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Development, implementation, evaluation and validation of a haemophilia nurses' education program in South Africa

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Chapter 3

The HNEP for Registered Nurses in South Africa

3.1 Introduction

Presented in this chapter are the reasons why the HNEP was created, and the people involved in the development and teaching of the program in SA. The chapter also discusses nurse education in SA and the state of health services in SA. The discussion provides insight into the context in which nurses practice. A significant role of the nurse is to provide evidence based care and education to patients and their families. This education can take place in the clinical setting or the community. Additionally, current developments in healthcare are such that patients are expected to assume a higher level of self-care, with the onus of teaching this type of care falling predominantly to nurses. As nurses are the front line healthcare providers and have most contact with patients, they are most easily accessed for information and most trusted by patients (New South Wales Nursing and Midwives Association, 2005). In many countries, nurse education is governed by Nurses' Boards and strict guidelines are in place to ensure all nurses maintain a high standard of care. The South African Council of Nurses' (SANC) performs a similar role.

In 1994, democratic elections were held in SA. The African National Congress (ANC) formed a government and the apartheid system of government was dismantled. One of the reforms the new government implemented was a focus on health, which required all healthcare professionals, including nurses, to concentrate on community health.

3.2 Health resource challenges in South Africa

No discussion about haemophilia care would be complete without information on the overall state of the health system in SA and the challenges which impact on the service. Coovadia, Jewkes, Barron, and McIntyre (2009) described the challenges to the SA health system as being related to historical events and policies, particularly racial and gender discrimination. When apartheid came into being in 1948, policies were based on racial divisions of all South Africans into whites, coloureds and blacks. This classification governed where an individual could live, work and attend school, whom they could marry, whether they could vote and what resources were assigned to their education, health and pensions (Coovadia et al., 2009). Discrimination impacted most heavily upon black South Africans and underpinned the present-day problems of subservience of women, poverty, unemployment, criminal activity, violence and inequality of essential services such as health and education.

The 1994 change in government in SA not only saw the end of apartheid but ushered in a health care system which concentrated on community health. It was anticipated that this change meant that those who lived in poverty, particularly in regional and rural areas, would have access to health care (Ehlers, 2002). Below is a synopsis of Coovadia's et al. (2009) presentation of the current SA health system structure:

- The National Department of Health is responsible for national health policy.
- Nine provincial departments of health are responsible for developing provincial policy within the framework of the national policy and public health service delivery.
- Three tiers of hospital exist: Tertiary, regional and district.
- The primary health care system – mainly a nurse-driven service in clinics – includes the district hospital and community health centres.
- The local government is responsible for preventative services and promoting health.
- The private health system consists of general practitioners and private hospitals, with care in private hospitals mostly funded through medical (insurance) schemes. In 2008, 7% of private hospitals were located in three of the country's nine

provinces, with 38% located in the Gauteng (Johannesburg and Pretoria) province alone.

South Africa is currently regarded by the United Nations Development Program (UNDP) to be a developing country with a middle income economy. In the 2012-2013 survey, the UNDP rated SA at 118 in the world for their estimated standard of living which is assessed on health, education and living standards (Human Development Report, 2014). It is therefore reasonably well-placed economically to provide health services to its population. However, some twenty years since the abolition of apartheid, a democratically elected government still struggles to meet the requirements of the poor in SA society. Racial differences continue to be reflected in living and health conditions. For example, prevalence of HIV is 13.3% in blacks and 1.9% in Indians but only 0.6% in whites. Infant mortality is six times higher in blacks than whites and white women live 50% longer than black women (McIntyre, Thiede, Nkosi, Mutyambizi, Castillo-riquelme, Gilson & Goudge, 2007).

The publication of a series of papers on the state of health in SA in the *Lancet* by Coovardia et al. (2009) was followed by a paper written by Mayosi, Lawn, van Niekerk, Bradshaw, Abdool Karim and Coovardia (2012), also in the *Lancet*. In 2014, Mayosi and Benatar published a paper describing the state of health and healthcare in SA twenty years after the "peaceful transition from apartheid to a constitutional democracy" (p. 1344) under the leadership of Nelson Mandela. The above researchers concluded that although there has been considerable progress made to improve health care services in SA, many difficulties still needed to be overcome. A synopsis of the findings of three sources cited above, with regard to the challenges still faced, has been compiled by the researcher:

Major/Overarching challenges

1. So-called "colliding epidemics" - HIV/AIDS, TB, non-communicable diseases (NCDs) and mental health, violence and injuries, maternal and child health. Disease burden includes premature deaths from violence, excess alcohol abuse.
2. Large disparity between the races
3. Wealth inequality = health inequality.
4. 45% of population exist at the upper limit of poverty
5. Poverty diseases – HIV/AIDS and TB
6. Private health system versus public system. Private expenditure per capita 10 times greater than public expenditure. Public system services 84% of population served by 30% of medical staff.
7. Public health system in crisis

Human resource challenges

1. Ratio of doctors 1:1000 of population,
2. Emigration to developed countries of locally trained health care personnel
3. Shortage of doctors in rural areas, health systems run by nurses
4. The burden of HIV/AIDS requires three times the health care staffing levels available at present.

Improving access to healthcare challenges

1. Introduction of national health insurance will give universal health coverage: it is hoped this will help overcome the long waiting times and interruption to treatment due to unavailability of medicines.
2. Greater support is needed for primary health services based in regional and rural areas.
3. Better surveillance required to monitor health outcomes.

Economic and political challenges

Impact of unemployment, corruption and the global economic crisis of 2008.

3.3 The Role of education in nursing

At this juncture, it is useful to provide an account of education within the nursing profession. The word education is derived from the Latin word *educare:* to bring up, rear, educate (retrieved from http://www.etymonline.com). John Dewey (1916) in his seminal work "*Democracy and Education*", described education as aims and habits that live on in a

group from one generation to the next and as a means of a society to pass on knowledge, skills, customs and values to the next generation. A broader concept of "education" can be thought of as instructing students by imparting a skill or knowledge; a program of instruction; and the theory of teaching and learning. Historically, education has been the responsibility of nurses not only to teach fellow nurses but also the patient, family and community (Bastable, 2008). Nurse education has witnessed significant change over the past few decades, moving from a hospital-based medical model of care to a tertiary based patient and family-centred care. Evidenced-based practice is the current emphasis; that is, care based on research and science.

The education process is a systematic, logical "planned course of action consisting of two major interdependent operations, teaching and learning" (Bastable, 2008, p. 11). The process engages two mutually dependent players – the teacher and the learner. According to Reilly and Oermann (1992), "learning is a process by which behaviour is changed as a result of the experience" (p. 27). Barry and King (1998) describe learning as a change in behaviour (knowledge, skills or attitudes or a combination of these) in response to external motivation, such as teaching.

Bastable (2008), a nurse educator, contributes further to the explanation by stating that learning is important in the nursing context because it enables individuals to deal with changing circumstances in their lives. These changes may be in the form of a patient who needs to learn new skills to deal with an illness, a student nurse learning the education required to become a nurse, or nurses who need to identify and review more effective treatment for patients. Furthermore, the teaching process has some close parallels with the nursing process, with each step of the nursing process corresponding with the teaching process, albeit with different goals and objectives (Reilly & Oermann, 1992).

An important function of haemophilia nurses is to teach their community and hospital based peers, doctors and allied health professionals about genetics, diagnosis, treatment and complications. Peer teaching is a recognised method of educating colleagues about a subject that requires specialist training. Priharjo and Hoy (2011), nurse educators at the Anglia Ruskin University in England, discussed the importance of patient education to student nurses by involving the use of peer teaching. After choosing a topic to teach to their peers, each student nurse developed and delivered a lecture which aligned to a topic that is commonly taught to patients, for example hand washing. Such a strategy allowed the students to engage in the experience from an active learning perspective. Formative evaluations from the HNEP demonstrated the importance of peer teaching in nurse education in allowing the students to experience the role of peer teaching in preparation for their role as educators of patients and colleagues upon graduation.

3.3.1 Nurse education and practice in South Africa.

Historically, nursing education and healthcare systems in SA were based on the British health system. Education was hospital-centred with the emphasis on the curative model of care (Ehlers, 2002). The Republic of South Africa (RSA) gained independence from Britain in 1960, but this change heralded the implementation of apartheid. The apartheid system of government required by law, separated services, including health care delivery, for the four main racial groups – Whites, Blacks, Indians and Coloureds. Nurses were educated in hospitals which catered for their specific racial groups: therefore four education systems for nurses existed. However, no matter which hospital they trained in, all nurses sat the same SA Nursing Council (SANC) examinations and all nurses were registered by the SANC (Ehlers, 2002). In 1985, nursing education in SA became affiliated with universities.

Prior to moving to tertiary-based courses, nursing education in SA had operated under the auspice of the health system. Currently, students obtain SANC registration based on receiving university results in the categories of general nursing, midwifery, community health nursing and psychiatric nursing at the completion of four years instruction. Students who obtain their nursing education at universities are awarded a degree upon completion and students who attend nursing colleges, obtain a diploma. All students who successfully complete a degree or diploma are registered to practice with the SANC as RNs (Ehlers, 2002). In SA any program completed after becoming an RN is classed as a post-basic program and enables a nurse to specialise in a specific field of practice. Management of PWH is not addressed by institutions providing nursing education in South Africa. It is for this reason that the HNEP is not part of a nursing curriculum but a stand-alone course.

Diseases and disorders that are recognized and treated in developed countries are often overlooked in under-resourced nations (Chandy, 2005), such as those that exist within the African continent. The major health issues which capture media focus are HIV/AIDS, tuberculosis, malaria, and malnutrition exacerbated by the level of poverty endemic to the area (Mahlangu, 2009). It is in this environment that nursing education is undertaken in SA. Consequently, nurses are not adequately prepared to practice in sub-specialities such as haemophilia. There are many published articles about the working conditions and educational opportunities for nurses in SA providing insight into the nursing environment. Findings from several of these studies are noted in what follows.

Uys, Gwele, McInerney, van Rhyn, and Tanga, (2004) conducted a study on whether process-based curricula are appropriate in nursing programs in SA. In describing the context of the study, the researchers commented that a high percentage of SA nurses are admitted to graduate programs from disadvantaged educational backgrounds. Furthermore,

upon graduation, these nurses received minimal support and supervision and are expected to perform in roles far beyond those required of newly graduated nurses in well-resourced countries such as the USA or Australia. Armstrong and Rispel (2015) supported these findings with regard to the selection of suitable individuals to train as nurses indicating that there was a need for further improvement in nurse education and mentoring and that some schools of nursing required updates.

Magobe, Beukes and Muller (2010) undertook a study on nursing students' clinical competency levels in primary healthcare. They sampled student nurses (n = 34) and clinical instructors (n = 6) on why the students' clinical competencies were perceived as poor. In this study, student nurses were assigned to experienced nurses working in the primary health care clinics (PHCs) who acted as preceptors (mentors) for the students. The evidence from the study showed that there were challenges to the delivery of quality nursing care and therefore poor clinical experiences for the nursing students. The reasons for this were found to be lack of human and clinical resources which was related to overwork and decreased opportunities for continuing education. Low morale and staff burnout were also shown to be the result of a lack of human, material and clinical resources.

As indicated, HIV/AIDS in SA attracts attention from authorities in health both globally through the World Health Organisation (WHO) and nationally (SANDoH). A report relating to the United Nations Acquired Immunodeficiency Syndrome (UNAIDS, 2016) indicated that estimated around 19% of the South African population was infected with HIV/AIDS, the highest number of infected people in the world. This high prevalence adds a further burden on the health system resources of SA.

A study reported by Smit (2004), a sociologist at the Rand Africaans University in Johannesburg, SA, discussed the perceptions and experiences of nurses caring for people

with HIV/AIDS (n =35) while working in a public hospital in SA. While the HNEP offered to nurses in SA is not directly impacted by the high HIV/AIDS infection rate in SA, Smit's study provides some insight into the attitudes and working conditions of nurses employed in the health system in SA. In 2003 it was estimated that three out of four patients admitted to hospital were HIV positive and the nurses were aware that they could be treating a person with HIV/AIDS, whether the patient's HIV status was or was not known. Most of the nurses surveyed articulated a sense of powerlessness when caring for people with HIV/AIDS because there was no cure and the patients were considered to be terminally ill. All nurses felt physical and mental fatigue, as caring for patients dying of HIV/AIDS was emotionally taxing in the extreme.

Smit (2004) reported that fear of being infected with the disease was not expressed by the nurses as they had been given specific education about AIDS and all knew about universal precautions to protect themselves from transmission by accidental exposure to infected body fluids. However, the nurses did have concerns about poor quality or unavailability of gloves, aprons and masks which they felt increased their risk of being accidentally exposed to infection. This was probably justified as, according to the report, half of the nurses had received needle-stick injuries or been exposed to eye splashes from infected body fluids. Although the nurses did not feel fear about their own well-being, most reported that their loved ones frequently expressed fear of their exposure to HIV/AIDS due to the occupational setting. Many nurses expressed anger and frustration about patients who treated them disrespectfully, the government whom they felt was not doing enough to prevent and treat HIV/AIDS and some members of society who treated them with derision (Smit, 2004). Nurses also expressed concern about the deteriorating health care infrastructure, understaffing and lack of equipment. An increased number of patients, which resulted in overcrowding of wards, and expectations that they would perform non-nursing

duties such as cleaning in the absence of auxiliary staff, added to the perceptions of the nurses that the HIV/AIDS patient had increased their workload. In addition, most nurses felt unsupported by nurse managers and hospital administers (Smit, 2004).

In such an HIV/AIDS demanding environment, it is understandable that other needs, such as those of PWH, can easily fall between the cracks. It therefore behoves nurses working in the area of haemophilia care to find means other than the traditional pathways for furthering their education and expertise in this important area. The HNEP was created to meet this need.

3.3.2 Development of the HNEP.

The four haemophilia nurses who first met at the WFH conference were determined to create and develop an education program for nurses to facilitate care of the PWH. This initiative was in part responsible for the WFH recording in 2004 its desire to have education for healthcare staff, patients and their families available as a means of providing basic care and treatment. Chandy (2005) later concurred, stating that education is the "cornerstone of haemophilia care when resources are scarce" (p. 1).

In 2002, the first HNEP in SA was offered, one that was approved by the South African National Department of Health (SANDoH) and endorsed by the WFH. As haemophilia is rare, scant information was available in relation to the recognition, diagnosis and management of haemophilia in medical and nursing texts. Since that meeting in 2002 and subsequent development of the program, numerous papers have been published in nursing and medical journals about haemophilia nurse management, including those by Khair (2010; 2013), Greig (2014), and Peyvandi, Garagiola, and Young (2016).

The four-and-one-half-day HNEP is held at a designated venue offering conference facilities and accommodation for all attending participants and lecturers. The program is designed to prepare these RNs to be better informed about haemophilia management in both theory and practice. Over the fifteen years the program has operated, to the end of 2016, a total 861 participants has attended the course (communication Cruickshank, January 2017).

The working environment for RNs in the public sector in SA is not optimal. Uys, Gwele, McInerney, van Rhyn and Tanga (2004), all senior nursing lecturers, wrote that a high percentage of SA nurses are admitted to graduate programs with minimal education. Upon graduation, these nurses are expected to perform in roles far beyond those required of newly graduated nurses in well-resourced countries such as the USA or Australia. South African graduates receive minimal support and supervision and as such are less prepared for critical situations. Given this context, it is crucial that these nurses are allowed study leave to attend courses. However, release from the workplace is difficult because of the cost of replacement. Further expense such as the cost of travel, accommodation and the financial burden to the individual nurse are incurred. It is important that the employers encourage the nurses to attend education programs which are funded by hospital staff development finances so that the financial resources are utilised to their greatest extent.

3.3.3 Creation of the HNEP.

The Haemophilia Nurses' Education Program (HNEP) was created specifically to teach the management and care of a PWH in the SA context. Although incurable, with effective care and education, the burden of haemophilia can be reduced and the PWH is able lead a healthy life. It is therefore vital that nurses are educated about the recognition and management of haemophilia. It is emphasised that the role of the nurse in haemophilia care is essential to provide efficient and effective management to the patient and education to the

patient, his family and other healthcare members. However, a comprehensive review of the literature revealed scant information about programs developed to educate nurses on haemophilia management, especially in developing countries. This lack of information in 2002 was the catalyst for creating such a program.

3.4 Cultural factors impacting HNEP education

Culture can be described as the context in which we live and the way we are socialised. Cultural values are shared abstract ideals about how society should behave. Values provide guiding principles of life and encompass beliefs, practices, specific norms and personal values (Sagiv & Schwartz, 2007). Thus, culture is an important consideration when planning a teaching program, especially in regard to the HNEP, which is taught to SA nurses.

According to Brancato (2006), the culture of education in Africa has been influenced by colonialism, characterised by linear learning, hierarchical structures and authoritarianism. Such an approach does not always bode well for the African population with its specific cultural-based approaches to learning, such as family expectations that community duties take precedence over studies and lack of support due to no understanding of the commitment required for tertiary studies (Lephalala & Makoe, 2012). Significant factors include ethnicity, birthplace, gender, age, educational background and language. Literacy and comprehension can also be impacted by factors such as English as a second or third language, limited education achievement and poor resources such as lack of access to libraries, electronic learning devices and electricity (Lephalala & Makoe, 2012). The participants of the HNEP were predominately Black African women, some of whom were of an age to have experienced the apartheid era. During this time, Black people were persecuted, segregated and discriminated against on racial grounds (Mabokela & Mawila,

2004). Access to education, healthcare, housing and economic prospects were based on race and gender, with the Black population bearing the brunt of this discrimination. Poverty, unemployment, poor education standards and under-resourced health services were the result. An example of this discrimination is that in the apartheid era, the languages of instruction were English and Africaans (Meier & Hartell, 2009). Since 1994 and the introduction of democracy, schools were desegregated and language rights guaranteed, allowing Black languages to be implemented into schools by the Republic of South Africa Constitution (Act 108 of 1996). However, as there was a dearth of educators fluent in these languages to be able to teach them, the multilingual ideal was not well established and most schools continued to use the language they had historically used. This resulted in linguistically disparate learners, who spoke diverse home languages and therefore had different levels of competence in the language used at school (Meier & Hartell, 2009).

Language competencies of the HNEP participants were apparent during lectures. The HNEP was presented in English and there were occasions when it became evident that some learners had not understood a concept being presented. This was particularly noticeable when lectures about abstract concepts such as genetics were given. To overcome this obstacle, the lecturers provided one-one-one tutoring after the day's teaching had been completed to assist those nurses who were struggling to understand. Whilst this was a time-consuming activity, it was successful as it allowed the nurses to gain a working knowledge of the topic.

Culture and class status are related. Simon and Mosavel (2008), who worked in community-based health promotion in SA, found that differences among people and their communities are more strongly related to socioeconomic factors which they called "class competence" in contrast to "cultural competence". Whilst Simon and Mosavel (2008) made

comparisons about the youth in "settlements" [highly impoverished areas] who perceived that having material goods enhanced prestige and therefore was the driving force behind improving their socioeconomic status, the ability to obtain access to healthcare was a more urgent need driving adults living in these settlements.

Cultural considerations also influence the broader society. Pre-and-post apartheid, women in SA especially Black women were and are subjected to a dominant patriarchal society. They were considered to be second-rate and incompetent, with men using this entitlement mentality to fill management positions over women (Mabokela & Mawila, 2004). Despite the implementation of legislation by the post-apartheid government regarding gender rights, women in SA continue to be victims of domestic and sexual violence (Dunaiski, 2013, Jewkes & Morrell, 2010). Dunaiski (2013) suggested that violence is an expression of power otherwise denied in the context of material deprivation. Such a description seems to fit the SA context with regard to the status of women more generally.

Jewkes and Morrell (2010) found similar characteristics when researching women who were at an increased risk of HIV. They suggested that culturally, characteristics such as toughness, strength and sexual prowess in a Black African man is attractive to some Black African females. The cultural ideal of femininity in these women is in turn embodied by the woman's compliance, acceptance of violent behaviour and infidelity. Consequently, women who are submissive to these cultural ideals are at increased risk of HIV and even possible homicide. Such findings are supported by De Matos Ala (2012), a lecturer in gender theory at a SA university, who affirms the existence of a patriarchal society in SA embedded in cultural and religious pressures with entrenched female and male roles.

While it is difficult to judge a situation from contact with learners while conducting a short-term training program such as the HNEP, the researcher can report that she was not aware of any participants who had experienced domestic violence or been the victim of sexual attack. However, there is no doubt that because of the high rate of occurrences of these crimes in SA, some of the participants in the HNEP had experienced these attacks. Certainly some of the mothers of PWH had related to participants during the case history interviews, episodes of violent assaults because they were mothers of children with a disability.

3.5 An overview of the content of the first HNEP

The first HNEP commenced in late July 2002 at the Randburg Towers Hotel, Johannesburg. The program consisted of six and one half days of teaching. Didactic teaching methods supported by Power Point presentations were conducted over the first three days. These sessions gave the participants a solid theoretical grounding in haemophilia and other bleeding disorders such as von Willebrand's Disease (VWD). Haemophilia and similar inherited bleeding disorders are not commonly taught in schools of nursing so most nurses would not recognise symptoms. Therefore, it was considered important that the clinical presentation, inheritance patterns and treatment were presented to the HNEP participants prior to the introduction of more complex issues. To accommodate participants with different learning styles, lectures were interspersed with videos, case histories and small group work.

The content of the HNEP included information in relation to clinical aspects of haemophilia such as physiology of haemophilia, history taking, physical examination, assessment of a bleed, treatment protocols, genetics, genetic counselling, constructing a genogram, laboratory testing, product safety, management of specific events such as

surgery, complications such as inhibitors and blood-borne viruses, women and bleeding disorders, and other bleeding disorders such as VWD. Information is also provided about the available societies which support PWH such as the Haemophilia Foundation of South Africa (HFSA) and the World Federation of Hemophilia. Instruction is given on how to run a haemophilia clinic and how to lobby for haemophilia care. Guest speakers were invited to facilitate sessions including a haemophilia physiotherapist who demonstrated rehabilitation of joints following a haemophilic bleed, and an occupational therapist who demonstrated how to make a backslab of plaster-of-paris to immobilise the limb of a PWH who was experiencing an active bleeding episode. The curriculum as presented and the Power Point slides used in the lectures can be found on a thumb drive (Appendix A).

Both theory and practical instruction is provided in a lecture format. All lectures are contained within a file known as the Haemophilia Resource File, which is given to the participants at the beginning of the program. The RNs are expected to take the file with them to their workplace as a resource for their colleagues.

To assess competency of management of PWH during the program, the participants are expected to interview and assess a PWH, promoting problem solving and analysis. The assessment data is then presented in a case study format to the group and at the same time the lecturers are assessing how well the participant is applying the new learning. According to Sprang (2010), a case study approach consolidates learning, is similar to clinical practice and has been shown to facilitate critical thinking and decision-making. Sandstrom (2006) concurs, describing the use of case studies when educating student nurses about diabetes mellitus. Critical thinking is developed by collaboration with the patient and focussing on their needs. This collaboration fosters an understanding of the disease, the effect of the disease on the patient and how the patient reacts to the disease. The case study approach to

learning is an active learning process engaging the student in the topic so they can determine the relevance of theory to practice. Thus critical thinking skills such as analysing and reasoning are developed, thereby increasing motivation to continue learning (Sandstrom, 2006). On conclusion of the HNEP, a summative examination assesses theoretical knowledge.

On return to the workplace, assessment of skills competency and ongoing support is provided by the haemophilia nurse coordinators, who are expert haemophilia nurses. The role of the specialist haemophilia nurses in SA is described by Mahlangu (2009) as having the "greatest impact on haemophilia health care delivery …. compared to all other professionals combined" (p. 139). The RNs are encouraged and mentored by the expert haemophilia nurses to firstly, apply their new knowledge to the care and education of the PWH and his family; and, secondly, to provide in-service training at work sites, which includes demonstrations of factor administration to staff at their workplace. The level of support provided reflects the findings of a study by Gibb, Anderson and Forsyth (2004), which explored the practice of nurses in geographically remote areas in New South Wales, Australia. These authors investigated a program which provided advanced clinical learning in the remote area workplace, followed by support and mentoring. The findings revealed that the level of competency attained by mentees had improved and that they had a greater interest in acquiring learning in the workplace. The high level of mentoring was considered by the researchers to be closely related to the increased level of competency and interest demonstrated by the nurses. Similarly, findings from a study by Stein, Lewin, Fairall, Mayers, English, Bheekie, Bateman and Zwarenstein (2008) showed that SA nurses who had undertaken a course in the care of people with lung disease, benefitted from regular contact with their educators. They provided psychological support to the trainees, especially when caring for patients with AIDS-related problems, acknowledged as a stressful work

environment. This is pertinent to SA since the AIDS epidemic has increased significantly (Mayosi, & Benatar, 2014). PWH are at risk of contracting the disease because plasma-derived product is used in SA for the treatment of haemophilia.

On completion of the didactic component of the course and the presentation of findings resulting from the patient interviews, the participants were asked to complete a short closed-book examination (Appendix B). The aim of this examination was to determine the understanding of new knowledge. The first twelve questions which addressed the inheritance of the disease were multiple-choice. Participants were expected to draw a genogram (diagram of a family pedigree) using a fictitious family and include a diagram of inheritance patterns of haemophilia, diagnosis, symptoms and treatment of haemophilia. The next ten questions related to complications of haemophilia, manifestations of bleeding disorders in women, VWD, management of surgical interventions and other bleeding sites such as gastro-intestinal bleeds, and laboratory testing. The examination papers were marked by the lecturers and a percentage allocated: the pass mark required was 80 percent.

On the final day of the program, the participants were transported to the HTC at a local hospital to meet PWH where the nurses were divided into small groups and introduced to PWH who had agreed to be interviewed. On completion of the interviews, the participants presented their findings. Once the group presentations were concluded, the participants returned to the conference venue to complete an evaluation of the HNEP (Appendix C). Finally, the participants were awarded a WFH certificate to honour their achievement.

3.6 The researcher's involvement in the development of the HNEP.

The researcher, a haemophilia nurse in Australia, was invited by the SA haemophilia nurses in 2002 to join the initial planning committee of the HNEP after meeting the SA nurses at a WFH conference. At that time, there were three nurses, Coordinator A, Coordinator L, and Coordinator M (who was the predecessor to Coordinator B, who is identified later as a participant in the research). The SA coordinators recognised that the researcher had sufficient expertise of haemophilia care and understood the challenges of living in a developing country, to be involved in planning and facilitating the project.

Since the inception of the HNEP, the existence of several haemophilia nurse education programs have been reported. The European Association for Haemophilia and Allied Disorders (Harrington, Bedford, Andritschke, Barrie, Elfvinge, Ronhaug & Schrijvers, 2016) nurses' working group established the knowledge and skills needed for a nurse to work with PWH by accessing six existing haemophilia training programs for nurses. Although there is no reference to five of these programs, it is to be assumed that these six training programs were from other European countries with only one being named, that being, the "Essentials of Haemophilia", which is offered in the UK at a cost of well beyond the means of nurses in developing countries. This program is similar in content to the HNEP, but was not available to HNEP cohorts for the period covered by the present research. The previously mentioned "Essentials of haemophilia care" offered by the Canterbury Christchurch University is one of two face-to-face programs offered in the UK, in addition to "Advanced haemophilia nursing" which is conducted by the Sheffield Hallamshire University. In the US a course entitled "The role of the nurse in haemophilia care" is offered as an on-line course by the American Nurses Association. As previously pointed out, these programs are out of reach of nurses from resource-poor nations due to

lack of funds, and limited access to computers. Furthermore, there is no evidence in the literature about the effectiveness of these programs. There is literature in education and more specifically nurse education about the need for evaluation of teaching programs

Therefore, the researcher could not assess whether a face-to-face education program for nurses would transfer sufficient information to nurses to care for PWH effectively.

3.7 Subsequent HNEP rollouts

As a consequence of the success of the initial program, the HNEP has been offered every year since the first in 2002 and during this time improvements have been made. These changes were made based on evaluation responses from the participants. A significant change was to reduce the course to four-and-one-half days in duration. Other changes were related to lectures, in particular how to interpret blood results to improve understanding and clarity. The format suited subsequent participants and their employers.

Upon returning home to Australia, the researcher set about sourcing information that would provide understanding of coagulation studies, how they were carried out and how the results were interpreted. Specialised laboratory studies, such as tests for coagulation, is not a topic usually taught to nurses in great depth. Advice was sought from the chief coagulation scientist at her workplace who agreed to teach the researcher the relevant information. This enabled the researcher to ensure that new laboratory lectures were written at a level suitable for the participants in SA and were used in subsequent HNEPs.

Another topic that the participants found difficult was genetics and constructing a genogram, a diagrammatic form of a family tree. Although the participants understood the family relationships and the inheritance patterns of haemophilia, the difficulty was in grasping the concept of illustrating the family pedigree. It was essential that the participants

understood how and why it is important to construct a genogram as it is crucial to have a complete record of a PWH to formulate management.

Despite having expert geneticists teaching the topic, it was realised that it would be more effective if nurses presented this lecture. Peer teaching was elected as the best option since it is an approach that ensured the information was pitched at the right level. Once established, this step overcame the difficulties the participants had in understanding how genetics and family pedigrees were applied in the haemophilia context. However, mastering the drawing of the genograms, considered vital by the lecturers, remained elusive and often did not reach an acceptable standard. However, by making the task more personal by asking the participants to complete their own family tree using a genogram, the participants began to understand how a genogram described their pedigree. To reinforce the concept, the participants were given a fictitious family to describe by drawing a genogram for homework which was then assessed the next day by the lecturers. Finally, progress was made and by the last day of the HNEP, the participants were assessed as proficient at drawing a genogram.

3.8 Teaching and learning exigencies

Key factors exist which lead to success in teaching and learning. What follows is a brief discussion of these and how they relate to the development of the HNEP. As different strategies are required when adult education is being undertaken, the issue of andragogy is also considered.

3.8.1 Theories of and strategies in learning.

In devising a curriculum to teach adult learners about a new topic, several aspects must be taken into account to ensure that the learning opportunity is exploited to its fullest

extent. To maximise the benefit of the HNEP, the lecturers needed to familiarise themselves with theories of learning and know something about the learning styles of students.

Braungart and Braungart (2008) described learning as "a dynamic process by which individuals acquire new skills and/or knowledge, which alters their thoughts, feelings, attitudes and actions" (p. 52). Braungart and Braungart summarise five major psychological learning theories that nurses can utilise in education and clinical practice. These theories include Behaviourist Learning Theory, based on what is observable so learning takes place in response to stimuli. This is used in the HNEP by exposing the participants to PWH (observation) and providing the opportunity to respond to their lived experience (stimuli). Cognitive learning theory involves the student making sense of the new information, internalising and processing it to provide new understanding. An example of this process might be the utilisation of strategies to provide a better understanding of the pain associated with the process of bleeding into a joint. Social learning theory takes into account the personal characteristics of the learner, their patterns of behaviour and the context of the learning. An example of this theory in action is the change in behaviour and perceptions that occurs in the RNs when they realise the importance of social motivation and context in treating a PWH.

Psychodynamic learning theory emphasises the conscious and unconscious thoughts which impact behaviour, personality and the long-term effects of childhood experiences. This theory can be utilised in bringing to the surface any latent fears or anxieties the nurses might have when addressing the needs of the PWH. Humanistic learning theory can come into play in addressing any uncaring attitudes and behaviours by nurses towards PWH. Discussing the importance of sensitivity when attending to the specific needs of the PWH can create a valuable learning experience.

Learning strategies have been well explicated by Edgar Dale who presented them in the form of a cone (1954), ranging from textual/verbal symbols (being at the top of the cone and least effective for the purpose of retention), through to direct purposeful experiences (being at the bottom of the cone and the most effective for retention). These were later embellished by researchers such as Lalley and Miller (2007) and applied specifically to a pedagogical context.

Each theory introduced here focuses on one important attribute of learning. Developing an understanding of each theory via the HNEP can enable the teacher to meet the needs of learners in a more effective fashion. Each student learns differently and utilising strategies which emanate from the range of available theories has a better chance of successfully addressing individual learning styles.

3.8.2 Teaching strategies.

The teacher as a facilitator of information and attitudes is indispensable to effective learning. Contextualised teaching is what provides relevance to the learner. As Barry and King (1998) pointed out, "Good teaching is a problem-solving activity that is linked to context – students, school, and community" (p. 15). Teaching is likely to be most successful when it is evidence-based; when it moves from the known to the unknown (Vygotsky, 1930-1934/1978); and when it encompasses the cognitive, psychomotor and affective domains of learning (Borich, 1996; Krathwohl, 2002). Teaching within the cognitive domain refers to activating perceptual and intellectual process such as problem-solving and logical reasoning. Psychomotor learning pertains to physicality and incorporates gross and fine motor skills such as those required in giving a PWH an injection. Teaching in the affective domain focuses on aspects such as caring, attending and empathising. All of these were highlighted as important components in the HNEP.

An essential aspect of course design is selecting teaching strategies suitable for group learning. In this regard, an understanding of the VARK (Visual, Auditory, Read/write, Kinaesthetic) processes is important (Fleming & Mills, 1992; Fleming & Baume, 2006). Some learners may preference the visual mode, such as pictures, images and interactive technology (Brancato, 2006). Others may be auditory and so acquire information by listening. Still others may prefer accessing materials via reading and writing resources. Finally, there are those who may be better attuned to kinaesthetic pedagogy, so in order to achieve at their potential, need to be engaging in learning by doing which may include interviews and field trips. As well as these four modes of learning, there are learners who operate in any combination of these modes. Accordingly, as far as practicable, teachers would be wise to cater for all VARK modalities. Lectures use direct strategies such as face-to-face communication while indirect strategies such as the use of audio-visual equipment and Power Point slides, will promote learning using multiple sensory faculties (Bastable, 2008). Iwasin, Goldenberg and Andrusyszyn (2005) list a variety of components needing consideration when planning teaching strategies. These complement the VARK modalities and include factors such as group size, cost, available infrastructure, preparation time for instructors, intent (abilities expected from the students) and the environment of the learning context. A VARK approach is essentially an approach that remains cognisant of styles of learning. Learning styles are the unique way an individual processes and responds to new tasks and new learning.

At the beginning of the HNEP, to ensure a basic understanding of haemophilia and management, traditional didactic strategies were employed to ensure the participants had a sound platform on which to base the new learning. As the HNEP progressed, contemporary teaching strategies were introduced to promote more active learning. The RNs participated in cooperative and collaborative projects with peers such as small group work and

interviews of PWH and presentation of case studies, thus providing an active learning opportunity. Clinical teaching strategies are commonly used in nursing. In the case of the HNEP, the RNs observed the examination of a haemophilic joint, preparation and implementation of factor replacement, and rehabilitation of a joint after the bleeding had stopped. It has been reported (Iwasin, Goldenberg & Andrusyszyn, 2005) that although distance educational strategies are a useful pedagogical option, such resources are not available to nurses in SA to learn about haemophilia. Accordingly, this strategy was not utilised for the HNEP.

3.8.3 Adult education and commensurate learning and teaching strategies.

There are two broad paradigms in education: the education of children, known as pedagogy and andragogy, the education of adults. The evaluation of sub-specialty nurses' education programs requires a more in-depth examination of andragogy and the learning and teaching theories used specifically in adult education. Andragogy was first described by Alexander Kapp and identified by Dewey (1938) as experiential in nature. Malcolm Knowles (1975, 1980) further developed the concept and wrote prolifically on the subject. In his book, *The Adult Learner, a neglected species* (1990), Knowles cited humanistic psychologist Carl Rogers (1969) who described adult learning thus:

> It makes a difference in the behaviour, attitudes, perhaps even the personality of the learner….. He knows whether it is meeting his need, whether it leads toward what he wants to know, whether it illuminates the dark area of ignorance he is experiencing (p. 5).

According to Braungart and Braungart (2008), no single theory can explain how adults learn but it is well established that they learn through formal and informal education and life experiences. Knowles (1990) suggested that adult learners prefer to be self-

directed, by identifying their learning needs, setting their own goals, choosing how to learn, searching out resources and appraising their progress. Knowles also identified several assumptions upon which the andragogic model of learning is based. These are paraphrased below:

a) the learner is independent and self-directed;
b) the learner is strongly influenced by their life experiences, a valuable resource for future learning;
c) the learner needs to know why they must undertake the learning which includes the benefits and consequences of not undertaking it;
d) the learner is ready to learn;
e) the learner's orientation is towards learning and is strongest when the individual believes that the learning will help them to achieve tasks or deal with problems, and;
f) the learner's motivators are related to intrinsic demands such as job satisfaction, self-esteem and quality of life.

Knowles' theory has been widely used as a guide and framework for teaching nurses, patients and other health professionals (Bastable, 2008). The assumptions articulated above apply to the participants in the HNEP since all the participants are RNs involved in the course are mature learners and bring with them a breadth of clinical practice and experience. Adult learners play an active role in their learning, with prior experience, beliefs and attitudes influencing future learning experiences.

With regard to appropriate strategies for adults, Filene (2005) and Knapper (1995) suggested that in selecting apposite material, the instructor must meet the learner's needs at the same time as meeting the learning outcomes of the instruction program. This can be achieved by deciding on learning objectives in addition to learning outcomes. Primarily, the question must be asked, "is the intention of the program to increase knowledge, learn new skills or change attitudes?" The expectations of the students also need to be taken into account by having clear objectives about what is learned in the classroom and how it is to be

applied in practice. By identifying these objectives, the instructor can decide on activities to encourage the desired learning and then obtain formative feedback from the students to ensure learning is taking place once the instruction is underway. For example, moving from passive to active teaching by encouraging interaction can enhance motivation. Research reveals that the life experience of adult learners can be useful in the classroom setting and harnessed in the service of teaching others (Baskas, 2011).

Motivation as a significant factor in adult learning cannot be overestimated. The teacher needs to consider that motivation is based on motives, that is, a response to personal needs. As Maslow (1943) asserted many years ago, a basic human need is to strive for self-esteem. It has been stated that self-esteem has four components: striving for success; striving for affiliation; striving for influence (power) over others; and striving for recognition (Barry & King, 1998). In an effort to accomplish these undertakings the individual will apply energy, commitment and alter behaviours in order to achieve their objectives. Furthermore, if a student perceives that with effort, they will succeed at a task, completion of that task is valued. Barry and King (1998) explained that research by Eccles and Wigfield (1985) found there are three types of value students place on tasks:

- Attainment value, which encompasses the success and power value for self-esteem and includes the positive effects of mastering a skill or understanding a new concept;
- Intrinsic value which is the pleasure students gain from completing a task;
- Utility value which is the estimation by the learner of usefulness of the learning which can be applied to life.

Motivation can be classified as either intrinsic or extrinsic. Intrinsic motivation can be explained as the satisfaction of the learner's natural inquisitiveness about a task or topic and the learning is for its own sake. Extrinsic motivation is explained as learning in order to receive a reward, such as a prize or award at the end of the completion of the learning task.

It is therefore incumbent upon teachers to structure their teaching so that the students are successful if they apply effort and ensure that the tasks that they are expected to achieve have value (Barry & King, 1998). Brancato (2006) supports this proposition by suggesting that structuring the learning tasks so that early success is likely will encourage learner behaviour. The lecturer's enthusiasm for the topic can also influence the learner. Encouraging a curiosity about the subject and using case histories or similar reality scenarios about patients may also encourage a motivation to learn.

Teaching the HNEP to the participants was undertaken in a way that remained cognisant of adult learning principles; utilised appropriate strategies and attempted to move the learners in the direction of being intrinsically motivated.

3.9 Evaluating educational processes and the HNEP

A crucial aspect of teaching and learning is the evaluation process. Popham (1988) perceived evaluation as "an appraisal of quality" (p. 7) and Fitzpatrick, Sanders and Worthen (2004) suggested that the role of evaluation is to determine the worth of something. The following extract from a UNESCO document sees evaluation as:

> the systematic and objective assessment of an activity, project, program, strategy, policy, topic, theme, sector, operational area or institution. An essential part of the policy development process, evaluation provides timely assessments of the relevance, efficiency, effectiveness, impact and sustainability of interventions (Handbook of Evaluation, 2007, p. 5).

Popham (1998) explained that evaluation in education can encompass a number of aspects such as outcomes of instruction, the program/s that produced these outcomes, educational products or the objectives that are incorporated into the educational efforts. In education,

teachers use the word “evaluation” to describe testing student knowledge, although the term evaluation has a much wider application than simply testing knowledge in an educational context.

In terms of the development of the evaluation processes, Tyler (1949) described evaluation as the act of “determining whether educational objectives have been realised” (p. 69). These objectives are aimed at changing behaviour patterns in students and evaluation determines whether and to what extent these changes have taken place. Emphasis is placed on outcomes, not organisational and teaching inputs. Tyler advocated that certain steps in the evaluation process needed to take place: a) determine the objectives; b) define the objectives in behavioural terms; c) find situations where attainment of objectives could be demonstrated; d) select or develop assessment techniques; and e) measure whether the objectives have been met. Tylerian principles were utilised in the evaluation of students participating in the HNEP. The objectives were established; behavioural outcomes were stipulated; opportunities for demonstrating competency were provided; appropriate assessment techniques were generated; and performance against established criteria were assessed.

The objectives were established by identifying the anticipated learning outcomes which appeared in the beginning of the haemophilia resource file. Embedded in these learning outcomes were the behaviour outcomes expected and there were demonstrations and opportunities for practicing these during the course. Assessment techniques such as an examination and assessment of case study presentations were implemented and the performance of these tests were compared to recognised standards in haemophilia care

It is worth mentioning that ideally, the educator would offer the students a means of assessing their learning style prior to the commencement of the course to maximise the

learning experience for the individual, although in most cases, time constraints can prohibit the use of learning style assessments. As the HNEP was limited to four days of instruction, assessing learning styles was not undertaken, however, utilisation of a variety of styles in teaching the material did occur.

Evaluation in nursing takes many forms. Chan, Chien and Tso (2009), nurse educators in Hong Kong evaluated nurses' knowledge, attitude and competency after delivering an education programme on suicide prevention. There were similarities in the work environment in Hong Kong to those in public hospitals in SA regarding haemophilia such as low staffing levels, lack of support from senior colleagues, poor communication with specialists and no protocols for management of suicide prevention. The findings showed a positive impact on the competence and attitude of the nurses and the motivation to re-examine previous practices due to the new knowledge of patient care in suicide prevention.

With regard to evaluating the success of the HNEP, the insights of Michael Scriven were adopted. In 1967, Scriven described two complementary forms of educational evaluation, namely, formative and summative. If the main purpose of the evaluation is to elicit information about program improvement, then formative evaluation is considered the suitable concept. Summative evaluation is concerned with judgements about a program's merit or value (Taras, 2005). HNEP evaluation was undertaken in a summative fashion and conducted immediately upon the completion of each program. It was valuable to ascertain whether the program had equipped the participants with new knowledge about haemophilia management but did not elicit information about whether this new knowledge enabled RNs to affect outcomes for PWH in a positive way. This is something that could only be evaluated once the nurses had returned to the field to apply their newly acquired knowledge and skills: Hence the need to evaluate the HNEP more formally and comprehensively.

3.10 Chapter summary

This chapter outlined the pertinent elements considered when developing the HNEP. Firstly, health resource challenges were considered prior to an explanation of the creation of the HNEP being provided. Next, the important of on-going education in haemophilia nursing was discussed and cultural factors considered. This was followed by an articulation of important teaching and learning principles such as theory, strategy and evaluation protocols. These were considered within the context of adult learning. The next chapter introduces the epistemological, theoretical, conceptual and methodological considerations pertinent to the present study.