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Performance Improvement Project Proposal Implementation of Family Nurse Practitioner Led Clinic in the Saudi Primary Health Care System: Quality Improvement Project

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I. Introduction

Starting to implement any new specialty concept in health care system seems to face many obstacles and political issues, however Advance Nursing Practice is a new concept in Saudi Arabia need to be applied gradually and under standardized scope of practice. Not all the responsibilities of ANP in US or UK can be applied in Saudi Arabia at once, but taking in consideration the previous experiences and barriers had been overcome in these countries to shorten the journey and save time and efforts of applying this specialty.

Overview

The Primary health care (PHC) is considered as the foundation of any health care system. Internationally, the significant of PHC has been identified, and stakeholders working very hard for the improvement of PHC systems. In 1978, Saudi Arabia introduced the development of PHC as one of the essential strategies for providing optimal health care according to *the Alma Ata Declaration*, issued by the *World Health Organization General Assembly*. In 1983, the promotion and adaption of the PHC concepts as a foundation of the health care system had been started by the government (Jahan, S. and Al-Saigul 2017). Nowadays, the excellent established PHC system of the Ministry of Health (MOH) resulted in operating a total of 2361 PHC centers located all over the Saudi Arabian countries. They provide comprehensive PHC services, including preventive and curative care services (Ministry of Health, 2017,74). However, Family Medicine (FM) as a specialty was started in a military hospital in Riyadh in the early 1980s. Later, the postgraduate certificate was given recognition. Fellowship programs in FM were started in King Saud University and King Faisal University followed by Arab Board in 1991. Then it was followed by the Saudi Board under the umbrella of Saudi Commission for Health Specialties (SCFHS) in 1995 (Al-Khaldi, Y et al., 2017).

Statement of The Problem

There are 2361 primary health-care centers (PHCCs) in Saudi Arabia, about 60% of them are located in the rural areas. There is a significant shortage in the number of physicians (GPs) working at all primary health care centers. The physician–people ratio is low (3.1/10,000 population) as reported in 2015 (Ministry of Health, 2017). However, a visible shortage among qualified family physicians (FPs) in all health sectors in the Kingdom Saudi Arabia as a result of defect planning for education and training of FPs. It is very necessary to deal with this situation and improve the quality of health-care services at PHCCs by creating a local strategic plan with precise objectives and budget (Al-Khaldi, Y et al., 2017,156).

Aims and Objectives

The aim of this quality improvement (QI) project proposal is to introduce an evidence-based intervention by implementation of FNP led clinics in Saudi Primary Health Care System and identify the strengths, limitations and barriers in applying this new concept and model of care in the kingdom of Saudi Arabia. The project will provide short term and long term evaluation, continuous modifications and planning strategy in order to maximize the benefits for all including organizations, health care providers and patients' outcomes by minimizing the barriers relevant to the FNP led clinic implementation process and follow the international evidence based experimental trails. Another objective of this QI proposal is to gain the attention and interest of stakeholders in the ministry of health in order to gain their support to move the nursing profession forward in Saudi Arabia to be a global model in nursing development. Finally, this proposal will highlight the effect of FNP implementation in primary health care system in terms of patients' satisfaction, cost effectiveness and reduction of waiting time.

Significance of The Project

This QI project proposal will highlight the importance of implementing the FNPs Led clinic in the primary health care system in Saudi Arabia and the influence on building the gap of shortage among GPs and FPs especially in rural settings and improving the quality of care. Hence, FNPs led clinic is the most appropriate solution in this situation as proven internationally to promote health, increase patient satisfaction and allow more time for physicians to manage the complicated cases in their clinics. It will promote collaborative and coordinated relationship among multidisciplinary health care providers and reflect positively on the patients' outcomes in terms of quality of care and satisfaction related to health service.

II. Literature Review

The review of the literature related to the concept of the influence of the FNPs led clinic implementation in the primary health care setting. The following data base used: CINAHL, PubMed, Cochrane and Google Scholar. In addition to these data bases reports from Saudi Ministry of Health (MOH) was reviewed. The following keywords were used (advance nursing practice, nurse practitioner, primary health care, Saudi Arabia). This literature review contains articles from the year 2005 to 2018. introduction of the advanced nursing practice (ANP) in Saudi Arabia begins in 1990s in a major tertiary hospital in the capital of Riyadh (Hibbert, D et al., 2017). In this section a total number of articles collected were 51 articles related to the ANP implementation, and PHC in Saudi Arabia but the final number of articles assessed and to be included in the QI project proposal is 16 articles focusing on the influence of ANP in the PHCS.

Background

In Saudi Arabia (El Bcheraoui, C, et al.,2015) published The Saudi Health Interview Survey (SHIS) which was a national multiple stages survey of individuals at age of fifteen years and above. It was the first local representative paper assessing facilitators and barriers to healthcare services in Saudi Arabia, their findings show the importance of personal features in medical care services reaching attitudes, more than assessing organizational potential barriers. The findings reported that not only distance or type of healthcare clinic service were barriers to proper diagnosis and management of the most two leading chronic illnesses in Saudi Arabia (2015). The availability of facilities within accessible distance increase the chance of health improvement for all population and will increase the consumers' satisfaction. many researches showed increased rate of dissatisfaction among patients related to services characteristics, distance travelled to seek health care, health organization working hours, lack of specialized outpatients' clinics, increasing waiting time, construction of waiting area and confidentiality precautions followed by facility were the most undesirable factors affecting client's satisfaction (El Bcheraoui, C, et al.,2015). In another study regarding the PHCs services in Saudi Arabia, a research conducted in 2016 about the evaluation of PHCs services in Riyadh Health Sector from the user's perception, they mentioned that the access and effectiveness in PHCs in Saudi Arabia are good and poor in relation to different criteria. The studies determined that PHC centers were accessed and reflect effectively for

patients seeking counseling in immunization, maternal health care and epidemic diseases control. However, improper access and ineffectiveness were stated for management programs of chronic illnesses, prescribing methods, health awareness and education, referral frequency and some aspects of relational care and communication including those caused by language barriers. The fact most of patients would not choose PHC as their first choice should be investigated further. There is a need for additional inspections for the reasons behind this decision. Few people visit PHC centers to get referrals to secondary or tertiary hospitals. (Ali M Alzaied, T. and Alshammari, A. 2016). On the other hand, many newly graduated physicians are preferring to work in hospital rather than PHCs especially in rural areas, H. Al-Ahmadi and M. Roland in their study explored the reasons behind that when they reported that evidently, it is specified that specialized progress strategic followed at present in primary care setting are inadequate; and reported only one-third of physicians working in primary care have qualifications after they graduate, but none of these courses were in primary health care specialty. Major additional barriers to professional development were workload and lack of time (AL-Ahmadi, H. and Roland, M.,2005). This situation may be improved at present in terms of education and training, but the fact that physicians tend to work in tertiary or secondary hospitals is remain due to lack of education programs in primary health care centers especially in rural areas were the health care providers may have difficulties to register for courses or medical symposium due to shortage of staff who will replace them during these education activities.

Hence, building an APN model based on Saudi healthcare culture and patient population needs is being very crucial at this time, while distinguishing international historical foundations. Certifying that nursing remains to differentiate itself from other healthcare professions, while shaping a position at the multidisciplinary healthcare table will be opportunity in progressing the practice (Hibbert, D et al., 2017). In order to support shortage in medical specialties such as family medicine and public health which are the most filed used in primary care services as proven in several statistical studies around the world.

Globally, this situation can be resolved when the qualified nurse practitioner led the family clinic in primary health centers, especially in rural areas. The problem is experienced in other countries around the world, in April 2018 the Credentialing Resource Center Journal under the title of Physician Shortage and the Role of Nurse Practitioners stated "When the time comes to choose a medical field, primary care is often overlooked for what medical students and residents consider more glamorous specialties. Unfortunately, this can cause its true value to go ignored. By 2025, there will be a predicted primary care shortage of 12,500 to 31,100 physicians, while the demand for said care is expected to increase within the next five years thanks to population growth, aging, and expanded health insurance. Primary care physician (PCP) have the distinction of frequently representing a patient's first encounter with the medical system. They play a key role in managing chronic conditions such as diabetes, asthma, or heart disease. If there aren't enough PCPs, patients will be forced to wait instead, nurse practitioner (NP) are one possible solution to our supply-and-demand problem" (Kondillis, 2018, 2). In another hand, Gray, A. precises in her study, pointed that many drivers have been identified for the new roles of ANPs in UK, but arguably two are pre-eminent: first, the decrease number of physicians and 'doctoring' hours available to contribute to service provision; and, second, the increase in numbers of older patients with complex health care demands, who need new and innovative responses beyond the scope of medicine (Gray, A. 2016).

The literature review of an evidence-based practice overviews regarding the impact of implementing the ANP in the Health Care System includes the following themes; cost effectiveness, quality of care improvement, patients' satisfaction and reduction of the waiting time in the FM clinics which will be focused in this proposal to keep the content evidence based and concise in contents toward achieving the main goal. The next paragraphs will view literature review related to these themes.

Cost Effectiveness

In the term of cost effectiveness, collaboration between nurse practitioner and physician in patient's management is associated with decreased hospital staying period and costs and increased hospital income. NP-managed care within emergency care settings is also associated with decreasing in costs. NP-led clinic management was associated with dimensioned general drug costs for inpatients (Nurse Practitioner Cost-Effectiveness, 2013). Nurse practitioners' work in communities impacted in cost savings, increased access to health care services and benefits of empowering for change (Grant, J. et al., 2017). However, to examine the cost-effectiveness, another study was conducted in Canadian home care setting stated that due to doubt around the distribution of costs and effects, the researchers were unable to make a definitive conclusion regarding the cost-effectiveness of the nurse practitioner-family physician model; however, these results suggest advantages that could be confirmed in an expanded study to compare a nurse practitioner-family physician model of care with family physician only care. Because of increasing the demand for long-term care, an alternative care models including nurse practitioners are being explored (Lacny, S et al., 2016). Ahead of the previous studies, Jeffrey C. Bauer, who is universally known as medical economist and health futurist, published over 180 articles and books on the health industry, including several economic analyses of input substitution as a significant tool

in minimizing costs and improving quality in medical care delivery conducted a research under the title of *"Nurse practitioners as an underutilized resource for health reform: Evidence-based demonstrations of cost-effectiveness"* published by the Journal of the American Academy of Nurse Practitioners in 2010 specified that for several decades, the health care systems experienced the role of ANPs and many studies discussed the effectiveness of the collaborative and partnership professional relationship between ANPs and GPs in most of the health care services including hospitals, public and community setting, palliative care, school health and especially primary health care services. Hence, quality of care is not a concern of improvements that allow NPs to provide more services; they care for patients as well as the GPs in many clearly defined situations of nursing and medical practice. In general, costs of medical care are remained in unnecessarily high levels by politics prevent the replacement of NPs to GPs in these overlapping areas. In order to offer an exceptional way to reduce the cost of care, politics must remove unfitting obstacles to input substitution without compromising quality, in the management of simple to complex health issues for patients in all ages. The annual imports can clarify the cost-effectiveness advantage of implementing NPs; in 2008, the average total compensation for NPs was almost $ 92,000.8 and the average earnings for primary care physicians and internists in the same year were $ 162,500.9 (Bauer, J., 2010, 230).

Quality of Care

Moreover, another indicator for measuring the influence on ANP led clinic services in the health care system is the improvement in the quality of care. The ANPs had a positive impact on patient experience, outcomes and safety. They improved staff knowledge, skills and competence and enhanced quality of working life, distribution of workload and team- working (McDonnell, A., et al., 2014). In USA, accessing the primary health care services is a significant issue facing the American healthcare system. However, it is the time for the nursing leaders to take the lead in the primary health care system especially in the rural area through ongoing education, training, practice, and research. The first conceptual description of the nurse practitioner (NP) employment was formulated with the goal of meeting the health care demands of rural citizens with high quality services and maintained patients and family safety (Kippenbrock, T., et al., 2017). Nowadays, APNs proven the nursing expertise in practice and clinical setting, education, research and leadership; and they are no longer perceived as replacing physicians or assistants. Saudi Arabia has yet to define, legislate or regulate APN (Hibbert, D et al., 2017). *The Saudi Central Board for Accreditation of Healthcare Institutions* (CBAHI) aimed to support all healthcare facilities by accreditation to constant fulfil addressing both quality and patient safety; consequently applying standards of care and monitoring roles in all health setting including primary health care where the quality of care should have the priority to meet the desirable goal (The Saudi Central Board for Accreditation of Healthcare Institutions, 2018).

Patient Satisfaction

It is internationally proven that the nurse practitioners' work in community settings reported positive satisfaction and outcomes in individual, community and societal levels and benefits for population recognized as vulnerable due to ethnicity, Aboriginal identity, socioeconomic disadvantage, remote location, gender and aging (Grant, J., et al., 2017). A systematic review reported that nurse practitioner service in emergency department has a significant effect on quality of care, patient satisfaction and reduction in waiting times. There is limited evidence to draw conclusions about the outcomes of a cost effectiveness analysis (Jennings, N., et al., 2015). In a RCTs of NP and (clinical nurse specialist) CNS cost-effectiveness between January 1980 and July 2012 used a worldwide lens and inclusion criteria that meet present descriptions of the NP and CNS roles; the reviews have shown that patients receiving NP care have no difference in health outcomes when compared to those receiving care from physicians but often both quality of care and patient satisfaction are reported higher with NP services (Donald, F., et al., 2014). Another systematic review of 36 articles which evaluate the impact of employing NPs in EDs results in reduction of waiting time, increase patients' satisfaction which lead to the delivery of reducing costs and improving the quality of care. NPs were found to be competent equally as GPs in interpreting X-rays and more competent in phone follow ups with their patients; and performing physical examinations and making appropriate consultations (Carter, A. and Chochinov, A., 2007).

Waiting Time

Nurse practitioners are capable of rendering health care services as timely as, if not faster than, physicians. The addition of NPs in the health care settings allowed physicians to give greater attention to patients of higher complex health conditions and more acuity; thus, improving access to prompt management and health care services, and decrease the waiting time as well (Woo, B., Lee, J. and Tam, W., 2017).

Roots, A. and Macdonald, M. conducted a mixed method study evaluating the role of ANPs in primary care setting in the term of outcomes associated with the collaborative practice with GPs in rural area in Canada. They did their research in three case studies where nurse practitioners were involved into rural payment for service practices were established to evaluate the outcomes related to the practitioner, practice, community, and

health services. However; they performed methodology of an interview, written, and pre and post data collection, then analyzed to identify changes in practices, health care access, and emergency care service consumption. The findings reported nurse practitioners' influence on care services, particularly through the extra time afforded in each patient visit, interprofessional collaboration with team approach development, change in the practice method from solo to group practice which improved GPs job satisfaction. From patient perspective; an increase in the appointments' availability and easy access to health care services which improved the staff-patients' relationships and workplace satisfaction. In another hand at the community level, the study showed that the quality of care access to primary centers improved for vulnerable populations and created a connection between health practices and these communities. The third study aimed to measure the impact on emergency setting; it showed significant decrease in statistical values relevant to use of EDs and admission rate (P=0.000). in general, they stated that the presence of NPs improved GPs desire to remain in the work environment (Roots, A. and MacDonald, M. 2014,1).

Translation Framework

The proposed QI project will utilize the PEPPA framework (A **P**articipatory, **E**vidence-Based, **P**atient-Focused **P**rocess for **A**dvanced Practice Nursing (APN) Role Development, Implementation, and Evaluation, by D. BryantLukosius and A. DiCenso 2004) approach to guide the evidence base initiative. The PEPPA framework is suitable for this proposal because it is designed by the fundamental principles and values reliable with APN, specifically emphasis on presenting patient health needs through the delivery of collaborative relationships and coordinated care within multidisciplinary health care providers and organizations. The framework contains nine steps engaging stakeholders as participants in the development giving chance to identify the need and common goals for an evidently defined advanced practice nursing role. The process expands understanding of roles and best practice of the broad range of APN knowledge, skills, and experiences in every role fields and scope of practice. The steps formulating planning and implementation processes are shaped to generate supportive surroundings for APN role expansion and long-term combination within health care facilities. The goal direction and evaluation-based process also delivers the basis for potential continuous feedback and improvement of role and handling of medical services. (Bryant-Lukosius, D. and DiCenso, A., 2004).

III. Methodology

The implementation of QI initiative in a primary health care setting require the involvement of several individuals of PHCS administration and leadership. In order to implement this QI, the Stakeholders will be identified to have a decision-making authority regarding the implementation of FNP led clinic rules and regulations. Following the organizational chart and chain of command in the Saudi MOH. The implication will include a primary health care center in Riyadh, KSA, providing comprehensive preventive and curative care through family medicine clinic serving family members in all age groups. Riyadh, Saudi Arabia's capital and main financial hub, is on a desert plateau in the country's center. The total population is 5236901, and the total number of primary health care centers "governmental" is 125 centers with manpower of 862 physicians and 1610 nurses (General Authority for Statistics, 2017,55). Ministry of Health annual statistic reported the Health Resources Indicators related to rate/10000 population for physicians (including Dentists) is 30.1, nurses is 57.0, pharmacists 8.7 and allied health personnel 3.6, Primary Health Care Centers under umbrella of MOH is 0.73 (Ministry of Health, 2017,30).

The participants in this project will include the stakeholders and decision makers in the Saudi MOH, managers in PHCs, family physicians, nurses and patients who can reflect to the final evaluation of the project. The medical records and data included in this project will strictly be considered as confidential records and any breakthrough will be subject for legal investigation. The data will be locked in private electronic folder in official computer saving system in PHC. The data will be organized using Microsoft Office Excel. The project will be conducted in 12-month period. Pre-assessment of the current model of care will be performed prior to implantation of the new one. Comparison criteria in pre and post evaluations will include managers' perception related to costs effectiveness, EBP knowledge among health care providers, patients' satisfaction related to waiting time and appointments availability and easy access of care. The EBP mentor role will follow the description of advancing research and clinical practice through close collaboration model (ARCC) by following the steps; assessing the organizational culture and readiness for EBP, identify the strengths and barriers to EBP, use EBP mentors and finally implement and evaluate the EBP knowledge (see appendix Ⅱ) (O'Mathúna, D., 2015,515-588). FNP led clinic QI project development will be guided by the steps and interventions of the PEPPA framework (Bryant-Lukosius, D. and DiCenso, A., 2004). The following nine steps will be determined and included in the process:

Step 1: Define Patient Population and Describe Current Model of Care

The first step is to define the current model of care by clarifying how the patients and families are proceeding to the primary health care center and interacting with the multidisciplinary team and the services provided over a specific time and continuous care process. However, the patient is identified as the center of the model and the focus of relationships and interactions will be defined through a team, organizational and/or geographical perspective (Bryant-Lukosius, D. and DiCenso, A., 2004). Demographic data of patients who are going to be included in the pre and post evaluation process will be identified.

Step 2: Identify Stakeholders and Recruit Participants

This step will identify the key stakeholders in the PHCS which considered in this framework that all stakeholders have the capacity to inform, learn, reflect and work to improve the model of care regardless of their roles. They include advocacy clusters, volunteer agencies, health care organizations, health care providers, specialized associations, staff, managers, instructors and educators, and government administrations engaged in health policy and funding of the specific PHC center where the project will be conducted. Stakeholders characterize vested interests, values, recognizable power and opportunities will be included in the data collection and organized accordingly. Stakeholder participation at the onset is crucial for guaranteeing commitment to and providing support for planned change (Bryant-Lukosius, D. and DiCenso, A., 2004). Define the FNP scope of practice, specialization, role competencies, standards of care. EBP knowledge of managers and health care providers will be evaluated prior to the education plan implementation.

Step 3: Determine Need for A New Model of Care

By analyzing the strengths and limitations of the current model of care and investigating these issues; the patients and family health needs and the consequences of these needs, including contributing factors and the stakeholders' perceptions towards these needs. Finally, the additional required information about these needs and the available resources to grasp this information. The administrative meetings will be conducted in this step and presenting the agenda will be documented and discussed with the stakeholders (Bryant-Lukosius, D. and DiCenso, A., 2004).

Step 4: Identify Priority Problems and Goals

After identifying the health needs information in the previous step, in this stage the team members will have complete understanding of the potential strengths and limitations of the model of care. In the traditional power structure, shifts occur when the group become connected by common understanding and sharing the same interest of change and development. Hence, enabling the participants to move forward to establish harmony on the problems to meet the patients' health demands by prioritizing these problems and do the needed interventions to overcome them. In addition, categorizing the patients' health needs and health services problems into themes will help in identifying and analyzing them and achieve maximum improvement in the new model of care (Bryant-Lukosius, D. and DiCenso, A., 2004). The health needs and problems will be prioritized according to its importance and the available resources to solve them in the new model of care and identifying the role of FNP in this process.

Step 5: Define the New Model of Care and FNP Led Clinic Role

In this stage, the participants are moving toward the action phase of the plan by shaping the modifications to the model of care and the need of FNP led clinic role in the primary health care setting. Identifying the new care practices and care delivery strategies to achieve the stated goals. This step is partially achieved by starting MSc program in APN and allowing RNs to be certified in education programs. Introduce the evidence-based data that supports the change and identify the required implementation of the new model of care including practices and strategies. This will allow the stakeholders to determine the need of additional expertise provided by a new health care provider role presented by FNPs working in led clinic to enhance the ability to achieve goals for meeting patient's health needs in the primary health care. However, it is very important to clarify how the FNP led clinic role will fit within the new model of care and identify the potential advantages and disadvantages compared with the alternative health care provider roles. In order to minimize the confusion regarding the role of FNP in the new model of care, it is very important to clarify participants' perceptions about the goals and multi-domains of FNP roles related to the clinical practice, education, knowledge, research, progress in profession and leadership. In another hand, the evaluation of the adjustment between goals, strategies, definitions of FNP roles, competencies and scope of practice. The basic criteria for ANP implication are specialization, expansion and advancement. Hence, it is very crucial to effectively use all the APN domains, autonomous participation and use of skills beyond the traditional scope of nursing practice and role overlapping within the multidisciplinary team. Taking into consideration the compatibility of values that fundamental changes to the model of care and the values that are associated with FNP roles. The essential role should be designed to promote continuous and coordinated care to improve the patient's outcomes. Decisions that

introducing a new FNP led clinic role in PHCS should involve careful evaluation of strengths and limitations (Bryant-Lukosius, D. and DiCenso, A., 2004).

Step 6: Plan Implementation Strategies

It is a contentious of the action phase where the plan is developed to ensure the readiness of the PHCS for the FNP led clinic role. Key points address this stage are; the expected goal-related outcomes form introducing the FNP led clinic role changes in the model of care, the time frame for these outcomes to be achieved, the available facilitators and barriers to the FNP led clinic development and implementation and identify the strategies to maximize the role of facilitators and minimize the role of barriers. Although, identify the resources support the development and implications. Outline the evaluation plan with specification of goal-related outcomes for each FNP role domain with achievement timeline and baseline data prior to the implementation. Consider obtaining patient feedback strategies with the available measurement tools and resources for conducting the evaluation. The planning phase will involve education about the role of FNP led clinic in the primary health care by increasing the awareness among stakeholders such as managers, physicians, nurses, patients and have an opportunity to clarify role expectations. Lack of knowledge regarding the role of FNPs in PHCS is considered as a barrier that should be avoided in the implementation. Another factor which contribute to the planning progress is the APN education. However, there is rising agreement that graduate education is essential for APN roles (ANA 1995, CNA 2000, ICN 2003). The availability and the various specialties that are existing in the current graduate programs required a new role consideration including extent to which curricula required specialty knowledge and skills. Global or national models of care requiring substantial numbers of APNs may necessitate development of specialty focused graduation APN programs (Bryant-Lukosius, D. and DiCenso, A., 2004).

The administrative support and resources are crucial in the planning phase where the new model can be functioned by facilitating its entry to the system. In many situations, the new applications of ANPs reported difficulty in navigating and negotiating their roles in the organizations or complex health care systems. Strategies to facilitate systems entry include; enhance the role profile within the practice level, proper introduction to other health care providers, handling leadership responsibilities to the APN, participation within the scope of practice of APN, participation in education, research, demonstrate a commitment toward the policies and practices that support the APN role. In addition, Regulatory mechanisms, policies and procedures are included in the planning of ANP role in any health care system. This include the identification of structures to facilitate the role autonomy related to FNP authority, collaboration and independent practice and clinical decision making. Moreover, role autonomy will enable the complete implementation and encourages creativity, flexibility and immediate response to the patients' needs among the FNPs in PHCCs. Planning will involve the legislation and credentialing process of APN practice to gain regulatory approval from authorized systems in the SCFHS. At organizational levels, processes are essential for progress notes documentation of patient care, prescribing and diagnosing authority, and referral and consultations within the multidisciplinary team. These issues can be addressed by initiating policies and protocols that framework APN role autonomy, authority, and accountability (Bryant-Lukosius, D. and DiCenso, A., 2004).

Step 7: Initiate FNP Role Implementation Plan

If at all possible, the strategies in Step 6 should be implemented in a rational order, in which: stakeholders are oriented to the role, potential role-holders obtain the needed graduate education, and organizational support and resources are in work place; establishment of the regulatory mechanisms, policies and procedures; and the person is hired and role development and implementation starts. Not often that possible to have all strategies established at the time of role introduction, but it is necessary to have a continuous change within APN work environments which involve new strategies to support role development. As the framework demonstrates, role implementation is a constant process with progress among all steps and is dependent upon the stage of role development and monitoring of the role. Driving through developmental phases is dependent on performance evaluations and communication between APNs and administrator(s) to guarantee that the supports and resources required for each phase are provided (Bryant-Lukosius, D. and DiCenso, A., 2004).

Step 8: Evaluate FNP Role and New Model of Care

This step includes a comprehensive structure process outcome evaluation of the new model of care and FNP led clinic role. Including the new model of care of FNP role will demonstrate in identifying how roles, relationships and resources have impacted on the outcomes. Structural elements are including the physical, organizational environment and features of FNP. Process states the types of services and how they have been provided by the FNP role in led clinic functioning related to practice, education, research, organizational and professional leadership. Outcomes are referred to the results of care and affected by the structure and process elements and factors. However, the initial evaluation of the FNP led clinic role and new model of care will focus on outcomes associated with the safety and efficacy, patient's satisfaction and acceptance, cost effectiveness and transformation of role. It is very important to be selecting a goal directed outcomes which are relevant to each

role domain and specific to the FNP led clinic role benefits in defining nurse-sensitive outcomes. In the initiation of evaluation plan. Moreover, inconsequential change in FNP led clinic outcomes, not necessarily related to its ineffectiveness but the intensity and frequency of FNP-patient interaction is insufficient. Revisions of the FNP led clinic role will consider increasing the amount of patient contact. Modification of model of care to eliminate barriers that limit patient access to the FNP led clinic services. The monitoring and continuous evaluation of the impact of FNP led clinic performance on the model of care is the responsibility of FNPs leading this role. Including the prospective data collection related to each FNP role domain goal in the planning and implementation phases. Documenting the related goal-directed outcomes activities by the FNPs verified the diversity of their work and was essential to maintain the position and provided evidence to sustenance the addition of new roles. This will include documentation of activities and the time spent in each domain in a daily basis. For instance, the records of the number of referrals and the type of patients seen in the clinic, education programs, number and type of consultations, care maps that have been developed and publication of scholar presentations and research. Another types of participation must be recorded such as contributions to committees and organizational initiatives or participation in research. These activities are then connected to certain results like prevention of complications, staff planning and practices, length of stay, cost effectiveness, and re-hospitalization rates. Documentation of feedback on performance and process related elements of the role, such as feedback and evaluation measuring the satisfaction from personal, peer, staff and patients (Bryant-Lukosius, D. and DiCenso, A., 2004).

Step 9: Long-Term Monitoring of The FNP Role and Model of Care

Develop an annual monitoring and long-term surveillance of the model of care and the FNP led clinic role are also required. Constant modification of FNPs environments can have a positive impact on the safety, satisfaction and sustainability of the role. Progress in health intervention and treatment with advanced technology involvement in the management of illnesses can effect on patient health needs and health care policies or funding that influence the delivery of care. Long-term evaluation of the new model of care roles is crucial for assessing stakeholders to preserve a general vision of the role related to health care system's requirements. Therefore, the process for FNP led clinic role development, implementation, and evaluation is an iterative process. Long-term evaluations should assess every phase of the PEPPA framework and make suitable modifications to the FNP role, role supports and model of care accordingly (Bryant-Lukosius, D. and DiCenso, A., 2004).

Strengths and Limitations of The PEPPA Framework

PEPPA framework applies a health-oriented, patient-focused, participatory and stakeholder-driven process as an approach for disabling barriers to applying APN roles. The framework applies accepted principles of Participatory Action Research (PAR) and evidence-based processes, as drawn by Spitzer (1978), and outlines on a large body of research on the implementation of APN roles. However, further researches and implication of the framework is needed to measure its effectiveness in improving and implementing the role of APN in health care settings. The original principles of PEPPA framework and the patient focused health demands are reliable with the central command of nursing and the collaborative relationships allied with APN roles. These principles and values frequently conflict with the administrative and disease-focused philosophy of health care systems and may carriage difficulties in applying the framework. Support from administrations and organizations from the patient's perspective, multidisciplinary, and goal-oriented care is essential to overcome these obstacles (Bryant-Lukosius, D. and DiCenso, A., 2004). This framework has been empirically implemented and evaluated by the Canadian Nurses Association in the national framework for ANP role (Canadian Nurses Association, 2008)

Data Analysis (Evaluation of QI Project)

Evaluation of this QI project will consider carefully allover framework steps and plan. All data that are going to be collected during QI steps will be analyzed using descriptive statistics as applicable. Other numerical data will be organized in relation to aims and objective of plan. Data analysis and evaluation will be conducted in a time frame of 8 weeks (see timeline table in the appendix l). Evaluation of progress of project will be conducted using indicators of waiting time reduction, appointments availability, patients and physician perception measures and cost effectiveness for managers' point of view. Evaluation and benchmarking module of pathways to results (PTR) will be the guidance for evaluation plan (Flesher, J., & Bragg, D. 2013). The main three points that will be evaluated are; all tasks had been completed in accordance with the timeline, expected results been achieved from tasks and are there any incomplete tasks unfinished. All these data and evaluation criteria will be organized using Microsoft Office Excel. The evaluation outcomes will be presented in diagrams and charts as applicable. It is very crucial to ensure that the evaluation plan is maintaining validity, reliability, and feasibility. Valid evaluation should indicate that results and process are correct; they measure what is planned to be evaluated and the information taken from a tool or research activity represents what it is trying to determine. Moreover, reliable evaluation plan means that the tools used, or process is steady after it had been

accomplished many times which assess stability of answers and is frequently conveyed with assessment measures (Creswell, 2014). Feasibility will ensure that the practice is valid of used approaches and procedures selected for the evaluation plan. Feasibility assessments will include time, budget, team experience, instruments used, administrative and authority support, availability and accessibility of data, patients target group (Flesher, J., & Bragg, D. 2013).

Evaluation/Sustainability

Long term evaluation and sustainability (appendix Ⅲ & Ⅳ) of the project will be evaluated along with cost and available resources by examining visibility of outcomes and reliability of advantages. A specific quality improvement indicator will be included in pre and post evaluation process for final comparison of the project outcomes. Recommendations for modification and replication will be included at the end of the project implementation and final evaluation of the primary stage. An annual report including limitations and benefits will be delivered to the leaders for further recommendations and feedback. Sustainability indicators will include monitoring of team availability who are going to be accountable for QI plan application, accomplishment of project`s goals and objectives, and empowering contact and communication channels with stakeholders, health care providers and patients about organization performance. Identify QI process owner(s) and their exact responsibilities in sustaining the QI plan. The second indicator is make sure that the organization leaders who are involved in directing team member and focusing on improving performance are being knowledgeable about the QI plan and perform communication for its importance and results of implementation of the QI plan by regular meetings, and in a daily basis. The plan should identify information that is needed about the QI plan to notify leaders about them and the person who is responsible to deliver this information. Responsibility of leaders to keep the organization focused on improving performance. Third indicator is enhancing the independency of the people involved in systems and processes of QI project by providing relevant continuous training and education programs, orientation of new staff, justify roles and responsibilities to job descriptions, and exchanging training for staff related to roles associated to the QI plan. Identify type of training and education needed, evaluation process of training and education programs, update job description accordingly and assess the staff needs for cross training. Last but not least, create, adapt, or use present tools such as checklists, visual aids, policies and procedures, to facilitate following the new policies and procedures of systems that are established through QI projects. Finally, maintain constant monitoring of QI plan goals, objectives, and performance measures to ensure that the QI process is going to right direction, monitor overall improvement. Once the targets are reached for one goal, project will be turned to a reviewing status by decreasing the frequency and quantity of data collected to make data collection to be easier sustained. Addressing another goals, objectives and performance measures in the QI project plan. It is very important to celebrate the success with team members and find the way or event that QI project success will be celebrated and how often it will be to encourage the team to continue their efforts and support the success of QI project plan. Feedback should be taking in consideration to guarantee sustainability of the project through communication with stakeholders, customers and patients about improvements to include them in sustaining a focus on performance and improvements will be made through QI project and generate an accountability (Quality Improvement Plan Toolkit, 2018).

IV. Discussion – Include Implications for Practice

Results will be interpreted considering the goals and objectives discussed in conjunction with other literature. Evaluation of implementation of FNP led clinic in Saudi primary health care system will be presented (see evaluation form in the appendix Ⅲ). Measurement of barriers and obstacles that could affect the process will be included in the final presentation of the project. Discussion of how the FNP led clinic application could improve the quality of care, increase patient satisfaction, reduce the waiting time and affect the overall cost. Limitations of interpretation and implications for further research will be discussed. Implication of practice will include the following steps; Begin role development and implementation, develop FNP role policies and protocols, provide education resources and support, and long-term evaluation plan. The implementation of this QI project will follow the official administrative channels in the Saudi health care system and will involve the decision and policy makers in primary health care and nursing general directorate at the Saudi ministry of health. The communication throughout the implementation process will be through Emails and faxes saved in private folders. The implementation of this project may experience a lot of difficulties especially that related to administrative process which include proven roles and regulation of FNP practice in Saudi Arabia. The financial support is expected once these regulations are made by the administrative authority in MOH. Hence, it is very important to support the project with media campaigns that introduce the new concept of nursing to health and public societies. The national symposiums and events are good places to start with including social medias and electronic sites.

V. Conclusion

This QI project proposal will describe how Family Nurse Practitioners will work in Primary Health Care settings in Saudi Arabia and will present the evidence on how their practice will contribute to health improvement and balance the workload among health care providers. Moreover, assigning more nurse practitioners is one of the successful strategies to ensure the capacity of medical team practices to achieve the aimed demands for primary healthcare created by the population and increased health insurance coverage (Kralewski, J et al., 2015).

However, it will be the first project for ANP implementation in the Saudi primary care system in MOH and will involve the major decision makers. The replication of this project will be after final evaluation of the initial project. The success of FNP led clinic project will drive the future of ANP in Saudi Arabia to apply the specialty in many other areas such as emergency care, pediatric, geriatric, palliative care etc.

The FNP Led clinic project will be established using an evidence-based approach to development, implementation and evaluation. The project contents are based on a literature review, consultation with experts and stakeholders, assessment of factors of successful implementation model of care and elements for sustainability, assessment of barriers and facilitators to introduction of best practice and experience from implementation and evaluation in a primary health service. A set of detailed processes and resources for implementation will be provided to facilitate replication or national adaptation by others willing to initiate a similar project.

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APPENDIX I

D. Bryant-Lukosius and A. DiCenso

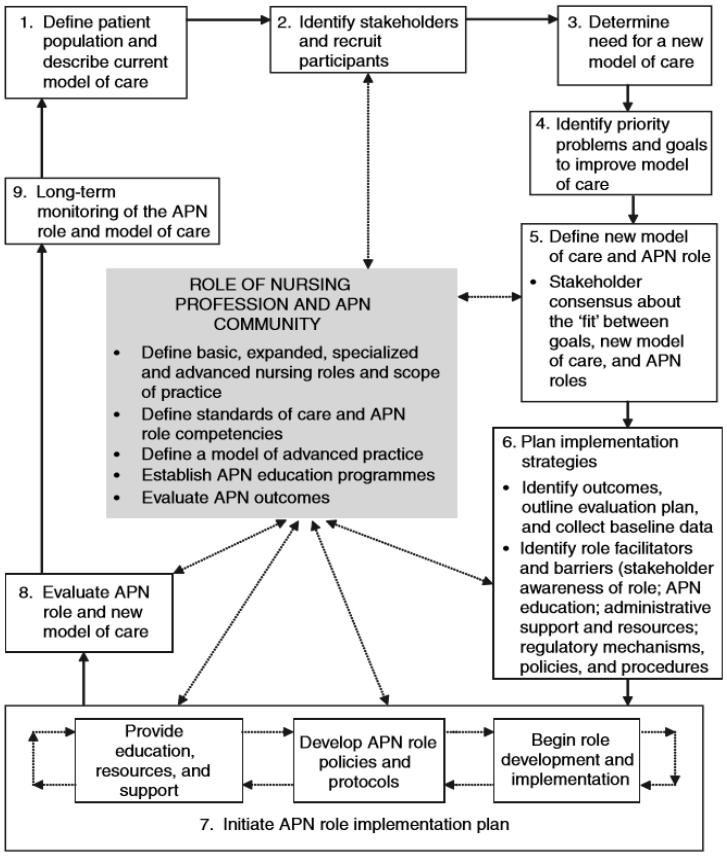

Figure 1 The PEPPA framework: a participatory, evidence-based, patient-focused process for advanced practice nursing (APN) role development, implementation, and evaluation (adapted from Spitzer 1978, Dunn & Nicklin 1995, Mitchell-DiCenso *et al.* 1996).

APPENDIX Ⅱ

EBP Implementation Plan Template: implementation of FNP led clinic in selected primary health care center in Riyadh, Saudi Arabia. (O'Mathúna, 2015)

ARCC EBP implementation plan		
Title: Implementation of Family Nurse Practitioner Led Clinic in the Saudi Primary Health Care System: Quality Improvement project		
Team member: expert family nurse practitioner, family physician, PHC manager, nurses, quality provider, technologist, statistics, EBP mentor, librarian, medical secretary.		
EBP mentor and contact information:		
Preliminary Checkpoint: prior to start the QI project (2 weeks)	• Identify the stakeholders for the project: general directorate of nursing in Saudi MOH, nursing council in SCFHS, head of primary health care system in MOH, quality improvement department and patient safety department in MOH. • Active and Supportive team members. • Identify roles and leadership of the project team members.	Notes: in this phase, it is very important to apply the abstract of the QI project to stakeholders with an EBP and experimental reports from previous researches and similar QI project in other countries with same circumstances in Saudi Arabia. Team member should be selected very carefully including all needed specialties during the project process.

	• Begin gaining of approvals for project implementation and distribution (such as system and unit leadership, internal review board [IRB]) • Initiate connection with EBP Mentor	Ethical and administrative approvals and consents should be taken prior to start the implementation of the project. An EBP mentor will be assigned to follow the progress and apply the evidence-based practice point of view of each stem all through the implementation process.
Checkpoint One (4 weeks)	• Refine the objectives and make sure that team is prepared well. • Build EBP knowledge and skills by involving the EBP Mentor to coordinate and monitor.	All team members should be oriented and educated about the main goal of the project and each stem of planning and implementation.
Checkpoint Two (2 weeks)	• Conduct literature review and related studies that meet criteria for implementation • contact with librarian as needed. • Meet with implementation team • remain in contact with EBP Mentor	It is very important to prepare a research document related to the QI project including an EBP and experimental studies related to ANP implementation in primary health care setting. Librarian will help the team to find the most relevant and recent researches and will critically apprised before including them in the project.
Checkpoint Three (2 weeks)	• Began critical appraisal of literatures • discuss with team how evidence answers question completely; pose follow-up questions and re-review the literature as needed • keep in contact with EBP Mentor	The purpose of this phase is to involve the team in the EBP literatures and enhance the relationship.
Checkpoint Four (4 weeks)	• Meet with group • Summarize evidence with attention on implications for practice and conduct meetings with content experts as needed to standardize the project • Start making detailed plan for implementation of evidence • Include the participants who must know about the project, when they should know, the way they will know. • Keep in relationship with EBP Mentor	Conducting meetings with team and experts will ensure that the project meets the standers and polices of the organizations. The implementation plan will be made step by step following the transition framework of the project. Participants will include stakeholders, managers, doctors, nurses and patients who will be involved in this project
Checkpoint Five (4 weeks)	• Define purpose of the project with connection between evidence and the project. • Introduce baseline data collection sources including the datasets, electronic health record, methods, measures and instruments. • Discuss post-project outcomes indicators of an effective and successful project. • Setup evaluation criteria • Write data collection procedure • Write the project policies and procedures (data collection must fit with) • Finalize any needed approvals for project implementation and inclusion • Update with EBP Mentor	Each team member will be assigned to one or two mission in this stage accordingly. The evaluation criteria will be discussed with the stakeholders with rational QI members will be included in making policies and procedures. Follow up the administrative and ethical consents is responsibilities of team leader.
Checkpoint Six (midway) (4 weeks)	• Meet with implementation members. • present any barriers and facilitators of project • Discuss plans for lessening barriers and make best use of facilitators • Settle practice for application of evidence • Identify available resources to achieve project • provide EBP Mentor with written document of IRB approval and administrative support • establish preparation of poster for dissemination of beginning of project and progress to date to introduce stakeholders to project • plan for an evaluation to take place: who, what, when, where, and how, and communication mechanisms with stakeholders • up to date with EBP Mentor	Make plans to resolve obstacles and enhance achievement of the project process. Review of current model of care and adjest the poloices with the new model of care. Financial, human and technological resources will be identified Follow up with team member to be educated about the presentation and posters contents Include detailed document about all participants and the evaluation plan
Checkpoint Seven (2 weeks)	• interview with implementation team to assess and evaluate proposed poster • Make concluding modification to poster with support members	The project is close to the presentation date and all concerns should be cleared with team members. Prepare for announcement of poster presentation

	• Notify stakeholders of initiate date of implementation and presentation of project poster • Report any concerns or questions of stakeholders • Keep contact with EBP Mentor	
Checkpoint Eight 2 weeks	• Poster presentation and EBP implementation project • review with EBP Mentor	preferred Poster presentation such as an event in a system recognition of quality, research symposiums, or innovation events)
Checkpoint Nine (2 weeks)	• Mid-project meeting with stakeholders to review progress and provide feedback to date • Review issues, successes of project to date • involve EBP Mentor	Update and report progress and development of the project
Checkpoint Ten (4 weeks)	• Complete data collection for project evaluation • Present project results through poster presentation • Celebrate with EBP Mentor and Organization Leadership	Keep on contentious evaluation and review of outcomes Advancement of the project and enhance quality of care of all consumers.
Checkpoint Eleven (8 weeks)	• Review project progress, education program, training and learning process. • Consult with EBP Mentor about new questions	Annual reports for the quality indicators and final evaluation of first period project implementation.

Appendix Ⅲ

Evaluation Plan of QI Project (Quality Improvement Plan Toolkit, 2018)

Evaluation Item	**Measure**	**Indicators**	**Data Collection Methods**	**Timeline**
QI Team	Process	measure satisfaction of team members regarding procedures and observations of the effectiveness of the QI project	Survey of QI project members	First week
QI Project	Process Outcome	Completed Project objectives Main goal of the project is accomplished, and contentious improvement is maintained	Review of Document	Second week
Patients satisfaction	Process	Percent of patients satisfied with specific improvements, and general satisfaction with organization services	Survey of patients following in the PHC	Third and fourth weeks
Health care providers	Process	Awareness of QI project and satisfaction with improvement process from performance improvement projects and planning effectiveness	Survey of workers and leaders of PHC, QI project participants Survey	Fifth week
QI Training and Education	Capacity, Process	knowledge and skills are enhanced and showed confidence to conduct QI project by staff in organization	Survey of QI project training participants	Sixth week
Overall QI Project Plan	Capacity, Process, Outcome	Progress toward achieving annual goals/objectives	Review of Documents	Seventh and eighth weeks

Appendix Ⅳ

QI Project Sustainability Contents

❑ **Team Availability:** handling responsibility for QI plan implementation, achievement of project`s goals and objectives, and enabling communication with stakeholders, health care providers and patients about organization performance. Identify QI process owner(s) and their exact responsibilities in sustaining the QI plan.

❑ **Organization leaders who are involved in controlling team member and focusing on improving performance:** be knowledgeable about the QI plan and perform communication for its importance and results of implementation of the QI plan by regular meetings, and in a daily basis. Identify information that is needed about the QI plan to notify leaders about them and the person who is responsible to deliver this information. Responsibility of leaders to keep the organization focused on improving performance.

❑ **independency of the people involved in systems and processes:** provide relevant continuous training and education programs, orientation of new staff, justify roles and responsibilities to job descriptions, and exchanging training for staff related to roles associated to the QI plan. Identify type of training and education needed, evaluation process of training and education programs, update job description accordingly and assess the staff needs for cross training.

❑ **Create, adapt, or use present tools** such as checklists, visual aids, policies and procedures, to facilitate following the new policies and procedures of systems that are established through QI projects.

- **Constant monitoring of QI plan goals, objectives, and performance measures** to ensure that the QI process is going to right direction, monitor overall improvement. Once the targets are reached for one goal, project will be turned to a reviewing status by decreasing the frequency and quantity of data collected to make data collection to be easier sustained. Addressing another goals, objectives and performance measures in the QI project plan.
- **Celebrate the success with team members:** find the way or event that QI project success will be celebrated and how often it will be.
- **Communication with stakeholders, customers and patients about improvements** to include them in sustaining a focus on performance and improvements will be made through QI project and generate an accountability.

(Quality Improvement Plan Toolkit, 2018)