use of satisfaction of nurses and patients as indicators of quality of nursing care in oncology departments. The study included 194 patients and 48 nurses. Patients and their nurses were asked to articulate their perceptions on quality nursing care and analysis showed that they hold similar perceptions on this topic. According to the data analysis for patients quality nursing

care is 'the appropriate application of the nursing procedures by experienced staff with dignity and respect, which aims at the holistic care of the patient under circumstances of equity'. Nurses on the other hand believe that quality nursing

care is 'the provision of holistic care to the patient with the appropriate means from skilful and experienced nurses in a way that the patient feels secure and his dignity is protected' (p. 27).

Discussion

The review showed that researchers quite often have come up with definitions of what constitutes quality nursing care whilst taking for granted several assumptions about this issue. They often assume that patients and nurses hold similar perspectives on this issue. Moreover the vast majority of the available definitions were developed merely by seeking either the perspectives of the patients or the nurses.

The review has emphasised that 'quality nursing care' is a multidimensional and ambiguous term with much debate about its meaning and the factors that influence it. The different settings, different nursing roles, the diversity between in-patients and out-patients perceptions add to the difficulty in defining quality. Although specific definitions for quality nursing care are available, the content of these varies. As a result it is likely that a consensus term might not be attainable simply because patients and nurses have a different view and experience care differently and despite the common elements found in patients' and nurses' perceptions. Because establishing a definition based on these commonalities would simply be incomplete and not taking "quality" holistically.

Perhaps the variety and ambiguity of perceptions is the main reason why there so many different definitions of

'quality nursing care', a situation which often causes confusion. In the literature, the following concepts have been used by the researchers to describe the phenomenon: quality of care, quality nursing care, quality health care, quality of patient care. These definitions are often used interchangeably causing greater confusion in relation to the intentions of the researchers. Rarely the researchers explicitly identify what exactly they aim to find through their research, and as a result the definitions they provide are left open to the reader's interpretation.

A question that was raised by this review is whether it would be appropriate and more effective if different definitions of quality of nursing care should be used for patients and for nurses. What about the fact that patients might have different perceptions of quality depending on the clinical setting. Should different definitions be used in these circumstances? With the many different perceptions in the health care it would probably be necessary to have more than 30 definitions just for one hospital. Would not this create confusion among the nurses and the profession and most importantly would it be possible to provide and evaluate quality nursing care then?

Conclusion

Many reviews published in peer reviewed journals have serious methodological flaws that limit their value to guide decisions in relation to quality nursing care.

Despite the complexity of the concept of 'quality nursing care' and the difficulty to identify common attributes when interpreting this concept, patients and nurses tend to use some common attributes in their interpretations. The satisfaction of needs can be identified as a fundamental principle when interpreting the concept. The concept of "needs" however, is an ambiguous term and seems to have different meaning in relation to quality. Therefore, some

patients and nurses prioritise the physical needs as more important and other think that the spiritual and religious needs have a priority when caring for the patient or when receiving the care. Another common principle that can be identified is the expression of a "caring behaviour" when delivering and receiving the care. Both patients and nurses believe that it is important that the nurse is "caring" when delivering the care. This caring behaviour can be expressed with many ways such as building trusting patient-nurse relationships and moving from "caring for" to "caring about" the patient.

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book review

Johns Hopkins Nursing Evidence-Based Practice Model and Guidelines

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book review

Description: This book describes the Johns Hopkins Nursing Evidence-Based Practice Model and Guidelines. Evidence-based practice is important to the safety of patients, the development of nursing profession, and the education of nursing students. This book describes a approach to the challenge of implementing evidence-based practice. The model was created and tested by a team of nurses and faculty at the Johns Hopkins Hospital and The Johns Hopkins University School of Nursing. Johns Hopkins Nursing Evidence-Based Practice Model and Guidelines depict three essential cornerstones that form the foundation for professional nursing: practice, education, and research

Purpose: The purpose is to provide background on evidence-based practice, examples of successful EBP projects, and step-by-step guidelines for planning and developing an EBP program all the tools, tips, and resources required to participate in and conduct evidence-based

Audience: Extensively used by nurses, multidisciplinary teams, faculty, and students, the Johns Hopkins Nursing Evidence-Based Practice Model (JHNEBP) makes evidence based practice achievable. As you read this book, you will discover guidelines and tools that accompany the description of the model and examples of its application. In graduate programs includes the JHNEBP to teach evidence based practice and develop critical thinking skills. Also shared the JHNEBP with other academic medical centres and with community and rural hospitals. This book includes the lessons learned from these applications of the JHNEBP model.

Features: The book opens with background information on EBP. The EBP is a problem-solving approach to clinical decision making within a health-care organization that integrates the best available scientific evidence with the best available experiential (patient and practitioner) evidence. EBP considers internal and external influences on practice and encourages critical thinking .

The goal of EBP is to promote effective nursing interventions, efficient care, and improved outcomes for patients, and to provide the best available evidence for clinical, administrative, and educational decision making.

The six sections of this book provide nurses with the critical knowledge, skills, and abilities required to lead evidence-based initiatives in any health-care environment.

Section I introduces the EBP concept. Chapter 1 discusses background information, provides a definition of EBP, and describes the evolution of EBP within the nursing profession. Chapter 2 centres on the role of critical thinking in EBP, its relationship to the nursing process, and its significance in developing practice questions, appraising evidence, and translating findings in the practice setting.

Section II is an overview of the Johns Hopkins Nursing Evidence-Based Practice Model (JHNEBP). Chapter 3 introduces the JHNEBP Model, which frames research and non-research evidence within a professional nursing environment that emphasizes practice, education, and research. Section II closes with guidelines for conducting an EBP project using the Practice question, Evidence, and Translation process (PET).

Section III focuses on the PET process and provides guidance on facilitating project work. Chapter 4 illuminates the practice question by exploring the origin of EBP questions, the criteria for project selection, and the development of an answerable EBP question. Chapters 5, 6, and 7 discuss evidence. Chapter 5 reviews evidence search strategies, online and Web resources, and tips for performing evidence searches. Chapter 6 discusses research evidence, the appraisal process, and appraising and grading evidence. Chapter 7 frames non-research evidence within the PET process. Chapter 8 describes translation, which defines the criteria

book review

needed to make an evidence-based practice decision, and includes creating an action plan, making the change, and sharing the findings.

Johns Hopkins Nursing Evidence-Based Practice in Section IV, Chapter 9 outlines the environment needed for nurses to incorporate EBP. Lessons in leadership to create and sustain a supportive practice setting and strategies for encouraging and mentoring staff are included.

Section V provides exemplars of projects at The Johns Hopkins Hospital and two community hospitals that illustrate application of the JHNEBP Model and PET process. Section VI, the Appendixes, includes the JHNEBP Model, a figure of the PET process, and tools for project management, question development, evidence appraisal, rating scales, and individual and overall summaries. These tools are regularly reviewed and updated by the JHNEBP Steering Committee. The reader may download the most current versions of the tools at the Institute for Johns Hopkins Nursing Web site: www.ijhn.jhmi.edu

Johns Hopkins Nursing Evidence-Based Practice Model and Guidelines is a collaboration among three nurse leaders at The Johns Hopkins Hospital and two faculty members from The Johns Hopkins University School of Nursing. Developed and evaluated in multiple projects and settings, the JHNEBP Model and process is practical for organizations to implement. Additionally, it demystifies and enables the EBP process for bedside nurses. The JHNEBP Model won the Sigma Theta Tau International Research Utilization Award in 2005 at the 38th Biennial Convention in Indianapolis, Indiana.

Evidence-based practice (EBP) positions nurses to be a significant influence on health-care decisions and a partner in improving quality of care. Beyond an expectation for professional practice, EBP provides a major opportunity for nurses to enlighten practice and add value to the patient experience. Today, nursing interventions and processes informed by the best evidence are critical to realizing health-care improvements and cost savings. This chapter defines evidence-based practice and discusses the evolution of evidence-based practice within the nursing profession.

Assessment: The editors have succeeded in covering the breadth of issues regarding Evidence Based Practice. The book is easy to read. It is essential book for learning about an EBP model and implementation. The book would also be a useful teaching tool. Finally, because it highlights the need for a larger evidence base, it should encourage collaboration between researchers and practitioners to develop more effective programs and Good Practice Models

The Johns Hopkins Nursing Evidence-Based Practice Model was highlighted by the Health Care Advisory Board as a best practice in 2005 and won the 2005 International Research Utilization Award from the Honor Society of Nursing, Sigma Theta Tau International.

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THE EPITOME OF USEFUL INFORMATION

INCORPORATION OF THE HELLENIC REGULATORY BODY OF NURSES

The Hellenic Regulatory Body of Nurses was constituted by the law 3252/2004 as a form of a Public Body and functions as the official professional body representing the nurses. The enrolment of all nurses is compulsory as is done in corresponding chambers overseeing other professions and functions as a regulatory body and the official counselor of the state (Pan-Hellenic Medical Association, Legal Association of Athens, Technical Chamber of Greece etc.)

MAIN GOALS OF HRBN

In an effort to make the reasons that all nurses should be subscribed to HRBN clear, shown below are the basic goals as presented by the law 3252/2004 and these should be implemented by HRBN:

- The promotion and development of nursing as an independent and autonomous science and art.
- The research, analysis and study of nursing matters and the formulation and submission of scientifically documented studies of the various nursing problems in the country.
- The construction of proposals on nursing matters.
- The continuous training and educating of nursing staff and the materialization and utilization of training programmes.
- The participation in materializing programmes which are funded by the European Union or other international organizations.

- The editing of certificates which are necessary for obtaining a license to practice the nursing profession.
- The evaluation of the nursing care provided.
- The representation of our country at international organizations regarding the nursing department.
- The publication of a journal, an informative bulletin, text books and leaflets so as to inform its members and the public.
- The study of Medicaid matters and the organization of scientific congresses that are independent or in cooperation with other bodies.
- The creation of an ethics committee for the nursing profession.
- The definition and cost assessment of nursing activities.
- The protection and enhancement of the level of health of the Greek population.

MEMBERS OF HRBN

It is compulsory for members of HRBN to be nurses, in other words they should be graduates of the following:

- a) University level nursing schools
- b) Technical level nursing schools
- c) Former higher school for nursing, visiting nurses belonging to the ministry of health, welfare and social security
- d) Former nursing school "KATEE"
- e) Foreign nursing schools with degrees that are accepted as equivalent to the corresponding Greek schools
- f) Military supreme nursing schools

STRUCTURE OF HRBN

HRBN is composed of a central administration, which is located in Athens, and seven peripheral sections, one in each health district of the country.

CENTRAL ADMINISTRATION

The central administration is made up of a 15 member executive council and has its central office in Athens. The address is 47 Vasilisis Sofias Avenue p.c. 10676, tel: 210 3648044-048 and fax: 2103617859 and 210 3648049. HRBN's website is www.enne.gr and email: info@enne.gr.

PERIPHERAL SECTIONS

The peripheral sections correspond to the number of health districts in the country and include:

1. 1st P.S. Attica: 47 Vasilisis Sofias Avenue, p.c. 10676, tel: 210 3648044-048 and fax: 2103617859 and 2103648049
2. 2nd P.S. Piraeus and Aegean: 47 Vasilisis Sofias Avenue, p.c. 10676, tel: 210 3648044-048 and fax: 2103617859 and 2103648049
3. 3rd P.S. Macedonia: 11 Mavili St., Thessalonika p.c. 54630, tel: 2310 522229 and fax: 2310 522219
4. 4th P.S. Macedonia and Thrace: 11 Mavili St., Thessalonika p.c. 54630, tel: 2310 522229 and fax: 2310 522219
5. 5th P.S. Thessaly and Mainland Greece: 2 Navarinou St., Larissa p.c. 41223 tel: 2410 284866 and fax: 2410 284871
6. 6th P.S. Peloponnese, Ionian Islands, Epirus, and Western Greece: 1 Ipatis and N.E.O Patra-Athens, Patra p.c. 26441 tel. and fax: 2610 423830
7. 7th P.S. Crete: 116 Menelaou Parlama St., Irakleio p.c. 73105 tel: 2810 310366, 2810 311684 and fax: 2810 310014

MEMBER REGISTRATION AND SUBSCRIPTION

All nurses are obliged to apply for registration at the nearest peripheral section. The application form requires a certified copy of the nurse's degree and official identification, two coloured photographs, the receipt from the bank statement for the amount of 65 €, a simple copy of the license to practice the nursing profession and other titles that the applicant might have are optional (postgraduate degrees, certificates for foreign languages, social activities etc.).

All nurses are obliged to renew their subscription annually, in person or by post (not by fax) till the end of February, by handing in the appropriate statement to the nearest peripheral section. The statement should be handed in simultaneously with the annual subscription fee, which has been assigned to the amount of 45 € by the law 3252/2004.

All nurses who register or renew their subscription to HRBN are given a Nursing Identity Card.

LICENSE TO PRACTICE THE NURSING PROFESSION

The license to practice the nursing profession can be administered at the local prefecture by presenting the necessary documents and certification of registration at their HRBN peripheral section. When receiving the license

to practice it is compulsory to present a copy to the peripheral section to which they belong.

According to the law 3252/2004, whoever practices the nursing profession without a license to practice will be prosecuted according to the article 458 of the Greek penal code.

Any individual of the peripheral council or the board of directors can file a complaint for illegal practice of the nursing profession and thereafter must notify the judiciary authorities.

In the case of a temporary disciplinary sentence or final disqualification from HRBN the license to practice is automatically suspended.

ADMINISTRATIVE BODIES

HRBN is administered by the assembly of representatives and the executive council. The peripheral sections are administered by the general assembly and the peripheral council.

HRBN'S INTERNATIONAL REPRESENTATION

HRBN is a member of FEPI and has one of the seven positions on the board of directors. England, Italy, Spain, Ireland, Poland, Croatia, Romania and Portugal participate in this European federation. France, Cyprus and Belgium are under consideration for participation. For more information the website is www.fepi.org.

SELECTION AND SERVICE OF ADMINISTRATIVE BODIES

HRBN's board of directors is elected by the assembly of representatives. The representatives are elected separately for each peripheral section by the members of the department's General Assembly. The peripheral councils are elected in a similar way by the members of the peripheral department's General Assembly.

These elections take place every 3 years and Nurses that take part are members in good standing (subscription paid).

DISCIPLINARY CHECK

The members of HRBN are initially submitted to a disciplinary check by the peripheral section, which also functions as a disciplinary council. The secondary disciplinary check, as well as the disciplinary check of the members of the board and the peripheral council is executed by the supreme disciplinary council, whose president is the supreme court judge.

SCIENTIFIC JOURNAL

HRBN created the "Hellenic Journal of Nursing Science" in 2008 which is its official journal. It is a multidimensional journal with an editorial committee which aims at the promotion of the nursing science in Greece.

The "Hellenic Journal of the Nursing Science" is a reliable, modern, quarterly scientific journal which is published in Greek and English and is available in electronic and print-

ed form. A nominal fee is offered to all interested researchers, university teaching staff, students and the entire nursing community in general as well as the tertiary university and technical level schools (Greek or foreign). Simultaneously it offers young scientists easy access to knowledge and the chance for nursing to progress, as well as a scientific step for the nurses who work in the academic area and the clinical area to publish their work and undergo some constructive criticism. The journal publishes research studies, reviews, original dissertations and book reviews.

The papers that are published, are credited in a manner that is regulated and certified by the Greek legislation according to international standards.

INFORMATIVE JOURNAL

HRBN created a monthly informative journal in 2008 "Rhythm of Health – Ρυθμός της Υγείας", aiming at promoting and demonstrating each nurse as a unified psychosomatic and professional personality.

The nurses in Greece have the need to solve primary issues that concern their profession as well as the need to express themselves, to communicate, to enjoy themselves and to demonstrate the diverse aspects of their social purpose.

"Rhythm of Health - Ρυθμός της Υγείας" aims at uniting the voice of all nurses in the country and becoming an immediate and dependable form of communication, giving a chance to all voices of the professional community to be heard.

GOALS FOR THE FUTURE

With the collaboration of all its members HRBN aims at materializing and completing some important projects that are requested by the nursing community, some of which have already started being carried out:

- The definition and cost assessment of nursing activities.

- The creation of an open line of communication so as to record and solve the nursing problems.
- The enhancement of international relations between Greek nurses and organizations, for and international institutes.
- The creation of an electronic digital library which can be used free of charge by members of HRBN and to which the whole country will have access.
- Will offer specific training and postgraduate courses.
- The organizing of scientific congresses and day meetings with formal accreditation.
- The formation of specific project committees such as a training committee, a documentation committee, a foreign affairs committee and an informative committee.
- The creation of a network of experts on nursing issues and the provision of legal advice.
- The creation and function of specialization programmes.
- The certification of nursing specialties and nursing adequacy.

CONTACTS

Nurses can contact us :

Tel: 2103648044, 210 3648048 (8:00-15:00)

Fax: 2103648049, 210 3617859

Email: info@enne.gr

- For professional matters
- For training matters
- For legal issues
- For their registration or renewal of subscription
- For general information (congresses, activities, etc)
- Proclamations via the Hellenic public organization for hiring personnel "ΑΣΕΠ"
- For positions in the health sector