

**Report on the Landscape Assessment of Readiness to
Introduce the Family Nurse Practitioner Role in Swaziland**

Prepared by

University of Swaziland - Seed Global Health

June 2018



Health of the people of the Kingdom of Swaziland

The Kingdom of Swaziland is a small, landlocked country in southern Africa with approximately 1.3 million people, 80% of whom live in rural areas. Shortages of human resources for health, the increasing complexity of population health problems, and systems issues make access to care a challenge. The country suffers from a high burden of communicable, maternal, perinatal, nutritional conditions and non-communicable diseases. Impressive progress has been made in reducing the incidence of HIV by almost half since 2011, however, Swaziland continues to bear the world's highest burden of HIV with 26% of the population currently living with HIV infection. The nation also has a high burden of TB infection, particularly among people who are infected with HIV (WHO, 2017). Non-communicable diseases (NCDs) increasingly contribute to morbidity and mortality in the country. Twenty-eight percent of all deaths is attributed to NCDs. The four most common NCDs for which care is provided in the outpatient area are cardiovascular diseases, cancers, chronic respiratory diseases and diabetes mellitus (Kingdom of Swaziland Ministry of Health [KSMOH], 2015b; WHO, 2014).

National priorities

The Second National Health Sector Strategic Plan 2014-2018 (KSMOH, 2015a) includes four priority outcome areas, the third of which is reducing the burden of NCDs. Policies and plans for implementing interventions to prevent and control NCDs were to align with the WHO Global Action Plan for the Prevention and Control of NCDs 2013–2020. Objective four of the WHO plan seeks to strengthen and orient health systems to address the prevention and control of NCDs and the underlying social determinants through people-centered primary health care and universal health coverage. Human resource development to strengthen the skills and competencies of the healthcare professionals to prevent and mitigate the effects of NCDs are an essential component of this plan (WHO 2013).

Workforce shortage

The most recent human resource data of practicing health professionals is available through the Service Availability Mapping 2013 report (World Bank, 2013). At a time when the population was just under 1.1 million people, a total of 252 medical doctors were identified in the country, approximately 23 per 100,000 population. Nurses were identified as general and specialized. There were 1760 generalized nurses and 1253 specialized nurses which includes 1103 midwives. Nurse anesthetists are registered as nurses with the Swaziland Nursing Council and as nurse anesthetists with the Swaziland Medical-Dental Council.

Background

According to the International Council of Nurses (ICN), an advanced practice nurse (APN) is *“a registered nurse who has acquired the expert knowledge base, complex decision-making skills, and clinical competencies for expanded practice, the characteristics of which are shaped by the context and/or country in which s/he is credentialed to practice. A master’s degree is recommended for entry level”* (ICN, 2017).

This widely accepted definition of the APN role acknowledges the expert knowledge base and complex decision making inherent in the role as well as the importance of shaping the role to fit the needs of the country. It also provides guidance on the level of educational preparation needed to implement this role.

Family nurse practice

A one-year certificate family nurse practice program was implemented in Swaziland in 1979 through a partnership with Denmark. It was suspended in 1995 due to human resource constraints. This was not an advanced practice nurse role (G. Msibi, personal communication, June 14, 2018). Review of the one-year post-basic training curriculum indicates the certificate program provided diploma-educated nurses with the knowledge, skills and attitudes to provide primary health care to clients in a variety of settings with the emphasis on health promotion and maintenance, and prevention of disabling conditions through early diagnosis and intervention. In addition, the program intended to prepare nurses to function in leadership roles in health planning, administration and human resource development (Swaziland Institute of Health Sciences, 1994). Mathunjwa and Potgieter (2004) conducted a survey of the original FNPs and concluded the role lacked official recognition (grade and pay differential) which along with the lack of continuing education was a significant barrier to optimal role function. They advocated for legislation of the role, negotiation with the regulatory bodies to ensure autonomy within the FNP scope of practice and prescribing privileges. They cite inadequate preparation in some areas of role function as a need for to upgrade the level of preparation of the nurses.

Effectiveness of the advanced practice family nurse practitioner model

The nurse practitioner (NP) role was innovated in 1965 in the United States. It was established as an advanced practice nursing role for registered nurses who obtained additional education and clinical experience to prepare them to assess, diagnose, manage, and educate patients. NPs promote health promotion and disease prevention and provide care for people who experience common acute and chronic problems along with complex and long-term care needs. An abundance of evidence supports positive, cost effective outcomes, and patient satisfaction with care provided by NPs (Kleinpell, 2013; Newhouse et. al, 2011; Oliver et al., 2014) At least 20 countries have adopted the NP role (Heale & Buckley, 2015; Pulcini et al., 2010). A recent study in South Africa examined the effectiveness of NP-MD collaborative care model for the treatment of MDR-TB. It demonstrated clinics that adopted the NP-MD collaborative care model had better treatment outcomes compared to other clinics and that there was no difference in outcomes for the patients treated by the NP or MD (Farley, 2017).

Purpose and specific aims

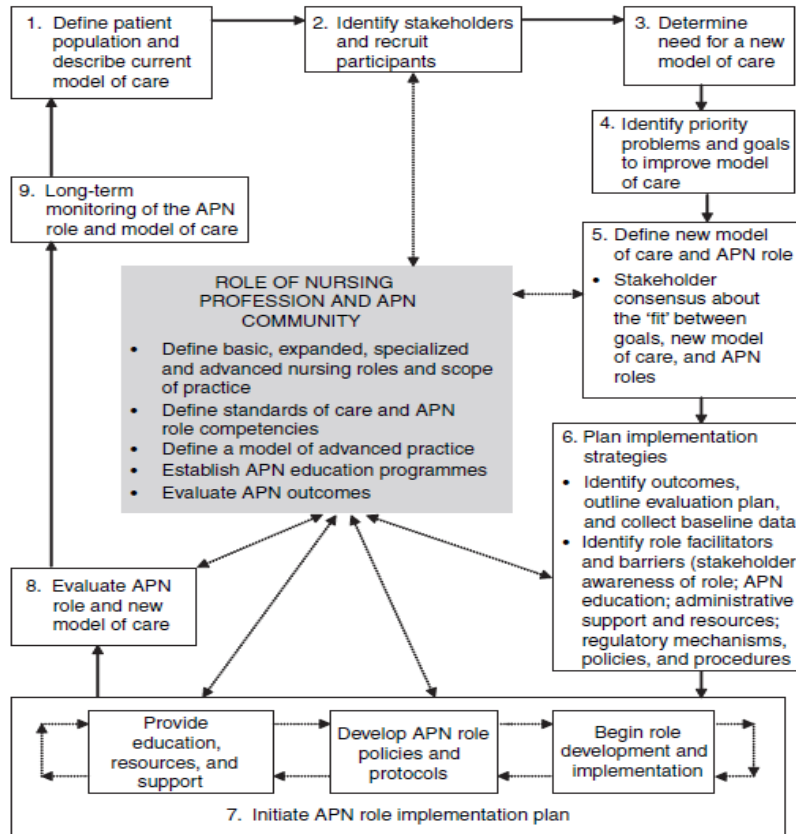
The purpose of this project was to examine the current healthcare landscape in the context of readiness to introduce the family nurse practitioner (FNP) role in Swaziland. The assessment built on and took into consideration preparatory work done for the original family nurse practice role and preparation for the development of the current advanced practice family nurse practitioner curriculum at the University of Swaziland (UNISWA). The results of the assessment guided development of recommendations to: 1) strengthen the UNISWA academic program; and 2) successfully deploy and integrate graduates of the UNISWA FNP program into the health care system.

Framework

The PEPPA framework (participatory, evidence-based, patient-focused process for guiding the development, implementation, and evaluation of advanced practice nursing) guided this assessment of the readiness to introduce the FNP role in Swaziland (Bryant-Lukosius & DiCenso, 2004). The framework encompasses the complex and dynamic processes involved as

the APN role is developed, implemented and evaluated. It facilitates the specification of the role in a way that meets the country's priority needs and is responsive to local context (Figure 1 steps 1 – 5). The steps for planning and implementing the role promote environments that support role success and long-term integration into the health system (steps 6 - 7). The evaluation component of the framework is important to continuous improvement of both the role and delivery of health services (steps 7-9) (Bryant-Lukosius, & DiCenso, 2004).

Figure 1: PEPPA Framework



PEPPA Step 1 Define patient population and describe current model of care

Initial assessment

In advance of the development of the FNP curriculum at UNISWA an assessment was conducted in 2004 with stakeholders meetings conducted again in 2007. The focus of the initial assessment was to determine how the UNISWA could meet the health care needs of the country (University of Swaziland, 2016). The university identified that the health of the Swaziland population was unsatisfactory, that there is a high prevalence of both communicable and non-communicable diseases and that owing to the advent of HIV and AIDS, the life expectancy at birth has decreased to 34.0 years for men and 38.8 years for women (Whiteside & Fiona, 2011). Further, it was noted there was a gross shortage of human resources, with the greatest impact felt on nursing services. Moreover, they noted that practicing nurses, particularly those in primary health care settings (Clinics and Health Centres) had voiced deficit in knowledge and skills in

efficacious client assessment and management of diseases, and called for continuing education to enable them to acquire advanced knowledge and skills. Faced with a high burden of disease and the challenges of existing underserved sections of her people, especially the rural populace who comprise 79% of the population, UNISWA proposed establishing a graduate level FNP program (University of Swaziland, 2017)

Current Landscape Assessment

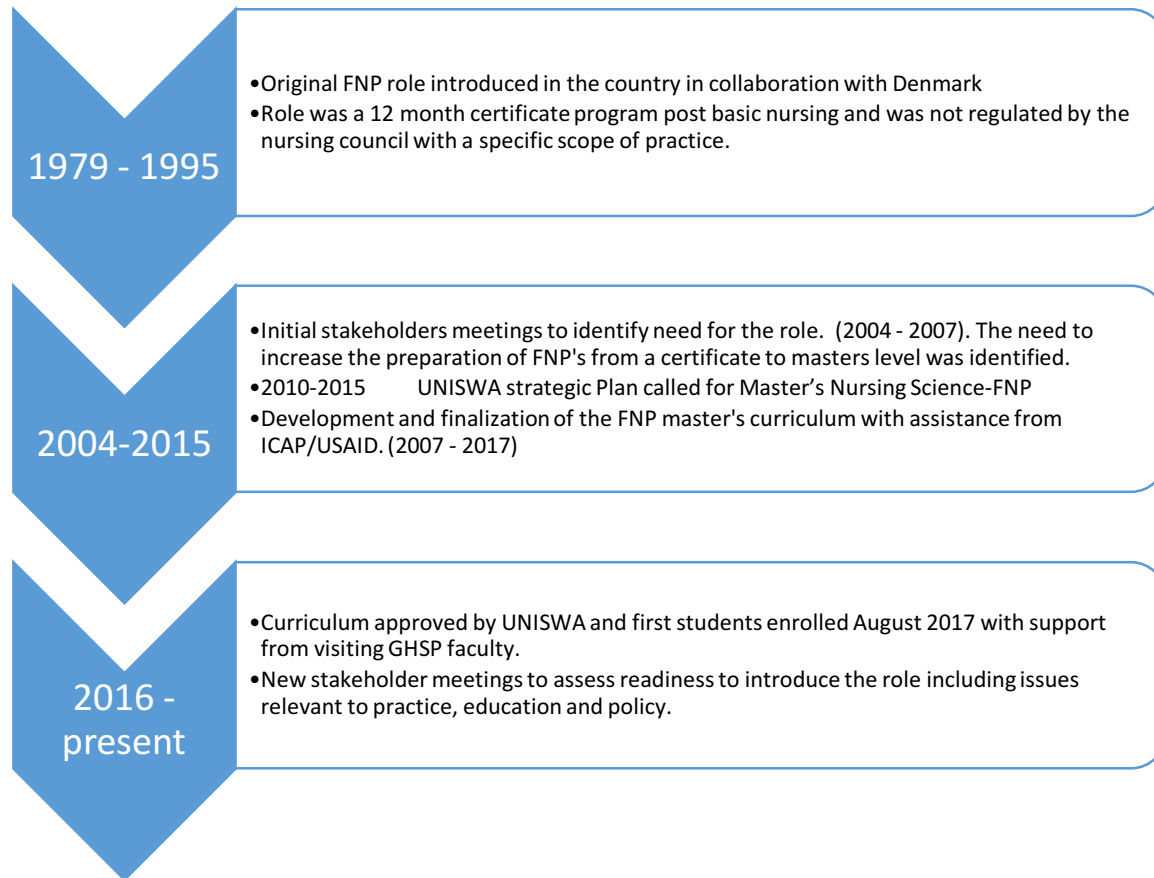
Project design

The current landscape assessment consisted of four phases, the first of which began in August 2017 and the fourth ended in June 2018. The first phase comprised project planning which included a literature review for related projects and lessons learned, identification of stakeholders and key informants, and development of project documents. Phase 2 occurred in November 2017 with stakeholder meetings in the Lubombo and Manzini regions. Key informant interviews and visits to health facilities were also conducted. Phase 3 occurred in January 2018 with stakeholder meetings in Hhohho and Shiselwini regions along with additional key informant interviews and health facility visits. During the fourth phase, the project team analyzed field notes, developed recommendations, and conducted two follow-up meetings with stakeholders.

Current model of care

Swaziland offers both public and private systems of care. The public system offers multiple points of access to care. Health workers in the community include rural health motivators who work with people in their homes. Four public health units offer preventive care such as immunizations and family planning services. Over 200 clinics, both public and quasi-public run by faith based-organizations, are primarily staffed by registered nurses who provide first-line curative services with referral to health centers for care requiring more resources. There are six regional hospitals, a national referral hospital and two specialty hospitals, one for people with TB and the other for people with mental health needs. The rural nature of the country makes it geographically difficult for people to access many of these services. Resource constraints, including human resources, supplies, medication and equipment, often adversely affect the delivery of care. The private system is available to individuals with insurance or who are willing to pay for costs. Insurance is offered primarily to public employees and by some private businesses with an estimated 8% of the population covered. The private system offers clinic and hospital based care.

The model of care in Swaziland changed in 2012 when the Ministry of Health introduced the Standard Treatment Guidelines and Essential Medicines List of the Kingdom of Swaziland to guide health professionals in making decisions about appropriate treatment for specific clinical conditions. The guidelines include the country's most common conditions, a short definition of each with common signs and symptoms and recommended management (pharmacological and non-pharmacological). The Essential Medicines list reflects the most widely used medicines in Swaziland and indicates which health professionals, including nurses, may prescribe them. Registered Nurses are authorized to prescribe medications such as some antibiotics, vitamins, immunizations and family planning technologies. Another important factor in the provision of care is the scale –up of nurse-led treatment for care of people with HIV and TB infections. This and other 'task-shifting' has created an increased burden on nurses.



In summary, prior and current landscape assessments have noted the high burden of disease and lack of access to appropriate levels of health services in a country where the majority (79%) of individuals live in the rural setting which further compounds issues around access. This is compounded by a critical shortages of human resource for health (most notably for nursing) and those nurses who practice in clinical settings identify the needs for additional preparation post basic nursing education to care for the increasing complex needs of their patients

PEPPA Step 2 Identify stakeholders and recruit participants

Participants for the stakeholder sessions were drawn from the community, nursing and medical professions and policy makers; and were asked to provide their perspective on the need for the family nurse practitioner role and the readiness of the country to introduce the role in Swaziland. Nurses from a variety of health care settings attended four different meetings. Nurses were recruited through contacts with matrons, sisters (both groups of managers) and by the personal request of the project lead who has worked with nurses throughout the country in a variety of clinical and educational roles. Three meetings with community members were also conducted. Nurses working at health centres voluntarily recruited community members, many of whom were rural health motivators and several council members. During visits to health facilities, several physicians participated in discussions.

Key informants were selected based on their relationship to nursing education and practice. They included officials and staff affiliated with the Ministry of Health, Ministry of Labor, Nursing Council, Medical-Dental Council, World Health Organization, International Center for AIDS care and treatment Program (ICAP), and Swaziland Nurses Association. Visits to health facilities provided an opportunity to develop a deeper understanding of the comments made by stakeholders. The facilities included Good Shepherd Hospital, Mankayane Government Hospital, Hlatikulu Government Hospital, Matsenjeni Health Center, Dvokolwako Health Center and Manzini Clinic.

Stakeholder meetings were one to two hours long. The project co-leads facilitated discussions using open ended questions to elicit information about the health care system and the challenges faced by health facilities, nurses, physicians, staff, and patients. A description of the FNP role and the UNISWA program was provided to allow stakeholders to reflect on the potential benefit and challenges of introduction of the role. A similar approach was used with key informants. Appendix I summarizes pertinent information about the meetings.

PEPPA Step 3 Determine need for a new model of care

Social Determinants of Health

- Many people experience poverty and lack basic resources including food and water.
- The rural nature of Swaziland results in costly and lengthy travel to health care facilities where care is often delayed due to long waits. People may not go for referral due to cost unless ambulance transports them.

Access to care

- The large number of patients and limited time physicians are present results in long queues and long wait.
- The lack of health professionals, particularly in remote clinics, results in referral to another facility for care.
- Chronic shortages of medications requires people to go to a private pharmacy, taking additional time and money, only to learn the medication is not available there.
- Nurses cannot initiate medication for NCDs.
- There are not enough nurses and often there are no positions to allow for hiring more.
- Routine care such as physicals for work are often delayed due to limited number of physicians.

Efficiencies and quality

- Many physicians are foreign and do not speak SiSwati which may require nurses to translate.
- Nurses are not educated for the complex care required to meet the needs of many people.
- Registered nurse experience does not always prepare them for the position to which they are deployed and in some instances a newly graduated nurse may be deployed to be in charge of a clinic.
- Care is fragmented with no comprehensive integration of preventive, curative and rehabilitative care.
- Follow-up care often does not happen
- Community members repeatedly noted a lack of respectful care by nurses and physicians

PEPPA Step 4 Identify priority problems and goals to improve model of care

Goals

- Better access with shorter waits for patients and shorter queues for nurses
- Fewer referrals and fewer complications from delayed care
- Promote holistic, high quality, safe care
- Improve culturally/linguistically congruent care

PEPPA Step 5 Define new model of care and APN role

In order to meet the needs of Swaziland, the decision was made to focus on a family-centered model in recognition of the family as a basic unit of service in the community and with respect for the family's right in making decisions regarding health and self-care (University of Swaziland, 2017, p 6). The Family Nurse Practitioner role was conceptualized as an APN (advanced practice nurse) in the course of the development of the UNISWA educational program. The philosophical underpinning of the new model of care proposed by UNISWA (University of Swaziland, 2017) also articulated a belief that FNPs:

- Are front-line care providers in health care settings, for clients seeking health care interventions.
- Should function autonomously within the multi-sectoral and multidisciplinary health care system.
- Empower families to render care to members with health care needs.
- Have an obligation to empower the individual, family and community with knowledge of diseases prevention and promotion of health while also rendering quality health care services.
- Should function in an enabling environment.

A full scope of practice was presented to the Swaziland Nursing Council and received approval (Appendix II). The proposed role and scope were presented to the stakeholders and key informants for discussion. Examples of the FNP role and practice in the United States were used to illustrate the potential for FNP care with the caveat that local context would influence the role development in Swaziland. The introduction of the role is focused on meeting the needs of the current model of care rather than reinventing the model itself.

- The full practice authority of the FNP was supported as a strategy to improve quality and access to care.
- Nurses and FNPs as well as FNPs and physicians will need to understand the differences in their scopes of practice to develop a collaborative care model (Appendix III).
- FNPs have the potential to provide care into a holistic integrated model.
- The FNP will focus on care provided in clinics and outpatient departments allowing physicians to focus more on tertiary care

PEPPA Step 6: Plan implementation strategies

The overarching goal-related outcomes expected from the introduction of the FNP role is improved health of the population of the people of Swaziland through quality, comprehensive care at the point of service. A collaborative care model which utilizes the knowledge, skills and attitudes of nurses, FNPs and physicians to the full extent of their education and licensure will be

an additional outcome. The first cohort of FNP students will graduate in October 2020. Curricular review and revision is ongoing while the recommended strategies for implementation of the role should be completed by the time the graduates are deployed.

Barriers and facilitators

Stakeholder meetings and key informant interviews identified numerous barriers and facilitators to FNP role development and implementation in the following domains.

Stakeholder awareness of the role

Barriers

- Lack of FNPs practicing in the country to model for students
- Lack of role clarity particularly because of the prior role
- Uncertainty about the receptiveness of the private sector to the role
- Potential for inter and intra-professional role conflict
- Medical-Dental Council registrar concerns about scope of practice

Facilitators

- Framing the problem as one of a provider shortage rather than a physician shortage
- Nurses support for improved patient care and the FNP as a new role to achieve this outcome
- Nurses express a commitment to professional advancement and the desire for personal satisfaction: “I’d do it for myself” and “for the patients”.
- Patients are perceived as being receptive to the FNP if their needs are met
- Doctors on the ground are receptive to the FNP role
- FNPs would speak SiSwati
- Communities receptive to the opportunity to have FNP students and FNPs deployed to their clinic

Advanced practice nursing education

Barriers

- Distance to the academic center
- Lack of financial support for students who are not in training plans
- Students lack time off from work for classes and exams
- Technology limitations – lack of internet
- Development of clinical placements
- Physicians as preceptors who cannot model the FNP role
- Lack of a health assessment and diagnostics course

Facilitators

- Students are motivated to be enrolled in the program and are making personal sacrifices
- Seed Global Health/GHSP volunteers
- WHO has content experts who can teach and other physicians are agreeing to be guest lecturers
- Baylor pediatricians have agreed to precept the first cohort of students
- MOH Deputy medical officer has agreed to assist in finding preceptors
- Students are attending Saturday sessions to learn health assessment

Administrative support and resources

Barriers –

- Facilities lack of consultation rooms, equipment, medications
- Concerns that nurses will be overworked and not paid well
- Lack of an FNP cadre and pay scale
- Outdated national training plan

Facilitators

- Clarity regarding the process to establish an FNP cadre and pay scale
- MOH training plan staff understand the need to revise and update the plan

Regulatory mechanisms, policies and procedures

Barriers

- Maldistribution of health workers, many of whom decline to go to rural areas
- Uncertainty regarding who will supervise the FNP
- MOH policies and procedures do not reference the FNP, e.g. FNP not part of the EML prescribing schema

Facilitators

- Clarity regarding the process for establishing the cadre for advanced practice and at what level remuneration would be at a higher level than the RN
- MOH Chief Nursing officer, deputy nursing officer/Swaziland Nursing Council registrar, and deputy health officer are supportive of FNP role

Strategies for role implementation

The following strategies are recommended to maximize role facilitators and minimize role barriers.

Stakeholder awareness of the role

- Stakeholders including nurses, physicians, students, community members, managers and government officials should receive information about the FNP role on an ongoing basis and have an opportunity to develop an understanding of the role
- Placement of students in health facilities where they are likely to be deployed
- Students in the program should share their experiences with work colleagues
- Prior to deployment of the FNP graduates in 2020, the MOH, UNISWA and the FNP graduates should facilitate a meeting with the community and health professionals to introduce the FNP to the health facility

Advanced practice nursing education

- Consider addition of a health assessment and clinical decision making course
- Emphasize clinical practice and decision making
- Orient physician preceptors to the FNP role
- Require that students pass a comprehensive written and clinical examination at the end of each internship semester
- Design the monitoring and evaluation course to prepare FNPs to evaluate the effectiveness of their practice
- Identify sources for scholarships, travel and lodging support for clinical
- Partner with MOH and NGOs to provide internet access to students

Administrative support and resources

- Notify a health facility at least 3 months prior to deployment an FNP to allow the managers to prepare a plan for integration of the FNP
- Assure there are an adequate number of consultation rooms and any additional equipment and supplies to support the FNP's practice
- The MOH in collaboration with the university and health care facilities establish a one year long transition to practice FNP residency program that supports the successful integration of the new FNP graduate into the role
- Improve technology resources at MOH computer centers for access to electronic resources

Regulatory mechanisms, policies and procedures

- The MOH and MPS establish this new FNP cadre with a grade which reflects the advanced practice level for which there will be remuneration at a pay scale higher than that of the RN
- Update the Standard Treatment Guidelines and Essential Medicines List to include the FNP role in relation to prescribing and treatment at the advanced practice level
- Revise the MOH protocols to include FNP role in relation to referral and admission
- Identify reporting and personnel mechanisms
- Health facilities in high need communities should establish a pipeline of nurses to become FNP students with the goal of having them return to the community to work
- Revision of the MOH's national training plan to include FNP students as a priority and to accommodate current models of education including part-time and distance learning
- Develop an evaluation plan to assess the contributions of FNPs to the health of the people of Swaziland

Summary

Across the spectrum of stakeholders including community members, nurses, physicians and policy makers, there was general consensus that the FNP would fill an important gap in health care delivery in Swaziland and that they should work in communities of need. They anticipate the FNP will improve access to care, provide holistic, high quality, safe, care; help reduce waiting times; reduce unnecessary referrals; reduce cost; improve culturally and linguistically congruent care; and strengthen the role of practicing nurses and physicians. It will take time and a concerted effort among the health care sector, education sector and public policy sector to implement this role in an effective manner.

Next Steps

This landscape assessment focused on readiness to introduce and implement the FNP role in Swaziland. The PEPPA framework moves beyond this to the actual implementation and evaluation of the role. The following steps in the PAPP framework focus on initiation of the role and long-term evaluation and serves as a guide to the way forward after the role is implemented.

PEPPA Step 7: Initiate APN role implementation plan

Begin role development and implementation

The landscape assessment project served as a mechanism to begin to introduce the FNP advanced practice role to the country. Many nurses at the meetings indicated interest in enrollment in the UNISWA FNP program. In general, there was consensus among stakeholders the FNP will be a valuable member of the health care team and communities are willing and eager to host FNP students and have FNPs deployed to their health facilities. Stakeholders at the landscape assessment report meetings endorsed the themes and recommendations and continued to make comments and ask questions which will guide further role development and recognition. For example, regulators were interested in the response of the students to the program as they will be the ones to market the program. Interest in who will be preceptors and if students are being taught to consult were also topics raised. Remuneration was a recurring theme. These issues will need to be addressed prior to the deployment of the first graduates in 2020.

Develop APN role policies and procedures

The approval of the FNP scope of practice by the Swaziland Nursing Council occurred in 2017 prior to the admission of the first cohort of FNP students. This is a distinct advantage for role introduction and implementation. Both the MOH Chief Nursing Officer and Deputy Chief Nursing Officer, who also held the Swaziland Nursing Council registrar position at the time, for clinical services attended a landscape assessment report meeting. This was an opportunity to ask for the initiation of the process for establishment of the FNP cadre and consideration for the additional policies and procedures necessary for role implementation. The landscape assessment report will be shared with MOH and other government stakeholders to facilitate the development of policies and procedures. Relevant APN policies and procedures will need to be developed prior to the deployment of the first graduates in 2020.

Provide education, resources and support

The formal educational preparation of FNPs is approved and implemented at UNISWA which has admitted two cohorts of students, one in August 2017 and one in January 2018. Subsequently, one cohort will be admitted in August of each year beginning in 2019. The first class is scheduled to graduate and be deployed to the field in 2020. Input from the landscape stakeholders strongly suggested that FNP graduates placed in the field will require at least one year of mentoring (transition to practice residency), and after the first year will continue to need ongoing professional development and educational support. Planning for this support in advance is critical to the successful introduction of the role in the country.

It will be helpful to develop long-term partnerships that can assist in these long-term educational resources and support. The program has been implemented by UNISWA in collaboration with the Global Health Service Partnership (GHSP), a program sponsored by Seed Global Health, U.S. Peace Corps and the President's Emergency Plan for AIDS Relief. Seed Global Health provided support for the landscape assessment through the generous funding of Children's Relief International. GHSP will end in July 2018 and it will be helpful to establish long-term academic partnerships with UNISWA and the MOH that can support on-going educational support to practicing FNPs.

PEPPA Step 8 Evaluate APN role and new model of care

An academic program evaluation has been outlined and baseline data has been collected. Following completion of the landscape assessment, a plan to monitor and evaluate the outcomes

of FNP care. The country is in the process of implementing an electronic health record. Until this has reached all facilities, outcomes to be monitored will rely on currently available data such as the number of people referred to a higher level of care. Patient wait time, patient and nurse satisfaction with the role, safety, efficacy, and cost are important outcomes to initially evaluate.

PEPPA Step 9 Long-term monitoring of the APN role and model of care

The effect of the FNP on health care in Swaziland will require long term monitoring. Outcomes of FNP care will require re-evaluation of the role and the model of care in the nation. The PEPPA framework is an iterative one.

Contributors:

Colile P. Dlamini, PhD, RN, Louise Kaplan, PhD, ARNP, FNP-BC, FAANP, FAAN, Eileen Stuart-Shor, PhD, ANP-BC, FAHA, FAAN, Tengetile R. Mathunjwa-Dlamini, PhD, RN.

Acknowledgements

With sincere appreciation to the community members, nursing faculty, students and policy makers who dedicated time and energy to participating in the stakeholder interviews. We gratefully acknowledge funding from the Child Relief International Foundation which supported the implementation and evaluation of this landscape assessment. We also acknowledge and appreciate the contributions and support of the General Nursing Science Department faculty and administration at UNISWA who had the vision and passion for the FNP role in Swaziland and to Seed Global Health who partnered with UNISWA throughout this project.

References

- Bryant-Lukosius, D., & DiCenso, A. (2004). A framework for the introduction and evaluation of advanced practice nursing roles. *Journal of Advanced Nursing*, 48(5), 530-540.
- Farley, J.E., Ndjeka, N., Kelly, A.M., Whitehouse, E., Lachman, S. Budhathoki, C., . . . van der Walt, M. (2017) Evaluation of a nurse practitioner-physician task-sharing model for multidrug-resistant tuberculosis in South Africa. *PLOS One*, 1-11, <https://doi.org/10.1371/journal.pone.0182780>
- International Council of Nurses (ICN). ICN Nurse Practitioner / Advanced Practice Nursing Network: Definition and Characteristics of the Role. Available at: <https://international.aanp.org/Practice/APNRoles>
- Kingdom of Swaziland Ministry of Health. (2015a). Annual Non-communicable diseases (NCD) program report. *Monitoring & Evaluation Unit, Strategic Information Department*.
- Kingdom of Swaziland Ministry of Health. (2015b) The second national health sector strategic plan 2014-2018: Towards attainment of universal health coverage.
- Kleinpell, R. (2013). Measuring outcomes in advanced practice nursing. In R. Kleinpell, (Ed.) *Outcomes assessment in advanced practice nursing, third edition* (1-44). New York: Springer.
- Mathunjwa, M.D., & Potgieter, E. (2004). The roles of family nurse practitioners (fnps) in Swaziland and their needs for continuing education. *Africa Journal of Nursing and Midwifery*, 6 (2), 13-19.
- Newhouse, R.P., Stanik-Hutt, J., White, K.M., Johantgen, M., Bass, E.B., Zangarao, G., . . . Weiner, J.P. (2011). Advanced practice nurse outcomes 1990-2008: A systematic review. *Nursing Economic* 29(5), 230-251.
- Oliver, G.M., Pennington, L., Revelle, S., & Rantz, M. (2014). Impact of nurse practitioners on health outcomes of Medicare and Medicaid patients. *Nursing Outlook*, 1-8. <http://dx.doi.org/10.1016/j.outlook.2014.07.004>
- Swaziland Institute for Health Sciences. (1994). Family nurse practice programme curriculum. University of Swaziland Department of General Nursing Science Faculty of Health Sciences.
- (2017). A proposal for master of nursing science in family nurse practice [MNSC. FNP] programme.
- Whiteside, A. & Fiona, E. H. (2011). The impact of HIV and AIDS research: a case study from Swaziland. *Health Research and Policy Systems*, 9 (supp.1): S9.
- WHO. (2013). Global action plan for the prevention and control of non-communicable diseases 2013-2020. http://apps.who.int/iris/bitstream/handle/10665/94384/9789241506236_eng.pdf;jsessionid=14562B206EDD3CF6F570E8D5BE90D9D8?sequence=1
- WHO. (2014) NCD Country Profiles. <http://www.who.int/nmh/publications/ncd-profiles-2014/en/>
- WHO. (2017). Global Tuberculosis Report, http://www.who.int/tb/publications/global_report/en/.
- World Bank. (2013). Kingdom of Swaziland Service Availability Mapping (SAM) Report.

Appendix I
Summary of Landscape Assessment Participants

DATA COLLECTION MEETINGS			
Date	Venue	Participants	No. of participants
01 November 2018	Mankayane Government Hospital	Matron, Senior Medical Officer, Nurse Managers, RN	8
03 November 2017	Siteki Hotel Lubombo	Matrons, Nurse Faculty, Nurse Managers, RN	13
04 November 2018	Sithobela Health Centre	Rural Health Motivators, Community Council Members, Community Members,	22
06 November 2018	Tums George Manzini	Matrons, Nurse Faculty Nurse Managers and RN	25
16 January 2018	Mbabane Campus	Nurse Faculty, Environmental Health Science Faculty, Matrons, Nurse Managers, RN, Partners	37
18 January 2018	Phumula Guest House Nhlangano	Matrons, Nurse Managers and RN	18
19 January 2018	Dvokolwako Health Centre	Community Council Members, Health Centre Committee Members, Rural Health Motivators, Community Health Workers, Youth Representative	18
20 January 2018	Matsanjeni Health Centre	Community Council Members, Health Centre Committee Members, Rural Health Motivators, Community Health Workers, Youth Representative	17
Key Stakeholders Interviews		Ministry of Health, Nursing and Health Regulatory bodies, Nurses' association, Partners, Ministry of Labour	10
Sites Visited			
01 November 2017	Mankayane Government Hospital		
03 November 2017	Good Shepherd Hospital		
04 November 2017	Sithobela Health Centre		
06 November 2017	Manzini Clinic		
18 January 2018	Hlathikhulu Government Hospital and PHU		
19 January 2018	Dvokolwako Health Centre		
20 January 2018	Matsanjeni Health Centre		

VALIDATION MEETINGS			
Date	Venue	Participants	Number
13 June 2018	Kwaluseni campus	Matrons, Nursing Faculty, Nurse Managers, RN, Community Leaders, RHMs, FNP Students	34
14 June 2018	Mbabane Campus	CNO, Registrar (SNC), DCNO, matrons, Nurse managers, RN, Faculty, RHMs, FNP Students	26

Appendix II

Family Nurse Practitioner Scope of Practice

- 1.8.1 Obtaining health histories and conducting physical examinations;
- 1.8.2 Critical analysis, interpretation and synthesis of information;
- 1.8.3 Diagnosing, treating, and monitoring acute illnesses, infections and injuries;
- 1.8.4 Diagnosing, treating, and monitoring chronic diseases (e.g. HIV and AIDS, TB diabetes mellitus, hypertension, epilepsy etc.);
- 1.8.5 Ordering, performing, and interpreting screening and diagnostic studies e.g. laboratory tests, x-rays, electrocardiogram [ECG], etc.
- 1.8.6 Communicating effectively, counselling, coaching, facilitating, and conflict resolutions;
- 1.8.7 Selecting, recommending, prescribing (depending on Swaziland Nursing Council Regulations) and monitoring the effectiveness of selected drugs and interventions;
- 1.8.8 Collaborating with physicians and other health professionals as needed, including providing referrals;
- 1.8.9 Counselling and educating clients on health behaviours, self-care skills, and treatment options;
- 1.8.10 Prescribing physical therapy and other rehabilitation treatments;
- 1.8.11 Providing maternal and child health services and family planning services; and
- 1.8.12 Providing health maintenance care for adults and children including annual physical examination.

Appendix III

Example of the Application of the Collaborative Care Model

Diabetes	Registered Nurses	FNPs	MDs
History	Nursing history	Full history	Full history
Exam	Inspection	Physical exam	Physical exam
Lab	Random Blood sugar	Relevant labs such as kidney function tests	Relevant labs such as kidney function tests
Medication	Refill	Initiate and manage	Initiate and manage high risk patients with end organ disease
Education	Health promotion/disease management	Health promotion/disease management	Health promotion/disease management
Referral	All patients for initial care to FNP	Patients with end organ disease to MD Patients who have well controlled diabetes to the RN	Patients who are stabilized to FNP