ADVANCED NURSING PRACTICE ROLES IN SWITZERLAND:

A PROPOSED FRAMEWORK FOR EVALUATION - PEPPA PLUS

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INTRODUCTION

This document outlines "work in progress" to develop an evaluation framework to promote evidence-informed decision-making about the introduction, implementation and long-term sustainability of Advanced Nursing Practice (ANP) roles in Switzerland.

The International Council of Nurses (2008) defines an Advanced Practice Nurse as 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" (p.7). Globally, there are several types of advanced nursing roles, of which Clinical Nurse Specialist (CNS) and Nurse Practitioner (NP) roles are the most common (Delamaire & Lafortune, 2010; Schober, 2013).

Switzerland is at an early stage of ANP role development. Currently, there is no legal definition or recognition of the ANP role in Switzerland. However, the International Council of Nurses (2008) definition and core competencies of ANP as defined by Hamric et al. (2013) are generally accepted within the nursing profession (SWISS ANP/VfP, 2013). Recent discussion within the Federal Office of Health about revising the Law for Health Professionals highlights ANP and calls for a legal framework detailing the scope of practice for the role (BAG, 2014). While it is accepted that Masters level education is required for advanced practice (De Geest et al., 2008; Sheer & Wong, 2008; Swiss Association for Nursing Science, 2013) there is no standardization of curriculum requirements across university programs. Currently, Swiss advanced practice nurses work in roles which most closely resemble the CNS role. Increasingly specialist roles are being developed in response to patient needs, especially related to chronic disease management (BAG, 2013). However, agreement among key stakeholders on the types of ANP roles or priorities for ANP role implementation has not yet been established.

Establishing a framework for evaluation at this early stage of ANP role development has several advantages that will ensure the effective introduction, utilization and integration of these roles into the Swiss healthcare system over the long-term. Systematic approaches to evaluating ANP

roles are important for making decisions about the optimal design and use of the roles in new models of care delivery that are necessary to improve the health of patients and their families and for delivering high quality and cost-efficient care. Use of a systematic evaluation framework will help to anticipate, identify, prioritize and guide the need for different types and foci of evaluation at various stages of ANP role development. For example, initial evaluations could assess the need for different types and numbers of ANP roles (e.g., CNS, NP) for specific patient populations and the competencies and educational preparation required to achieve expected outcomes. A common national framework will also facilitate evaluations that permit comparison of results about ANP role outcomes and role integration within the healthcare system for varied patient populations and at different levels such as teams, organizations or cantons across the country.

While ANP role development in Switzerland has been the primary impetus for the framework, the concepts, principles and strategies underpinning the framework are generalizable to ANP roles in other countries. In the next section, we begin by briefly providing background information on the need and importance of ANP role evaluation for Switzerland and the methods used to develop the framework. The proposed evaluation framework is then presented in relation to the overall goal, major concepts and evaluation objectives for each stage of role development. To facilitate application of the framework in various contexts several initial tools have been developed. The first tool is a template with examples of questions to guide evaluations at different stages of ANP role development. The second tool is a template for developing an evaluation plan. Case study examples outlining evaluation plans that integrate core framework concepts are also provided. The document concludes with next steps to engage ANP stakeholders (in Switzerland) to further refine and obtain consensus on the recommended framework.

The Need for an Evaluation Framework

Switzerland is poised for rapid expansion in the introduction and development of ANP roles. The establishment of education programs, the introduction of pioneer roles, and national efforts of the nursing profession to define and establish a regulatory framework for advanced practice bode well for the future of ANP in this country (BAG, 2012; De Geest et al., 2008; Kunzi & Detzel, 2007; Sheer & Wong, 2008; Swiss Association for Nursing Science, 2013).

There is substantive international data about the safety and effectiveness of well-designed ANP roles. Multiple systematic reviews demonstrate the effectiveness of ANP roles for improving patient health, quality of life, quality of care and for reducing healthcare utilization and costs (Bryant-Lukosius et al., 2015; Donald et al., 2015; Horrocks et al., 2002; Kilpatrick et al., 2014; Martinez-Gonzalez et al., 2013; Martin-Misener et al., 2015; Newhouse et al., 2011). However, the overall quality of research evidence is poor and gaps exist in our understanding of how ANP roles make a difference in improving patient, provider and health system outcomes. Further, most studies evaluate the impact of patient targeted interventions or the clinical aspects of ANP roles. Few studies evaluate the other core non-clinical responsibilities of ANP roles related to educating, mentoring and coaching nurses, providers and teams; clinical and professional leadership; promoting evidence-based practice; and their involvement in research (Bryant-Lukosius et al., 2013; Donald et al., 2014).

Lack of ANP role clarity is consistently reported as a major barrier to successful role integration (DiCenso et al., 2010; Duffield et al., 2009; Lloyd Jones, 2005). Unsystematic approaches to evaluation contribute to poorly defined roles and failure to link ANP role activities with relevant outcomes that are sensitive to these activities. Lack of systematic and well thought out evaluations may account for the high number of studies reporting no differences in ANP role outcomes when compared to usual care (Bryant-Lukosius et al., 2015). In addition, information to help understand why ANP role outcomes are/are not achieved is not collected, resulting in

missed opportunities to modify or refine the role, augment role resources and supports, and address role barriers to achieve better outcomes (Bryant-Lukosius et al., 2013).

Further evaluation is essential to ensure the optimal development and integration of ANP roles for achieving expected outcomes within the unique context of the Swiss healthcare system. Few countries have employed proactive approaches to ANP role evaluation resulting in a lack of available evidence to support effective healthcare decision-making about the ongoing development and deployment of these roles (DiCenso & Bryant-Lukosius, 2010). As with any complex healthcare innovation, the failure to evaluate is a risky proposition that may limit the potential impact and long-term sustainability of ANP roles (Bryant-Lukosius et al., 2013).

To produce relevant information for decision-making at different levels of the health system, the goals for conducting an evaluation should reflect the expected ANP role outcomes at different stages of development. These goals will shape subsequent evaluation questions and methods. Existing ANP models have been designed with specific aims to evaluate: NP roles in acute care settings (Kilpatrick et al., 2012; Sidani & Irivine, 1999), patient-centred ANP role care (Mitchell et al., 1998), and ANP role cost-effectiveness (Byer's & Brunell, 1996) and thus have less utility for decision-making about varied roles from broad healthcare system perspectives. Current ANP role evaluation models also do not provide specific guidance about priority information and decision-making needs over time at different stages of role development.

Methods for Framework Development

The impetus for the framework arose in March 2012 during a number of ANP presentations and discussions at a conference and through meetings in Bern and Basel. To continue this discussion, the Institute of Nursing Science (INS) at the University of Basel provided leadership to convene a working group of 15 stakeholders who identified the need for guidance in conducting research to demonstrate the value of ANP for Switzerland and also to support the continued development and implementation of ANP roles. The group included four academic nurse researchers, one ANP role educator, eight advanced practice nurses, and two healthcare administrators from Canada, Germany, Switzerland and the United States. Between January

and March of 2013, this group held three teleconferences to: i) identify and examine challenges and issues related to ANP role development and evaluation in Switzerland from various perspectives, ii) begin to define the purpose, scope and target audience for an evaluation framework, and iii) determine the focus and activities for framework development. In April 2013, the group met for two interactive half-day workshops at the INS. The objectives, activities and outcomes of the workshops (summarized in Appendix A and B) provided the practical, conceptual, theoretical and research-based foundation for the framework. From May 2013 to April 2015, the group met through regular teleconferences and face-to-face meetings to discuss, provide feedback and obtain consensus on framework elements.

The Participatory Evidence-Informed Patient-Centred Process (PEPPA) framework provided guidance for several elements of the framework (Bryant-Lukosius & DiCenso et al, 2004). PEPPA outlines steps and strategies for introducing and evaluating ANP roles. With use in over 14 countries and translation in several languages including Finnish and German, direction provided by the PEPPA framework will promote the applicability of the framework to varied jurisdictions. Conceptually, the PEPPA framework encourages the design and evaluation of innovative patient-centred models of care that address key principles for effective health human resource planning (Bryant-Lukosius, 2013). The framework also fosters evaluations that consider the complexity of ANP roles and the essential involvement and impact of key stakeholders in the role design and implementation process. The PEPPA Framework offers broad recommendations for ANP role evaluations. The framework outlined in this document builds on this previous work to provide a more comprehensive and detailed approach for ANP role evaluations, and thus was entitled PEPPA Plus. The final draft of the proposed framework is presented in the next section.

Goal and Objectives of PEPPA Plus

The ultimate goal of this framework is to promote optimal health outcomes for patients and families and to deliver high quality, patient-centred and cost-efficient care in Switzerland through evidence-informed decision-making about the effective development and use of ANP roles in varied practice settings and models of care delivery.

This goal will be achieved through the following ***framework objectives*** to:

- Provide guidance about sequential steps and systematic approaches for ANP role evaluation that are necessary to produce timely, high quality data.
- Identify important information and decision-making needs relevant to different stages of ANP role development including the introduction, implementation and long-term sustainability.
- Conduct evaluations that identify and are appropriate for different types of current, emerging, and future ANP roles.
- Integrate the perspectives of relevant stakeholders in the planning, implementation and reporting of ANP role evaluations.

Target Audience

The framework is relevant to different audiences as users of the framework to generate evaluation data or as users of evaluation data for healthcare planning and decision-making. The main target audience of the framework is government policy makers, healthcare funders, healthcare administrators, and nursing associations in Switzerland as potential funders or contributors to ANP role evaluations. They are also influential knowledge users who require evaluation data to make evidence-informed decisions about the introduction and development of ANP roles. Other potential framework users include health service researchers, healthcare planners, advanced practice nurses, and ANP role educators. Initial plans are to focus on target framework users in Switzerland followed by future expansion to other countries.

Framework Concepts

Figure 1 provides a matrix to illustrate the major concepts of the framework arising from working group discussions and our examination of the ANP role evaluation literature. ***Three assumptions*** informed the general scope of the framework (Table 1).

The ***first assumption*** was that the framework should be broad and flexible rather than prescriptive so that evaluations can accommodate the evolving nature of ANP roles in Switzerland and ensure the relevance of evaluations as ANP roles develop over time in different models of care and practice settings. Existing ANP roles in Switzerland have not yet been clearly defined and the potential for future ANP roles has not yet been established. Opportunities exist to introduce different ANP roles for a broad range of patient populations in diverse models of care and practice settings. However, priority issues to be addressed by ANP roles have not been identified and these priorities may fluctuate with the changing needs in the healthcare system over time. Different ANP roles such as CNSs or NPs have distinct competencies, scopes of practice, job descriptions and expected outcomes (Schober, 2013). Thus, it is important for the framework to not only inform these aspects of ANP role development in Switzerland, but also be adaptable to new ANP roles as they emerge. In the evaluation framework matrix, the concept of ***Type of ANP Role*** is identified to highlight the framework's applicability to varied ANP roles as they emerge and the importance of determining unique ANP role characteristics and outcomes to be considered in the evaluation plan or design.

Table 1 Framework Assumptions to Address Contextual Issues from Varied Swiss Perspectives

1. The framework must be broad and flexible enough to accommodate the evolving nature of ANP roles in Switzerland.
2. The framework must support the evaluation of ANP role outcomes in order to assess impact, while at the same time taking into consideration important role development factors.
3. The framework must support the use of a broad range of qualitative and quantitative methods to evaluate ANP roles and issues from varied perspectives.

A ***second assumption*** was that evaluating the outcomes of ANP roles was of primary importance in order to assess their impact and benefits for the Swiss healthcare system. However, it was also perceived that the evaluation of outcomes must take into consideration important factors related to the development of ANP roles. For example, ANP roles in Switzerland are in various stages of development (e.g., under consideration, new, fairly well established) within and across organizations and regions. Thus, expectations about outcome achievements may need to reflect these differences in role maturity. Since many roles are quite new and essentially under construction, barriers to optimal role implementation may exist that can negatively impact on outcomes. In addition, little is known about the financial, administrative or legal structures that need to be put in place in Switzerland to support effective ANP roles. The concept of ***Stage of ANP Role Development*** is identified in the framework matrix (Figure 1) to emphasize the developmental aspects of ANP roles.

The PEPPA Framework provided conceptual clarity by distinguishing three iterative stages of ANP role development that have important considerations for evaluation including the ***introduction, implementation and long-term sustainability*** (Bryant-Lukosius & DiCenso, 2004). The ***introduction*** involves identifying the patient population(s) to be the focus of the ANP role, engaging stakeholders in the role design process, establishing the need for the ANP role, determining priority role goals, defining the ANP role and role competencies, and planning of the implementation. ***Implementation*** is the introduction of the role including putting into place the resources necessary to support effective ANP role development (e.g., funding, education, policies, protocols, legislation, regulation), recruiting and hiring, and monitoring to assess barriers to role implementation and impact. The ***long-term sustainability*** of the role is determined by ongoing monitoring and evaluation to determine the extent of role integration within the healthcare system, new or continuing needs for the role, and impact.

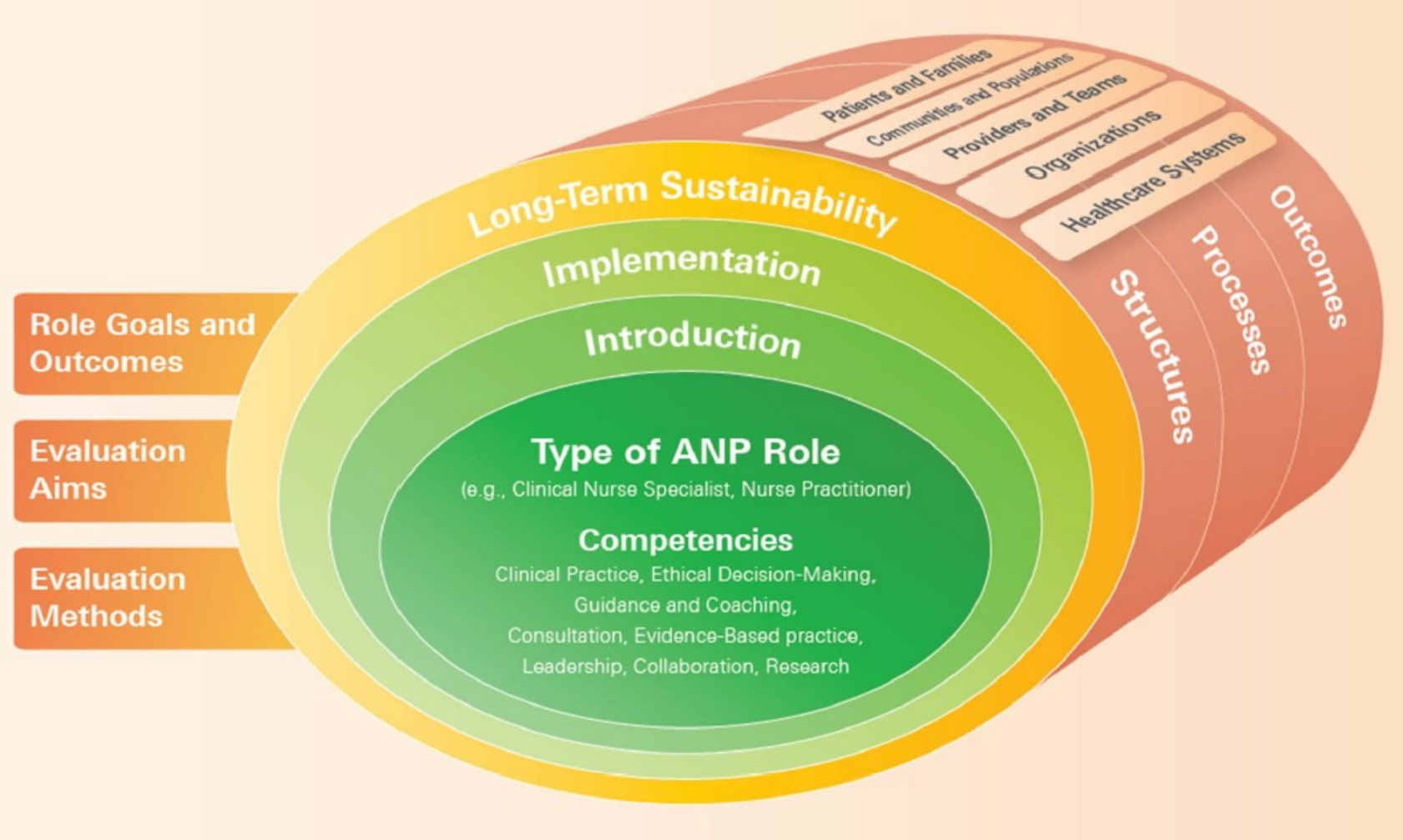
The **third assumption** was that the framework must support ANP evaluations that examine a broad range of aims, issues and perspectives. For example, ***evaluation aims*** may vary according to different stages of role development and the ***expected goals and outcomes*** for introducing the ANP role. These aims may be to ***explore, describe, assess, explain or predict*** aspects of ANP

roles. Each of these aims requires the use of varied ***evaluation methods*** such as qualitative, quantitative or mixed methods. Other evaluation approaches such as quality improvement or implementation science methods may also be relevant.

The need for diverse evaluation approaches is further supported by the similar features noted between ANP roles and complex healthcare interventions. Characteristics of ANP roles as complex healthcare interventions include: multiple interactive ***role competencies and related activities (i.e., clinical practice, ethical decision-making, consultation, collaboration, education and expert coaching and guidance, evidence-based practice, research, and leadership)***; focus on addressing challenging healthcare problems through actions targeted to multiple groups such as ***patients and families; communities and populations; nurses, healthcare providers and teams; and organizations and health systems***; and the high degree of flexibility and responsiveness required to meet the dynamic needs of patients and the healthcare system (Bryant-Lukosius et al., 2013). Medical Research Council Guidelines recommend systematic approaches and the use of varied research methods to design and evaluate complex healthcare interventions (Craig et al., 2008). Thus, the aims and methods of ANP evaluations should reflect the complexity of these roles and the healthcare environments in which they work.

The healthcare and ANP role literature were reviewed to identify and examine existing PEPPA Pluss. The characteristics of published nursing and ANP role evaluation frameworks (Byers & Brunell, 1998; Kilpatrick et al., 2012; Mitchell et al., 1998; NCNM, 2008; Sidani & Irvine, 1999) were compared related to their areas of focus, major concepts, applicability, strengths and limitations. The working group could not come to a consensus on adopting or adapting one of these models for our framework. While each of the frameworks had unique strengths, for our purposes they were limited by a singular focus on one type of ANP role such as the acute care nurse practitioner (Kilpatrick et al., 2012, Sidani & Irvine, 1999), emphasis on a particular aspect of the ANP role such as patient-centred care (Mitchell et al., 1998), lack of complexity (Byers & Brunell, 1998), or focus on quality improvement (NCNM, 2008).

Figure 1. Evaluation Framework Matrix - Key Concepts for Evaluating ANP Roles



A consistent feature of most of the models and the PEPPA Framework was the integration of Donabedian's (1966, 1992) model for evaluating the quality of healthcare. A review of healthcare evaluation frameworks found that Donabedian's model continues to be highly relevant internationally as a gold standard for evaluating healthcare innovations (Nagendran et al., 2012). A recent study evaluating the introduction of NP services in Australia provided further confirmation of the utility of Donabedian's framework for ANP role evaluations (Gardner et al., 2013). Given the applicability of this model to ANP roles and to healthcare, Donebedian's (1966, 1992) ***structure-process-outcome*** model was chosen to provide core evaluation matrix concepts in the framework (Figure 1). ***Structures*** are factors that influence how ANP roles are implemented. These include practical supports, human and physical resources and the organizational, cultural, political and economic characteristics of the practice environments in which they work (Bryant-Lukosius & DiCenso, 2004). Table 2 provides examples of ANP role structures (adapted from Bryant-Lukosius, 2009).

Processes relate to ANP role implementation or the types of ANP services and interventions provided and how they are delivered. Examination of role processes should consider **activities related to all *ANP role competencies*** to ensure optimal use of advanced nursing expertise and scope of practice (Bryant-Lukosius & DiCenso, 2004). For this framework we have incorporated the competencies outlined by Hamric et al. (2013) because of their use in Swiss ANP education programs and familiarity among advanced practice nurses. The competencies are related ***to clinical practice, ethical decision-making, consultation, collaboration, education and expert coaching/guidance, evidence-based practice, research, and clinical and professional leadership.*** An important process-related factor to consider when designing, implementing and evaluating ANP roles is the dose effect. The timing and dose or amount of ANP role interventions can impact on outcome achievement. The dose can be affected by the frequency and intensity of advanced practice nurse and patient interactions, advanced practice nurse education and experience, and the responsiveness of the target population to the intervention (Brooten et al., 2012). Monitoring the advanced practice nurse dose and factors that influence dose (e.g., advanced practice nurse education) and expected outcomes can aid in determining if adjustments in ANP role processes and/or structures are required to optimize outcomes.

Table 2 Examples of ANP Role Structures

Practical Supports:

- Communication technology (telephone, pager, computer), clerical support, continuing education, mentorship and peer support

Human Resources:

- Personal and professional characteristics of the advanced practice nurse (e.g., work ethic, education, knowledge, skills, experience, confidence, competence)
- ANP role competencies, standards of practice and job descriptions, credentialing mechanisms
- ANP role education programs
- Patient characteristics (e.g., health conditions, unmet needs, acuity, culture, gender, age)
- Supply and demand of physicians, other healthcare providers, and advanced practice nurses
- Patient, healthcare team, administrative, stakeholder awareness, understanding, acceptance and support of ANP roles

Physical Resources:

- Office space, clinic space, geographic size of patient referral area

Organizational:

- Size, academic mandate, horizontal versus vertical management structure, policies, mission/vision, strategic priorities, ANP role experience, administrative support of ANP roles, ANP reporting mechanisms

Cultural

- Societal expectations for healthcare and of ANP roles, organizational culture and values (e.g., patient-centred, evidence-based, interprofessional care)

Political

- Legislative and regulatory healthcare and ANP role policies, government policies and priorities

Economics

- Healthcare funding, healthcare provider reimbursement and payment models, ANP role funding

In relation to Donabedian's model, ***outcomes*** are the accumulated effects or results of ANP role services and interventions and are impacted by both structure and process factors. From our review of ANP role evaluation frameworks it was determined that outcomes can be evaluated from the ***perspectives of patients and families, communities and populations, the advance practiced nurse, healthcare providers or teams, organizations and the broader healthcare system*** (Bryant-Lukosius & DiCenso, 2004; Byers & Brunell, 1998; Kilpatrick et al., 2012; Sidani & Irivine, 1999). The working group also reviewed the ANP role and healthcare evaluation literature to identify potential outcome variables for the framework. We found considerable overlap and also some diversity in how outcomes are defined and categorized for ANP roles (Ingersoll, McIntosh, & Williams, 2000; Doran, Sidani, & DePietro, 2010; Kleinpell, 2009; Newhouse et al., 2011; Spitzer, 1978) and also for other healthcare models (Institute of Medicine, 2001 and 2006; Institute of Health Improvement, 2012).

Through working group discussion and consensus, five categories of ***ANP role outcomes*** relevant to the Swiss healthcare system were identified. These categories included ***Patient and Family, Quality of Care, Healthcare Provider and Stakeholder, Organization, and Healthcare Use and Costs***. For the Patient and Family and Quality of Care categories, related outcomes were organized into relevant sub-categories (i.e., Health Status, Health Behaviors, Perceptions of Care, Patient Safety, Processes of Care, and Access to Care). The perspectives of different stakeholder groups (e.g., patients, providers, healthcare administrators) can influence the perceived importance of some outcomes. As a result, some outcomes such as length of stay, safety, disease specific outcomes and appropriateness of care were identified as relevant to more than one category (see Appendix A). For simplicity, these outcomes have been assigned to only one category in Table 3.

The proposed categories and specific outcomes to be the focus of ANP evaluations align well with the Federal Council's (2013) health-policy priorities for ensuring quality of life, empowering patients, improving healthcare quality and enhancing care coordination. Of all the generated outcomes, five outcomes were perceived to be of priority importance: *patient self-management/self-efficacy, adherence to best practices, disease specific indicators, patient*

safety, and patient/family knowledge and skills. Other outcomes related to equity and access to care were not initially identified but were later added to the Quality of Care category as they are identified as policy priorities by the Federal Council (2013) and are highlighted in other healthcare evaluation models (Institute of Medicine, 2001).

Achievement of ANP outcomes may also be time sensitive occurring over short, intermediate and long-term time periods. It is anticipated that in the short term, early ANP role outcomes may be achieved within the first 2-years of role introduction. Examples of ***short-term outcomes*** include patient and healthcare provider awareness, understanding and acceptance of the ANP role. ***Intermediate ANP outcomes*** may be achieved within 3-years of role introduction such as

Table 3 ANP Role Outcomes

Outcome Categories	Outcomes
Patient and Family	***Health Status***: quality of life, symptom control, physical and mental health, morbidity, functional ability (e.g., perform activities of daily living), disease specific indicators **Health Behaviors**: self-management/self-efficacy, knowledge and skills, adherence, life style, involvement in healthcare decision-making **Perceptions of Care and Healthcare Experiences**: satisfaction with care, patient-centredness, preferences, safety
Quality of Care	**Patient Safety**: adverse events, complication rates **Processes of Care**: appropriateness, medication use, continuity of care, care coordination, adherence to best practices **Access to Care**: timeliness, responsiveness, equity
Healthcare Provider and Stakeholder	Healthcare team performance, knowledge and skills; acceptance and satisfaction with the ANP role; ANP role support; job satisfaction
Organization	Recruitment and retention of nurses and advanced practice nurses
Healthcare Use and Costs	Hospital length of stay and readmission rates, emergency department visits, appropriateness of care, cost avoidance, cost savings, revenue generation, patient costs

improvement in patient health behaviors or team function. ***Long-term outcomes*** relate to sustained improvements in patient and healthcare system outcomes and ANP role integration may occur 4 to 5-years after role introduction. Short and intermediate outcomes may also be a mediator or precursor to longer-term outcomes. For example, improved healthcare provider or patient knowledge is a prerequisite for practice or behavior change and subsequent later effects (e.g., improved health, improved quality of care). Similarly, improved patient self-management as an intermediate outcome may lead to subsequent reductions in health service costs.

Evaluation Objectives for Each Stage of Role Development

Based on expert input from the working group and guidance from the PEPPA Framework, evaluation objectives for the three stages of ANP role development were identified.

Introduction

i. To determine patient, family, healthcare provider/team, organization and health system needs in Switzerland that can be met by ANP roles in varied practice settings and models of care delivery.

ii. To promote ANP role clarity among Swiss stakeholders by ensuring a good match between identified needs and the type of ANP role, role competencies, and scope of practice.

Implementation

i. To ensure that appropriate professional, educational, organizational, and healthcare system policies, funding and resources are in place to support the introduction of varied ANP roles in different practice settings and models of care delivery in Switzerland.

ii. To improve understanding about how ANP roles impact patient, family, healthcare provider/team, organization, and health system outcomes in Switzerland.

iii. To promote optimal utilization and implementation of ANP roles and achievement of expected outcomes in Switzerland by monitoring trends in practice patterns including deployment, retention, role activities, and barriers and facilitators to role implementation.

Long-Term Sustainability

i. To demonstrate the long-term benefits and impact of ANP roles for healthcare consumers, providers, organizations and the overall healthcare systems in Switzerland.

ii. To ensure ANP roles meet the long-term needs of the Swiss healthcare system by identifying ongoing developments, trends and needs for role revision and support.

How to Use the Framework

Engaging key stakeholders in developing the strategy for evaluating ANP roles is critical for the obtaining the necessary support to implement the evaluation plan and for generating meaningful evaluation data. Early on in the process, establish an evaluation committee that includes representatives of key healthcare stakeholders to develop the overall evaluation plan and approach. Guidance on stakeholder analysis and engagement for designing and evaluating ANP roles can be found in an online toolkit (Bryant-Lukosius, 2009) that is freely available at https://www.cancercare.on.ca/cms/one.aspx?pageId=9387 .

This document provides four resources, that when used in sequence, can assist in applying framework concepts and developing an ANP role evaluation plan. **The first resource, Table 4**, integrates key model concepts to provide guidance on how framework concepts can be applied to ANP role evaluations. For each stage of ANP role development, key examples of related structures, processes and outcomes are highlighted.

The **second resource is found in Appendix C**. This appendix expands on Table 4 to provide more detailed examples of information needs and evaluation questions. In addition to structures and processes, further examples of short, intermediate and long-term outcomes are outlined. While these examples are not exhaustive, they can be used by different stakeholder groups to generate ideas about information needs and evaluation priorities at each stage of ANP role development. The framework facilitates a systematic approach to ANP role evaluation beginning with the introduction stage to ensure that essential structures and processes are in place prior to role implementation and evaluations of long-term role sustainability. For ANP roles that are already in place, use of the framework will also help to identify and clarify the

Table 4 Stage Role Development, Evaluation Objectives, Structures, Processes and Outcomes

INTRODUCTION STAGE			
Evaluation Objective	**Structures**	**Processes**	**Outcomes**
Determine healthcare needs that can be met by ANP roles in varied practice settings and models of care.	Jurisdictional contexts Patient/family health and healthcare needs Factors leading to met/unmet health needs Perceived priorities	Healthcare experiences, practices and models of care delivery	N/A
Promote ANP role clarity and a good match between healthcare needs and the ANP role.	Perceptions of ANP roles ANP role competencies, knowledge, and skills ANP role job description	Stakeholder engagement in ANP role design and planning ANP role services and interventions	Consensus on priority ANP role goals and outcomes Consistency of ANP role job description with goals and expected outcomes Stakeholder awareness and understanding of ANP roles

IMPLEMENTATION STAGE			
Evaluation Objective	**Structures**	**Processes**	**Outcomes**
Ensure appropriate structures are in place to support effective ANP role implementation	Healthcare policies, funding, legislation and regulation ANP role standards/competencies Education programs and curricula	Participation in ANP role education and mentorship	Access to and satisfaction with ANP role education programs APN competence and confidence
Understand the impact of ANP roles	APN characteristics	Patient, family, APN and HCP experiences Dose of ANP role interactions	Satisfaction with ANP role Integration of ANP role in the HCT Achieve expected ANP role outcomes
Promote optimal use and implementation of ANP roles	Supply of APNs to meet current demands Barriers/facilitators to achieving expected ANP role outcomes	APN practice patterns and deployment Use of APN services	ANP role acceptance APN satisfaction/retention Effective use of APN knowledge, skills, and SOP for all ANP role competencies

LONG-TERM SUSTAINABILITY STAGE			
Evaluation Objective	**Structures**	**Processes**	**Outcomes**
Demonstrate the long-term benefits and impact of ANP roles	Type, number and characteristics of ANP role innovations and productivity	APN leadership to develop/ implement new policies and practices. APN involvement in health system improvement	Patient and HCP behaviors Continuity/coordination of care Quality of care Health service use, healthcare costs, and cost-benefits
Ensure ANP roles meet long-term healthcare needs	Healthcare trends Vision of the ANP role Barriers to ANP role integration. Supply of APNs to meet future needs	ANP role evolution and needs for modification Dissemination/use of research evidence to make decisions about ANP roles	Integration of ANP roles into the healthcare system ANP role outcomes are sustained over time

ANP=Advanced Nursing Practice, APN=Advanced Practice Nurse, HCP=Healthcare Provider, HCT=Healthcare Team; N/A=Not Applicable, SOP=Scope of Practice

stage of role development and to determine if earlier evaluation objectives have been missed or need to be revisited.

The **third resource is found in Appendix D**. It provides a template incorporating key framework concepts to further formulate a more comprehensive ANP role evaluation plan. The template prompts identification of the evaluation aim, the evaluation question(s), and the most appropriate evaluation approach or study design. The template also considers the data sources, data collection measures and timeline for collecting evaluation data for relevant structures, processes and outcomes. Short, intermediate and long-term outcomes can be evaluated from different stakeholder perspectives including patients, family members, advanced practice nurses, healthcare providers or teams and the organization or health system. The evaluation plan template can be adapted to different types and scope of ANP role evaluations.

The fourth resource is found in Appendix E. To promote further understanding and application, a case scenario and comprehensive evaluation plan with vertical and horizontal integration of the PEPPA Plus concepts is outlined. Horizontal integration is evident for each stage of ANP role development in which specific evaluation aims, questions and approaches are determined. There is horizontal movement from each evaluation question across the template to identify relevant structure, process and outcome variables. Potential data sources, methods of data collection and the timing of data collection can then be outlined. For example, in the Introduction Stage, a needs assessment involving three focused evaluation questions examine different structures, processes, outcomes to determine the gaps and possible solutions for improving the health outcomes and access to care for patients with Type II Diabetes. In this comprehensive approach, the introduction of an ANP role is one of many provider roles and other solutions considered for improving the current model of care. This strategy aids in clarifying and evaluating ANP role requirements and the contributions of all members of the interdisciplinary healthcare team. As suggested in Table 4, other types of evaluation questions for the Introduction Stage could focus on consensus decision-making, goal and priority setting and ANP role delineation (Bryant-Lukosius & DiCenso, 2004).

Vertical integration of PEPPA Plus concepts is illustrated by the sequential progression of ANP role evaluation aims over time. Case scenario information and evaluation planning from the role Introduction Stage through to the Long-term Sustainability Stage. In this scenario, the evaluation plan for the role Implementation Stage is informed by the evaluation results from the Introduction Stage. Similarly, the evaluation plan for Long-Term Sustainability builds on the formative evaluation results for the role Implementation Stage. Through this case scenario, different evaluation aims, approaches and methods are demonstrated and examples of structure, process and outcome variables that may be relevant to ANP role evaluations over time are identified.

SUMMARY

This document outlines a comprehensive and detailed framework and relevant tools for guiding systematic and step-wise evaluations to address information and decision-making needs across three distinct stages of ANP role development. This flexible framework can accommodate dynamic evaluation needs as ANP roles evolve in Switzerland over time and can support a broad range of evaluation aims and objectives from various stakeholder perspectives.

There are a number of strengths of the development process that lend credibility to the framework's utility and relevance to ANP role evaluation in Switzerland. The process included a broad range of ANP role experts (e.g., clinicians, educators, researchers, administrators) from several organizations in two different regions of Switzerland and also those with international experience. Very systematic and evidence-based strategies were used to engage these expert stakeholders to determine the foundational aims and concept elements of the framework. These activities included review and reflection of the current status of ANP roles and healthcare needs in Switzerland, critical analysis of existing international ANP role evaluation frameworks and frameworks for evaluating the quality of healthcare services, and identification of the gaps and limitations of current approaches to ANP role evaluation cited in the international literature. As a result, the proposed framework provides an innovative model for ANP role evaluation that builds on and enhances existing approaches. Through ongoing consultation, dialogue and exchange with expert stakeholders, clarity of purpose and framework concepts was achieved. Ultimately, the framework addresses the complexity of ANP roles for improving the delivery of nursing and healthcare services and achieving optimal health outcomes for the citizens of Switzerland.

External Review and Feedback

An initial review of the document was conducted by an external review committee. The overall feedback was highly positive. Minor suggestions to provide clarity and support framework application were received and revisions to the document were made.

Next steps will focus on refining and validating the PEPPA Plus's overall goal, assumptions and concepts through wider stakeholder engagement both within the nursing profession and from other healthcare disciplines. We will also seek feedback from a broader range of stakeholders from different healthcare sectors (e.g., community and homecare, specialty areas) and administrative and government leaders. Through this review process we will also seek input on the need for additional tools and resources to support application of the framework. Suggestions on strategies for disseminating and promoting uptake of the framework will also be elicited. A manuscript describing the framework and the framework development process was submitted and accepted for publication[1].

[1] Bryant-Lukosius, D., Spichiger, E., Martin, J., Stoll, H., Degen Kellerhals, S. Fliedner, M., Grossman, F., Henry, M., Herrman, L., Koller, A., Schwendimann, R., Ulrich, A., Weibel, L., Callens, B., De Geest, S. (2016). Framework for evaluating the impact of advanced practice nursing roles. *Journal of Nursing Scholarship,* 48(2), 201-209.

GLOSSARY OF TERMS

Advanced nursing practice (ANP) role	Nursing roles that meet requirements for advanced practice.
Advanced practice nurse (APN)	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 Masters degree is recommended for entry level (ICN, 2008).
Credentialing	A process undertaken to assure protection and safety of the public by confirming an advanced practice nurse has met pre-determined requirements for practice. It is a core component of self-regulation in nursing where members of the profession set standards of practice and establish a minimum requirement for entry, ongoing professional development, endorsement and/or recognition (Australian College of Mental Health Nurses, 2015; Styles & Affara, 1997 cited in ICN, 2009)
Clinical nurse specialist (CNS)	One type of advanced practice nurse. Typically, CNSs are master's prepared and have in-depth expertise and experience in a specialized are of practice (e.g., pediatrics, oncology, mental health).
Ethical decision-making	A core competency of ANP roles as defined by Hamric et al., 2013. It refers to the knowledge, skills and behaviors for addressing ethical dilemmas, managing situations causing moral distress, creating ethical practice environments and promoting social justice in the healthcare system.
Formative Evaluation	One type of evaluation conducted during the development and implementation of a program in which the primary purpose is to provide information for program or role implementation improvement (from Bryant-Lukosius, 2009, p. 313).

Legislation	National or other jurisdictional (e.g., state, province, canton) laws that define nursing and its scope of practice.
Nurse practitioner (NP)	One type of advanced practice nurse. Typically NPs are master's prepared and have an expanded scope of practice that permits diagnosing, prescribing, treating, referring and admitting/discharging patients from hospital.
Organizational policies	Institutional protocols, guidelines and rules for standardizing practices or how care is organized and delivered.
Outcomes	Are the results or consequences of both APN role structures and processes. The impact of an APN role or extent to which expected outcomes are achieved is directly influenced by APN role supports and resources (structures) and how the APN role is implemented (processes). Outcomes can be assessed from the perspectives of patients, health providers, organizations and/or healthcare systems, depending on the dimension, service or activity of the APN role that is of interest (from Bryant-Lukosius, 2009, p. 315).
Practice policies	Agreed upon protocols, standards and guidelines for clinical practice. May include evidence-based policies such as clinical practice guidelines.
Processes	Refers to how the ANP role is enacted or what the advanced practice nurse does in the role and how various activities are implemented across all role dimensions (e.g., clinical practice, education, research, organizational leadership and professional development) (from Bryant-Lukosius, 2009, p. 316).
Quality of care	The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge (IOM, 2001). There are seven aims for high quality health care related to safety, effectiveness, patient-centredness, timeliness, efficiency and equity (IOM, 2001).

Regulation	All of those legitimate and appropriate means - governmental, professional, private, and individual whereby order, identity, consistency, and control are brought to the profession. The profession and its members are defined; the scope of practice is determined; standards of education and of ethical and competent practice are set; and systems of accountability are established through these means (ICN, 2005).
Scope of practice	A term used by licensing boards for various professions that defines the procedures, actions, and processes that are permitted for the licensed individual. The scope of practice is limited to that which the law allows for specific education and experience, and specific demonstrated competency (from Bryant-Lukosius, 2009, p. 316).
Stages of ANP role development	Includes role introduction, implementation and long-term sustainability.
Stakeholder	A person or group that may have vested interests, values and perceived levels of power in relation to the current model of care and introduction of an APN role. Stakeholders may influence or be influenced by the introduction of an APN role (from Bryant-Lukosius, 2009, p. 317).
Structures	Include physical and practical resources and characteristics of the APN, the patient population and the work environment that can influence how APN roles are developed and implemented. The work environment includes factors such as organizational structure and culture; societal demands and expectations for nursing and healthcare services; workforce practice trends and economic issues within the broader healthcare system; government funding, healthcare policies and legislation; practice, research, education, political, regulatory and credentialing issues within the nursing profession; and education, role development and social supports specific to APN (from Bryant-Lukosius, 2009, p. 317).

Summative evaluation	A type of evaluation designed to present conclusions about the merit or worth of a specific program, healthcare provider role or intervention and to make recommendations about whether the program should be retained, altered, or eliminated (from Bryant-Lukosius, 2009, p. 317).

APPENDIX A

Workshop #1

Objectives

1. Develop a common understanding of key concepts and issues for evaluating ANP roles.
2. Compare various models for ANP role evaluation and categorizing ANP role outcomes.
3. Identify priority outcomes for ANP role evaluation.
4. Examine the "goodness fit" between priority outcomes and existing ANP role outcome frameworks.

Workshop Activities

The workshop included presentations, reflection, small and large group discussions and consensus strategies. An overview of the following was presented:

- Consistent patterns of ANP role outcomes and the gaps and limitations of current ANP role evaluations were identified based on recent syntheses (DiCenso et al., 2010; Bryant-Lukosius, 2010; Newhouse, 2011).

- Medical Research Council Guidelines (Craig et al., 2008) for evaluating complex healthcare interventions was proposed as a novel and relevant approach for ANP role evaluation (Bryant-Lukosius et al., 2013).

- The current relevance of the Donabedian (1966, 1992) model for evaluating quality healthcare for today's healthcare system was identified (Nagendran et al., 2012) and its key concepts (structures, processes and outcomes) were reviewed.

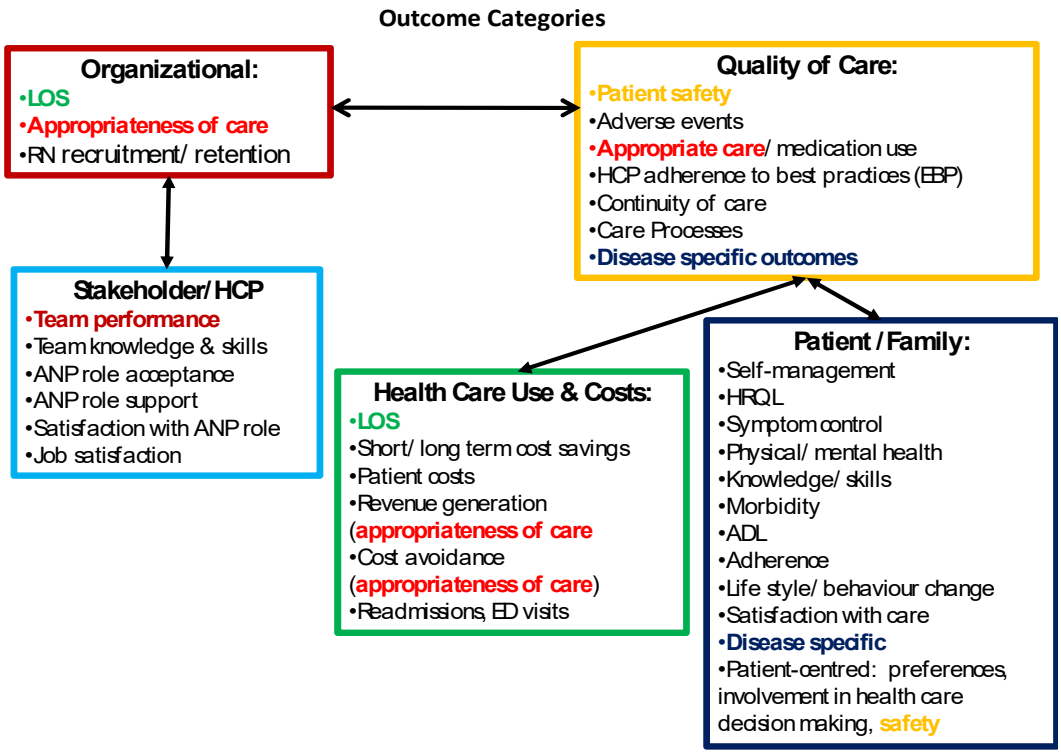
- The characteristics of five nursing and ANP role evaluation models were reviewed: Demonstrating the Advanced Practice Nursing Role Value (Byers and Brunell, 1998); Framework to evaluate the nurse practitioner in acute care (Sidani & Irvine, 1999); Framework for acute care nurse practitioner role enactment (Kilpatrick et al., 2012;); the Quality Health Outcomes Model (Mitchell et al., 1998; Radwin, 2000 & 2009).

- Various ways in which APN sensitive outcomes (Ingersoll, McIntosh, & Williams, 2000; Doran, Sidani, & DePietro, 2010; Kleinpell, 2009; Spitzer, 1978) and outcomes in other models of healthcare evaluation (Institute of Medicine, 2001; Institute of Health Improvement, 2012; , 1996) are defined and categorized were outlined.

Workshop findings and outcomes:

1. Current evaluations demonstrate a consistent pattern whereby ANP role outcomes are mostly equivalent to outcomes of standard care and with some improved, but few negative outcomes.
   - In a recent systematic review of CNS and NP outcomes, CNSs had lower hospital lengths of stay, hospital costs and complication rates, but patient satisfaction with care was equivalent to standard care. NP outcomes were all found to be equivalent to standard care.

2. Limitations in evaluation methods and approaches may explain equivalent findings. These limitations include lack of an evaluation framework and understanding of ANP roles resulting in:
   - emphasis on evaluation of the clinical role dimension on patient health status with few studies examining other role dimensions and outcomes
   - failure to measure outcomes that are sensitive to ANP activities/interventions
   - failure to consider ANP processes of care including the timing, frequency and intensity of APN and patient interactions, and to evaluate the impact of structures on role outcomes
   - focus on comparison to physicians rather than team-based models of care with/without an APN
   - few evaluations to identify and understand HOW ANP roles contribute to better outcomes
3. Five specific outcome categories (organization, quality of care, patient/family, healthcare use and costs, and stakeholder/healthcare provider) overlap in outcomes between these categories were noted (see diagram below).
4. Short and intermediate outcomes may be a mediator or precursor to long-term outcomes.
   - e.g. improved provider or patient knowledge is a prerequisite for practice or behavior change and subsequent long-term effects (improved health, improved quality of care.
   - e.g. improved patient self-management may lead to downstream reductions in health service costs.
5. Five priority ANP outcomes were identified: patient self management/self efficacy, quality of care/adherence to best practice, disease specific outcomes, patient safety, and patient and family knowledge and skills. *It was noted that common outcomes identified in other models such as equity and access to care were missing from the list of generated outcomes. These outcomes were felt not to be relevant to the Swiss healthcare system.*


Outcome Categories
Organizational:
•LOS
•Appropriateness of care
•RN recruitment/ retention
Quality of Care:
•Patient safety
•Adverse events
•Appropriate care/ medication use
•HCP adherence to best practices (EBP)
•Continuity of care
•Care Processes
•Disease specific outcomes
Stakeholder/ HCP
•Team performance
•Team knowledge & skills
•ANP role acceptance
•ANP role support
•Satisfaction with ANP role
•Job satisfaction
Health Care Use & Costs:
•LOS
•Short/ long term cost savings
•Patient costs
•Revenue generation
(appropriateness of care
•Cost avoidance
(appropriateness of care)
•Readmissions, ED visits
Patient / Family:
•Self-management
•HRQL
•Symptom control
•Physical/ mental health
•Knowledge/ skills
•Morbidity
•ADL
•Adherence
•Life style/ behaviour change
•Satisfaction with care
•Disease specific
•Patient-centred: preferences, involvement in health care decision making, safety

APPENDIX B

Workshop #2

Objectives:

1. Determine purpose of framework:
    - Questions about the evaluation of ANP roles the framework will help to answer.
    - Expected aims of the framework: What will it help to achieve in relation to ANP roles?
    - Priority questions and framework aims
2. Determine the goodness fit between framework purpose and existing models.
3. Review project objectives and agree upon next steps

Workshop Activities:

Presentations, small group activities, large group discussion and consensus activities.

Workshop Findings and Outcomes:

1. A list of evaluation questions was generated and the questions categorized in groups related to their focus on ANP role structures, processes and outcomes. Evaluation framework aims for each category were identified (Table 1)

2. Priority questions to be addressed by an evaluation framework were identified:
 - Impact of ANP roles on patient and families outcomes? (Outcome, 8 votes)
 - How do APNs contribute to care delivery/processes of care? To Team function? (Process, 6 votes)
 - What is the cost-effectiveness/cost benefit of ANP roles?
 - What is the benefit of ANP roles for the healthcare system?

Table 1 Evaluation Concepts, Research Questions and Framework Aims

Evaluation Concept	Related Research Questions	Evaluation Framework Aims
Structures	- Why do we need ANP roles? (Political, philosophical) - Identify gaps/needs in healthcare - Will a framework help stakeholders to understand ANP roles? -What is the impact of ANP experience or time in an ANP role?	- Define environmental factors to <u>support</u> ANP work - Define ANP skills, knowledge, competences, personal qualities to implement the role - Determine if ANP competencies "fit" with scope of practice - To better match competencies and required scope of practice - Provide a better argument to government, executive boards and other professionals about why we need APNs - Good match between ***current gaps (needs)*** – ***ANP competencies*** (knowledge, skills/ qualifications)* ***Scope of Practice*** (outcomes),

	-What is the scope of practice for APNs? -What kinds of problems/issues do APNs address? (linked to first bullet above) -In what conditions are APNs likely to be most effective?	and Education, Legal system, Regulations - In order to do the above, we need: role clarity documented, job descriptions, defining ANP, hiring practices, deployment of APNs
Processes	-How do APNs help patients to manage their care? -How do APNs contribute to care delivery / processes of care? To Team function? - What are APN contributions to care delivery? -What do APNs do? -What do ANP roles have in common? -What direct clinical care is provided by APNs? -How do APNs increase access to care? -What types of services do ANPs provide? -What is the Scope of Practice for APNs? -How does implementation time influence outcomes? -What kinds of problems/issues do APNs address?	-Provide a tool to inform stakeholders about what APNs are doing? -Improve role clarity and understanding of ANP roles: • unique contributions • different from other provider roles - What is a Swiss APN? • better argument for ANP roles • improved role acceptance and support • see the benefit of an ANP role
Outcomes	-What difference does an APN make on patients and the nursing team? Across Switzerland? -What difference does the APN make: compare teams/model with and without an APN Impact of APNs on patient and families outcomes? What are the benefits of APNs for organizations? Compared to units/models without an APN, how	Scientific evidence to explain the impact of APN's at different levels: - patients -nurses/RNs - Healthcare Providers, team - politicians, decision makers - public - policy makers - insurance

	do APNs impact/support staff? (nurses, other team members) What is the cost-effectiveness/cost benefit of ANP roles? What is the benefit of ANP roles for the healthcare system?	

3. The characteristics, strengths and limitations of ANP role evaluation models were examined.

Model	Strengths	Limitations	Other Comments
NCNM, 2008	Ireland uses audit/feedback or quality improvement approach for CNS roles		
Byers & Brunell, 1998	-Uses generic term APN, not CNS or NP - Looks at outcomes/cost effectiveness of individual APN (+) -Simple to use, can be understood by many (APNs, teams, researchers) (+)	-Focuses on individual ANP role, not on contribution to the healthcare system/process of care (-) -Evaluates existing ANP roles, doesn't let examine where new APNs can be hired (-) -Linear model: does not consider the interactive nature of APNs such as APN interaction with the team or other organizational structures (-) -Lacking Patient variable (-)	Conclusion: this model may not adequately inform the evaluation process because it does not consider the complex, interactive elements of ANP roles such as patient and team interactions
Sidani & Irvine, 1999	- Widely used and well recognized and published framework, theory driven, (+) - Example study: comparison of ANP role with MD residents in delivery of care. Results: APN care is more patient centered in approach - Easily adaptable model: possibility to add on variables (+) - Includes Patient, organizational and ANP Structure variables (+) -Cost variables are included (+)	-Missing Structure and Process variables for ANP which are important to develop ANP roles in Switzerland. Also missing: families and team variables, but these can be easily added on. (-/+) -Feedback loop missing: interaction between Structures/Processes/ Outcomes goes in both directions, e.g.: outcomes can influence Process and Structure variables (-)	Focuses on individual APN. Are we looking at a framework to include all ANP roles in Switzerland?
Kilpatrick et al., 2012	- Research based model (+) - Outcome column on the right is clear and	-Some confusion to discern the Structure variables on the left from the Process variables in the	

	easily adaptable. - Interactions between Structure/Process/Outcome variables are clear for other participants (+) -Center: compares APN with nurse/roles, inter-professional dynamics with realistic everyday interactions. -Includes boundary work. (+) -Feedback loop between Outcomes and Structures and Processes is more patient centered (+) -Patient/APN/team are closest to processes listed at the center of the circle (+)	center circle. -Interactions are visually unclear for some participants. Too complex to use? (-) -Relationship between patient-APN-team may need to be revised -Timing of outcomes needs to be added on	

4. There was general agreement that the Sidani and Irvine (1999) model was likely the most complete and easiest to use model that could be readily adapted. The Kilpatrick et al., (2012) model offers a new approach and addresses the interprofessional nature of ANP, but may be too complex to use and/or adapt. There were divided opinions about the selection of this model.

5. **Project objectives**:

Short term

- To develop a framework to provide APNs and their stakeholders with guidance about key concepts/outcomes to consider in the evaluation of ANP roles in Switzerland.

Intermediate

- Obtain stakeholder feedback and consensus on initial draft framework
- Pilot framework in 3 or 4 case study examples of ANP role evaluations
- Revise the framework based on pilot experience

Long term

- Develop tools and strategies to support implementation and uptake of the framework

Next Steps Plan:

1. To continue development of a framework adapted to the Swiss healthcare environment. APN group work to be continued by webinar meetings.

2. To set up a pilot study.

3. To publish a framework for evaluation of ANP role within the Swiss and German healthcare system.

APPENDIX C - Template Examples of Information Needs and Evaluation Questions for Each Stage of ANP Role Development

STAGE OF ANP ROLE DEVELOPMENT - INTRODUCTION					
			OUTCOMES		
Evaluation Objectives	**Structures**	**Processes**	**Short-Term < 2 years**	**Intermediate 2 to 3 years**	**Long-Term 4 to 5 years**
To determine patient, family, healthcare provider/team, organization and health system needs in Switzerland that can be met by ANP roles in varied practice settings and models of care delivery.	In relation to specific jurisdictional contexts (e.g., healthcare team, program, organization, canton, Switzerland) what patient populations have significant unmet health needs (e.g., incidence, prevalence, acuity, morbidity, mortality) requiring new approaches to care delivery? What are stakeholder perceptions of priority patient populations for the introduction of ANP roles? What factors (e.g., patient, human resource, care delivery, economic, quality of care) contribute to unmet patient health needs, poor access to care and/or inappropriate or avoidable use of healthcare services? What patient populations would benefit the most from the introduction of new models of care delivery that include an APN? Why?	What are patient and family experiences in current models of care? What are healthcare provider experiences in current models of care? What new care practices and models of care delivery are required to address priority unmet patient health needs?	NA	NA	NA
To promote ANP role clarity among Swiss stakeholders by ensuring a good match between identified needs and the type of ANP role, role competencies and scope of practice.	What is the awareness, understanding, and perception of ANP roles among Swiss stakeholders (e.g., patient, healthcare providers, managers, policy makers)? What knowledge, skills, competencies and scope of practice do APNs require to meet role demands and expectations? Which type(s) of ANP roles are best suited to address priority unmet patient health needs? What is the specific job description for the APN?	What interventions are needed to improve stakeholder awareness and understanding of ANP roles? To what extent have APNs and other stakeholders been involved in designing and planning of ANP roles? What is the package of ANP role services and interventions that should be provided and how should they be delivered within new models of care?	Is progress being made to improve stakeholder awareness, understanding and perceptions of ANP roles?	What is the level of stakeholder consensus on priority ANP role goals and outcomes? What proportion of APNs have a written job description that is consistent with role expectations and national ANP standards?	

STAGE OF ANP ROLE DEVELOPMENT - IMPLEMENTATION					
			OUTCOMES		
Evaluation Objectives	**Structures**	**Processes**	**Short-Term < 2 years**	**Intermediate 2 to 3 years**	**Long-Term 4 to 5 years**
To ensure that appropriate professional, educational, organizational, and healthcare system policies, funding and resources are in place to support the implementation of varied ANP roles in different practice settings and models of care delivery in Switzerland.	What policies (funding, legislation, regulation, credentialing, practice, organizational) and resources are needed to implement ANP roles? What are the national standards and competencies for ANP in Switzerland? What curriculum requirements (e.g., admission requirements, clinical supervision, clinical hours) are necessary to develop APNs with entry-to-practice knowledge, skills, and competencies? What are the most effective strategies (e.g., OSCE, peer review, tests, interview) for evaluating clinical competency in ANP education programs? What structures (guidelines, accreditation, surveillance authority) are needed to evaluate and monitor the consistency and quality of ANP role education programs? What are the most effective strategies for providing continuing education to ensure ongoing APN clinical competency? What mechanisms need to be put in place to assess and monitor APN clinical competency post graduation?	What proportion of Swiss APNs meet national requirements for education and/or credentialing of the role? How many APNs participate in mentorship or communities of practice to support their professional and role development? What changes need to be made to existing graduate nursing programs and curricula to meet the rising demand for ANP role education?	How many new APN graduates are there each year? How satisfied are APNs with their graduate ANP role education programs? Is there sufficient access to ANP role education programs for prospective students? Are there sufficient numbers of appropriately educated and experienced faculty to teach in ANP education programs? How satisfied are employers with APN readiness for practice upon graduation?	Do APNs have the competence and confidence to implement their roles?	Are there sufficient numbers of qualified APNs to meet healthcare system demands for the role? How effective have guidelines and accreditations processes been for ensuring the consistency and quality of ANP role education programs? How well are APNs maintaining clinical competency post graduation?
	What are stakeholder perceptions of the appropriate organizational structures for ANP role supervision, reporting and support?	What are APN experiences related to administrative support and resources necessary to implement their role?	To what extent do APNs feel well supported (by their team, supervisor, organization) in the		What is the APN retention rate?

			implementation of their roles?		
	What evidence-based guidelines and resources are available to inform ANP practice? What are the gaps in APN use of evidence-based practices for a specific patient population ?	How do APNs utilize evidenced-based tools and resources to support their practice? How do APNs support the uptake of evidence-based practice (e.g., clinical pathways and guidelines)?	What is the effectiveness of knowledge translation interventions for improving APN use of evidence-based practices?	Is uptake of evidence-based practices improved among healthcare teams and organizations with compared to without an ANP role?	Compared to usual care, does the addition of an APN to the model of care improve the consistency and quality of evidence-based care for specific patient populations.
To improve understanding about how ANP roles impact on patient, family, healthcare provider/team, organization, and health system outcomes in Switzerland.	Are there differences in how novice and expert APNs implement their roles? What is the impact of different education models/curricula on ANP role implementation? What is the impact of different patient factors (e.g., acuity, complexity, age) on ANP role implementation? What is the impact of workplace conditions (e.g., team makeup, organizational culture, geographic location) on ANP role implementation? How do regulatory policies (or lack of) impact on ANP role implementation? What is the impact of reimbursement policies and systems (e.g., DRGs) on ANP role implementation?	What are patient, family and healthcare provider experiences and perceptions of ANP roles and their impact on outcomes? What is the relationship between the type, frequency and intensity of APN interactions with patients, families, healthcare providers/teams and decision-makers and expected role outcomes?	How satisfied are patients and families with the ANP role? How satisfied are healthcare providers and other stakeholders with the ANP role? To what extent are APNs engaged as members of the healthcare team? How and to what extent have ANP roles improved access, coordination and continuity of care?	To what extent are APNs making progress in achieving expected role outcomes? What is the impact of the ANP role on inter-disciplinary team function and collaboration? What is the impact (e.g., morale, job satisfaction, quality of care, recruitment, retention) of ANP roles on nurses at	How effective have APNs been in achieving identified role outcomes? Compared to usual care, does the addition of ANP roles to teams or new models of care delivery lead to better outcomes for specific patient populations?

				the point-of-care? To what extent are APNs meeting patient and family health needs, improving health outcomes and, enhancing the quality of patient/family healthcare experiences?	
To promote optimal utilization and implementation of ANP roles and achievement of expected outcomes in Switzerland by monitoring trends in practice patterns including deployment, retention, role activities, and barriers and facilitators to role implementation.	Is the number of APNs and types of ANP roles sufficient to meet current healthcare system needs in Switzerland? What are barriers and facilitators to achieving expected ANP role outcomes? How do APN salaries and benefits compare across jurisdictions?	Where have APNs been deployed in Switzerland? What types of health (patient, family, population) and healthcare system needs do APNs address? What types of services and interventions do APNs provide? How do patients and families access APN services? Are revisions to the current ways APNs deliver care required to meet expected outcomes?	What is the level of stakeholder understanding and acceptance of the ANP role?	How satisfied are APNs with their role?	What is the APN retention rate? Are APNs fully implementing their knowledge, skills and scope of practice in all role dimensions (clinical practice, education, leadership, research/evidence-based practice)

STAGE OF ANP ROLE DEVELOPMENT - LONG TERM SUSTAINABILITY					
			OUTCOMES		
Evaluation Objectives	**Structures**	**Processes**	**Short-Term < 2 years**	**Intermediate 2 to 3 years**	**Long-Term 4 to 5 years**
To demonstrate the long-term benefits and impact of APNs for healthcare consumers, providers, organizations and the overall healthcare systems in Switzerland.	What innovations have APNs developed and introduced for the benefit of the Swiss healthcare system?	To what extent has transfer of role functions from one healthcare provider to the ANP role been achieved? What types of innovative models of care delivery have been developed through the implementation of ANP roles? How are APNs involved in influencing and developing policies to improve patient, organization and health system outcomes? What new policies have been put in place as a result of APN leadership? How do ANP roles impact on quality of care?	Do ANP roles improve access, continuity and coordination of care? What is the impact of ANP roles on patient/family and/or healthcare provider knowledge and skills?	Do improved patient health behaviors lead to better health outcomes and more appropriate use of healthcare services? What is the impact of ANP role on healthcare provider use of best practices?	What is the cost-benefit of ANP roles? What are the value added contributions of ANP roles in the Swiss healthcare system? What is the effectiveness of ANP roles for improving quality of care compared to teams/models of care without an ANP role?
To ensure APNs meet the long-term needs of the Swiss healthcare system by identifying ongoing needs for role revision and support.	What is the extent (e.g., numbers) and characteristics (e.g., topic, research) of publications about Swiss ANP roles? What are stakeholder perceptions of priority research questions to be addressed to support the long-term sustainability of ANP roles in Switzerland? What are the barriers/facilitators (e.g., education, regulation, economic, societal, policy) to the integration of ANP roles in the Swiss health care system? What healthcare trends (population health needs, economics, care practices)	What are best ways of disseminating research evidence about ANP roles to healthcare decision and policy-makers? What types of evidence do healthcare administrators and policy makers use to make decisions about the use of ANP roles? Are revisions to the current ways APNs deliver care required to address new and/or anticipated needs? How have ANP roles developed over time? In specific settings, what is the appropriate		What is the impact of research evidence about Swiss ANP roles on healthcare administrator and policy makers and their decisions about the use of these roles?	To what extent are ANP roles integrated within the Swiss healthcare system? Are ANP role outcomes sustained over time?

	are/or may impact on the long-term sustainability of ANP roles? To what extent do stakeholders share a common vision of ANP roles and outcomes? Is the number of APNs and type of ANP roles sufficient to meet future healthcare system needs in Switzerland?	panel size or roster (ratio of number of patients to APN) for different patient populations?			

APN=Advanced Practice Nurse; NA=Not applicable; OSCE=Objective Structured Clinical Examination

APPENDIX D

Evaluation Plan Template

STAGE OF ANP ROLE DEVELOPMENT:			
Evaluation Aim:			
Evaluation Question:			
Evaluation Approach or Design:			
Evaluation Dimension	**Data Sources**	**Data Collection Measures**	**Timing of Data Collection**
STRUCTURES			
Type of ANP role, job description and requirements :			
Advanced practice nurse:			
Patient:			
Healthcare providers, team and model of care:			
Organization (culture, policies, leadership etc.):			
Healthcare System (e.g., legislation, regulation, funding):			
Other:			
PROCESSES			
ANP Role Activities:			
Clinical practice			
Education, expert coaching and guidance			
Ethical decision-making			
Consultation and collaboration			
Evidence-based practice and research			
Clinical and Professional Leadership			
Other:			
OUTCOMES (patient, advanced practice nurse, healthcare team/provider, organization, health system)			
Short-term:			
Intermediate-term:			
Long-term:			

Case Scenario with Vertical and Horizontal Integration of PEPPA Plus Concepts

ANP Role Introduction Stage

Paula is the Director of Clinical Services for a large community hospital. An annual review of the hospital's emergency department (ED) services found a significant increase in the number of patients seen with Type II Diabetes. A needs assessment was planned to further examine this change in health service utilization.

STAGE OF ANP ROLE DEVELOPMENT:	Introduction
Evaluation Aim:	To identify and describe contributing factors and solutions for reducing unnecessary ED visits by patients with Type II Diabetes.
Evaluation Approach or Design:	Needs assessment employing qualitative and quantitative data collection methods.

Evaluation Question	Structures	Processes	Outcomes	Data Sources	Data Collection Measures	Timing of Data Collection
1. What are the demographic characteristics and health needs of patients with Type II Diabetes who sought care in the ED in the past year?	Patient age, gender, co-morbidity, presenting complaint(s), discharge diagnosis(es), diabetes treatment, family physician, diabetes physician, geographic location, and living situation	Discharge orders and referrals	# of ED visits and hospitalizations # of patient deaths	Hospital administrative data and patient health records	Identify all patients who presented to the ED	1-year period
2. What are patient, family and health care provider perceptions of met/unmet patient health needs, strengths/gaps in care delivery, and solutions for preventing unnecessary visits to the ED for patients with Type II Diabetes?	Perceptions of need, service strengths and gaps, and possible solutions Barriers/facilitators to accessing relevant services Events leading up to ED visits	How and what types of services patients use	Met/unmet health needs Other negative consequences of gaps in care	Patients, family members, family physician, ED staff, and diabetes specialist providers	In-depth interviews and focus groups	2 to 3 months
3. What resources and clinical expertise are required to implement recommended solutions?	APN, other providers, and administrative staff Funding, reimbursement, and referral policies Clinical practice guidelines					

ANP Role Implementation Stage

The needs assessment disclosed that, patients with Type II Diabetes who were the most frequent and repeat users of ED services, were over the age of 65 years, on insulin and had other chronic conditions (e.g., hypertension, COPD, arthritis). The most frequent health concerns that brought patients to the ED were hypoglycemia, urinary tract and wound infections and pain due to peripheral neuropathy. Factors contributing to ED use were: the patient's poor physical health and vision impairment, lack of patient knowledge and self-care abilities to adjust insulin doses, lack of social support (lived alone), and limited access to a family physician or homecare support. Through engagement and strategic planning with stakeholders (patients, diabetes specialists, family physicians) a new service delivery model and comprehensive plan was established to improve the quality of care and outcomes for older patients with Type II Diabetes. An ANP role was felt to be best suited for this plan because of the need for enhanced clinical expertise in diabetes and complex chronic disease management for older adults. Strong leadership, consultation and change management skills were also necessary to implement other education and evidence-based practice aspects of the plan.

The primary goal of the ANP role and new model of care is to reduce unnecessary ED visits for older adults with Type II Diabetes through *i) high risk screening, assessment, and early intervention; ii) patient self-management support; iii) routine monitoring and management of health concerns; and iv) coordination of care and referral to relevant home, social support and community services.*

Expected outcomes include improved patient self-care, improved glycemic control, and reduced ED visits. In the new care delivery model, patients over 65 years of age with a diagnosis of Type II Diabetes will be referred to the advance practice nurse (APN) by the specialist, family physician or emergency department staff for an initial assessment and consult visit. Patients deemed high risk for poor health outcomes (e.g., frail, one or more chronic conditions, uncontrolled blood sugars, psychosocial and self-management support needs) will also receive care coordination and regular telephone, clinic or home visit follow-up. Other aspects of the ANP role include development and implementation of public education and outreach visits in the community (homes for the aged, seniors centres, family practice offices) to increase awareness of this service among patients and providers and to optimize patient self-care in the prevention and management of diabetes. The ANP role will also involve the development and evaluation of new referral policies and evidence-based practices for this patient population within the organization.

STAGE OF ANP ROLE DEVELOPMENT:	Implementation
Evaluation Aim:	To evaluate the implementation, impact and need to further enhance the introduction of an ANP role and new care delivery processes (risk assessment, referral mechanisms) for older (>65 years) community-living adults with Type II Diabetes.
Evaluation Approach or Design:	Formative evaluation using qualitative and quantitative data collection methods including comparisons of baseline and post-implementation outcomes.

Evaluation Question	Structures	Processes	Outcomes	Data Sources	Data Collection Measures	Timing of Data Collection
1. How satisfied are patients, family members and healthcare providers with the ANP role and new service delivery model?	APN knowledge, communication and technical skills, experience, and personal qualities Services: screening, assessment, self-management support, monitoring, care coordination, referral processes	Timeliness and appropriateness of care Access to relevant resources	Satisfaction	Patients, family member, healthcare providers (community, ED)	Question-naire	1 yr post implement-ation
2. What are stakeholder perceptions of how the ANP role impacted health outcomes and quality of care?	APN knowledge, communication and technical skills, experience, personal qualities	Care delivery processes APN assessment of patients with varied risk factors for poor health APN interactions with patients and other stakeholders Types of APN interventions	Experiences related to: change in health behaviors, patient health, patient and provider satisfaction, and quality of care	APN, patient, family members, healthcare providers	In-depth interviews	1 yr post implement-ation
3. What was the effectiveness of public education and outreach community visits for increasing the number of appropriate patient referrals to the ANP role over time?	Use of adult learning and community development principles in developing education and outreach materials Characteristics of patients referred that meet criteria (e.g., > 65 years with Type II Diabetes)	Timing, number, location and types of community settings where education and outreach took place	Satisfaction with education or outreach experience # of appropriate referrals	Patients, family member and community provider participants Appointment schedule and patient intake or consult records.	Question-naire Spread-sheet	At the end of each session Monthly
4. To what extent did the new service delivery	APN work hours and appointment schedule	# of referrals to APN	Time from referral to APN consult	Appointment schedule	Spread - sheet	Monthly

model and ANP role increase patient access to care as measured by ANP role referral wait times and community health service use?	Types of community health services, appointment schedules and service hours Referral mechanisms	# and types of patient referrals to community services	# of patients using community services	Referral records Patient	 Self-report question-naire	 Baseline at first consult and 1 year
5. To what extent did the ANP role lead to improved patient perceptions of their self-care abilities and fewer incidents of hypoglycemica and improved Hb1AC levels compared to baseline measures?			Perceptions of self-care abilities # of patients with glucose < 4 mmol/L with or without symptoms of low blood sugar HBA1C	Patient Patient health records	Standardize d tool Data extraction form	Baseline at first consult and 1 year 1 year pre and post
6. Are their differences in patient perceptions of self-care and glycemic control (Hb1AC, hypoglycemic events), and ED use or hospitalization rates for those deemed high risk and received ongoing ANP follow-up, compared to lower risk patients who received an initial assessment and consultation alone?	Patient characteristics: age, number of chronic conditions, frailty, uncontrolled blood sugars, psychosocial support needs	# of low and high risk patients seen by APN # of APN visits per low and high risk patients	Perceptions of self-care abilities # of ED visits # of hospital admissions	Patient intake or consult records APN appointment schedule Patient	Data extraction tool Standard-ized tool	1 year post
7. Compared to the previous two years, did the introduction of a new service delivery model and ANP role reduce the number of ED visits, hospitalizations, and 30 day readmission rates?			# of ED visits # of hospital admissions # of hospital readmissions within 30 days	Health records	Data extraction tool	2 years pre and 1 year post

ANP Role Long-Term Sustainability

The ANP role for diabetes care has been implemented over the past 3 years. Formative evaluation results indicate that the necessary structures are in place and that the role and model of care structures are well developed and functioning at an optimal level. However, questions remain about the overall benefit and long-term sustainability of this innovative model.

STAGE OF ANP ROLE DEVELOPMENT:	Long-Term Sustainability
Evaluation Aim:	To inform decisions about maintaining and/or expanding the ANP role and model of care to other jurisdictions in Switzerland.
Evaluation Approach or Design:	Several evaluation designs, including a randomized controlled trial, were considered. Since the ANP role was already in place, economic modeling was selected as the best approach. The modeling used existing administrative data to compare health outcomes (glycemic control) as measured by HbA1C, mortality rates), health service use, and costs from an organizational perspective for patients who did and did not receive the new model of care.

Evaluation Question	Structures	Processes	Outcomes	Data Sources	Data Collection Measures	Timing of Data Collection
1. What is the cost-effectiveness of an ANP role and model of care delivery for older adults, over the age of 65 years with Type II Diabetes?	Patients who saw the APN and historical matched control group Patient characteristics - gender, age, # of chronic conditions, frailty, uncontrolled blood sugars, psychosocial support		HbA1C Number of patient deaths # of ED visits, # of hospital admissions, hospital length of stay, 30 day readmission rates # of APN visits to patients and for community outreach Costs per unit of health service use (e.g., cost per visit, LOS, ED visit, etc.) Costs of service development and implementation (APN salary, clerical support, training etc.)	Health records	Structured questionnaire	1 year beginning in year 4

APN=Advanced Practice Nurse; ED=Emergency Department; #=number

REFERENCES

Australian College of Mental Health Nurses. (2015). *What is Credentialing*? Retrieved 20/04/2015 from http://www.acmhn.org/credentialing/what-is-credentialing

Brooten, D., Youngblut, J., Deosire, W., Singhala, K., Guido-Sanz, F. (2012). Global considerations in measuring effectiveness of advanced practice nurses. *International Journal of Nursing* Studies, 49, 906-912.

Bryant-Lukosius, D. (2009). *Designing Innovative Cancer Services and Advanced Practice Nursing Roles: Toolkit*. Toronto: Cancer Care Ontario. Retrieved August 15, 2012, from https://www.cancercare.on.ca/cms/one.aspx?pageId=9387

Bryant-Lukosius, D. (2010). The Clinical Nurse Specialist in Canada: Forecasting the future through research. *Canadian Journal of Nursing Research*, 42(2), 9-16.

Bryant-Lukosius, D., Carter, N., Reid, K., Donald, F., Martin-Misener, R., Kilpatrick, K., Harbman, P., Kaasalainen, S., Marshall, D., & DiCenso, A. (2015). The clinical effectiveness and cost effectiveness of clinical nurse specialist-led hospital to home transitional care. *Journal of Evaluation of Clinical Practice,* 21, 763-781.

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.

Bryant-Lukosius, D., DiCenso, A., Israr, S., & Charbonneau-Smith, R. (2013). Resources to facilitate APN outcome research. Chapter in R. Kleinpell (ed.). *Outcome Assessment in Advanced Practice Nursing, (3rd Edition). Submitted*: New York: Springer Publishing Company.

Bundesamt für Gesundheit (BAG). (2013). *Health 2020. The Federal Council's Priorities.* Schweizerische Eidgenossenschaft Dept. des Inneren (EDI) Retreived 01/04/2013 from www.gesundheit2020.ch zur Verfügung

Byers, J.f., & Brunell, M.L. (1998). Demonstrating the value of the advanced practice nurse. *AACN Clinical Issues*, 9, 295-305.

Craig, P., Dieppe, P., Macintyre, S., Michie, S., Nazareth, I., & Petticrew, M. (2008). Developing and evaluating complex interventions : The new Medical Research Council guidance. *British Medical Journal*, *337*. doi: 10.1136/bmj.a1655.

De Geest, S., Moons, P., Callens, B., Gut, C., Lindpaintner, L., & Spirig, R. (2008). Introducing advanced practice nurses/nurse practitioners in health care systems: A framework for reflection and analysis. *Swiss Medical Weekly*, 138(43-44), 621-628.

Delamaire, M.L., & Lafortune, G. (2010). *Nurses in Advanced Roles: Description and Evaluation of Practices in 13 Developed Countries*. Report for the Organization of Economic Cooperation and Development. Geneva: OECD.

DiCenso, A., & Bryant-Lukosius, D. (2010). *Clinical Nurse Specialists and Nurse Practitioners in Canada: A Decision Support Synthesis.* Ottawa, ON: Canadian Health Services Research Foundation. Retrieved August 15, 2012 from http://www.chsrf.ca/PublicationsAndResources/ResearchReports/CommissionedResearch/10-06-01/b9cb9576-6140-4954-aa57-2b81c1350936.aspx

DiCenso, A., Bryant-Lukosius, D Martin-Misener, R., Donald, F., Carter, N., Bourgeault, I., Abelson, J., Kilpatrick, K., Kaasalainen, S., Harbman, P., & Kioke, S. (2010). Factors enabling advanced practice nursing role integration. *Canadian Journal of Nursing Leadership*, 23(Special Issue), 211-238.

Donabedian, A. (1966). Evaluating the quality of medical care. *Milbank Memorial Quarterly, 44,* 66–203.

Donabedian, A. (1992, November). Commentary: The role of outcomes in quality assessment and assurance. *Quality Review Bulletin,* 356–360.

Donald, F., Kilpatrick, K., Carter, N., Bryant-Lukosius, D., Martin-Misener, R., Kaasalainen, S., Harbman, P., Marshall, D., Reid, K., & DiCenso, A. (2015). Hospital to community transitional care by nurse practitioners: A systematic review of cost-effectiveness. *International Journal of Nursing Studies*, 52, 436-451. DOI : 10.1016/j.ijnurstu.2014.07.01

Donald, F., Kilpatrick, K., Reid, K., Carter, N., Martin-Misener, R., Bryant-Lukosius, D. et al. (2014). A systematic review of the cost-effectiveness of clinical nurse specialists and nurse practitioners: What is the quality of the evidence*? Nursing Research & Practice*, Vol 2014, Article ID 896587, 28 pages. http://dx.doi.org/10.1155/2014/896587

Doran, D., Sidani, S., & DePietro, T . (2010). Nurse sensitive outcomes. In J. Fulton, B. Lyon and J. Goudreau, *Foundations of Clinical Nurse Specialists Practice*. New York: Springer, 35-57.

Duffield, C., Gardner, G. , Chang, A.M., & Catling-Paul, C. (2009). Advanced nursing practice: A global perspective. *Collegian* 16: 55-62.

Federal Office of Public Health. (2013). *The Federal Council's Health-Policy Priorities*. Bern: FOHP.

Gardner, G. Gardner, A., & O'Connell, J. (2013). Using the Donabedian framework to examine the quality and safety of nursing service innovation. *Journal of Clinical Nursing*, 23, 145-155.

Hamric A. B., Hanson, C. M., & Tracy, M.F. (2013). *Advanced Practice Nursing: A Integrative Approach*, 5th Edition. St. Louis: Saunders Elsevier.

Horrocks, S., Anderson, E., & Salisbury. C. (2002). Systematic review of whether nurse practitioners working in primary care can provide equivalent care to doctors." *British Medical Journal,* 324(7341): 819–23.

Ingersoll, G., McIntosh, E., & Williams, M. (2000). Nurse-sensitive outcomes of advanced practice. *Journal of Advanced Nursing*, 32, 1271-1281.

Institute of Health Improvement. (2012). *Triple Aims for Healthcare Transformation*. Retrieved 20/09/2013 from http://www.ihi.org/Topics/TripleAim/Pages/default.aspx

Institute of Medicine. (2001). *Crossing the Quality Chasm: A New health System for the 21st Century*. Retrieved 20/09/2013 from Crohttp://www.iom.edu/~/media/Files/Report%20Files/2001/Crossing-the-Quality-Chasm/Quality%20Chasm%202001%20%20report%20brief.pdf

Institute of Medicine. (2006). *Categories of Outcome Research: The Six Ds*. Emergency Medical Services at a Crossroads, The National Academies Press, Washington, DC, USA.

International Council of Nurses. (2005). *Regulation Terminology.* Geneva: ICN. Retrieved 20/04/2015 from http://www.icn.ch/images/stories/documents/pillars/regulation/Regulation_Terminology.pdf

International Council of Nurses. (2008). *The Scope of Practice, Standards and Competencies of the Advanced Practice Nurse*. ICN Regulatory Series. Geneva: ICN.

International Council of Nurses. (2009). *Nursing Matters: Credentialing*. Geneva: ICN Retrieved 20/04/2015 from http://www.icn.ch/images/stories/documents/publications/fact_sheets/1a_FS-Credentialing.pdf

Kilpatrick, K., Lavoie-Tremblay, M., Lamothe, L., Ritchie, J.A., & Doran, D. (2012) . Conceptual framework of acute care nurse practitioner role enactment, boundary work and perceptions of team effectiveness. *Journal of Advanced Nursing*, 69(1), 205-217.

Kilpatrick, K., Kaasalainen, S., Donald, F., Reid, K., Carter, N., Bryant-Lukosius, D., Martin-Misener, R., Harbman, P., Marshall, D., Charbonneau, R., & DiCenso, A. (2014). The effectiveness and cost-effectiveness of clinical nurse specialists in outpatient roles: A systematic review. *Journal of Evaluation in Clinical Practice*. Doi: 10.1111/jep. 12219.

Kleinpell, R. (2009). Measuring outcomes in advanced practice nursing. In R. Kleinpell (ED). O*utcome Assessment in Advanced Practice Nursing* (2nd ed.), 1-62. New York: Springer Publishing Company.

Kunzi, K., & Detzel, P. (2007). *Innovations in Outpatient Primary Care*. Neuchâtel: Swiss Health Observatory. Retrieved 01/03/2015 from www.obsan.ch

Lloyd Jones, M. (2005). Role development and effective practice in specialist and advanced practice roles in acute hospital settings: Systematic Review and Meta-Synthesis. *Journal of Advanced Nursing* 49(2): 191–209.

Martinez-Gonzalez, N., Djalali, S., Tandjung, R., Huber Geismann, F., Markun, S., Swnsing, M., & Rosemann, T. (2014). Substitution of physicians by nurses in primary care: A systematic review and meta-analysis. *Health Services Research*, 14(214), DOI: 10.1186/1472-6963-14-214.

Martin-Misener, R., Harbman, P., Donald, F., Reid, K., Kilpatrick K., Carter, D., Bryant-Lukosius, D., Kaasalainen, S, Marshal, D., Charbonneau-Smith, R., & DiCenso, A. (2015). A systematic review of the effectiveness of nurse practitioners in outpatient care. *BMJ Open* 5(6), e007167 DOI: 10.1136/bmjopen-2014-007167.

Mitchell, P.H., Ferkeitich, S., Jennings, B.M., & American Academy of Nursing Expert Panel on Quality Health Care. (1998). Quality Health Outcomes Model. *Journal of Nursing Scholarship*, 30, 43-46.

Mosby. (2009). Mosby's *Medical Dictionary* (8th ed.). St. Louis, MO: Elsevier.

National Council for Nursing and Midwifery (NCNM). (2008). *Clinical Nurse/Midwife Specialist Role Resource Pack*, 2nd Edition. Dublin: NCNM.

Nagendran, M., Maruthappu, M., & Veena, S.R. (2011). Is the new NHS outcomes framework fit for purpose? *BMJ Quality and Safety*, 21, 524-527.

Newhouse, R.P., Stanik-Hutt, White, K.M., Johantgen, M., Bass, E.B., Zangaro, G., Wilson, R.F., Fountain, L., Steinwachs, D.M., Heindel, L., & Weiner, J.P. (2011). Advanced practice nurse outcomes 1990-2008: A systematic review. *Nursing Economics*, 29(5), 1-22.

Radwin, L. (2000). Oncology Patients' Perceptions of Quality Nursing Care. *Research in Nursing & Health*, 23, 179–190.

Radwin, L., Cabral, H.J., & Wilkes. (2009). Relationships between patient-centred cancer nursing interventions and desired health outcomes in the context of the health care system. *Research in Nursing & Health,* 32, 4-17.

Schober, M. (2013). Global perspectives on advanced nursing practice. In L. Joel (Ed), *Advanced Practice Nursing: Essentials for Role Development*, 3rd Edition, p 71-104. Philadelphia: F.A. Davis.

Sheer, B., & Wong, F.K.Y. (2008). The development of advanced nursing practice globally. *Journal of Nursing Scholarship,* 40(3), 204-211.

Sidani, S., & Irvine, D. (1999). A conceptual framework for evaluating the nurse practitioner role in acute care settings. *Journal of Advanced Nursing, 30*(1), 58–66.

Spitzer, W. O. (1978). Evidence that justifies the introduction of new health professionals. In P. Slayton & M. J. Trebilcock (Eds.), *The Professions and Public Policy* (pp. 211–236). Toronto: University of Toronto Press.

Styles, M.M and Affara, F.A (1997) *ICN on Regulation: Towards 21st Century Models*.

Swiss Association of Nursing Science. (2013). *Regulation of the Nurse Expert - APN*. Unpublished document