



The University of Alabama at Birmingham

**PAHO/WHO Collaborating Centre for International Nursing**

# **A PLAN FOR NURSING & MIDWIFERY EDUCATION QUALITY IMPROVEMENT IN UNIVERSAL HEALTH AND PRIMARY HEALTH CARE**

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# CONTENTS

Foreword	3
Acknowledgements	4
Abbreviations	8
Background	9
Introduction	10
Overview of Nursing & Midwifery Education	12
Quality Improvement (QI) in Nursing & Midwifery Education	16
Methodology	17
Using the Model for Improvement	19
Conclusion	26
References	28
Glossary	29
Bibliography of Glossary	31
Appendices	
Appendix A – UH & PHC in Nursing & Midwifery Education: A Self-Assessment Tool	32
Appendix B – Prioritization Matrix	38
Appendix C – PDSA Worksheet	39
Appendix C-1 – PDSA Example 1	40
Appendix D-1 – Case Study 1	42
Appendix D-2 – Case Study 2	44
Appendix E – Available QI Resources for Nursing & Midwifery Programs	47

## FOREWORD

Nurses comprise the largest segment of the healthcare workforce worldwide and because they are on the front lines of care, they are critical to health system transformation and to promoting health as a human right. Historically, nurses have used a person-centered approach to caring for individuals, families, and communities. This holistic approach values universal health (UH) and primary health care (PHC) as investments with tremendous payoffs to society.

The United Nations (UN) and the World Health Organization (WHO) recommend scaling up transformative and lifelong learning for nurses and midwives to move forward the UN 2030 Sustainable Development Goals (SDG) agenda. Improved care, reduced costs, and greater patient and staff satisfaction are more likely when nurses become active participants in health service decision-making and policy development. Towards that end, the 2020 Nursing Now Campaign challenges nursing and midwifery education leaders to re-examine the preparation of their graduates in UH and PHC, by shifting the focus, re-designing curricula, and adopting innovative teaching techniques.

This Education Quality Improvement (EQI) Toolkit was developed in conjunction with the Pan American Health Organization/WHO (PAHO/WHO) and its Collaborating Centers to support baccalaureate nursing and midwifery education. The toolkit offers a model for a Quality Improvement Plan that can be used by educational programs in Latin American and Caribbean (LAC) countries to address weaknesses in UH and PHC within the framework of transformative education and competency-based interprofessional collaborative practice. Inherent in this work is the acknowledgement that nurses and midwives who understand UH and PHC have important leadership roles to play in health promotion, disease prevention, and reducing morbidity and mortality throughout LAC.

Based on available literature, and recognizing that substantial educational differences occur among programs, the EQI toolkit aims to be adaptable to the particular features or circumstances within any nursing or midwifery undergraduate school program. The toolkit was reviewed by colleagues from LACs and PAHO/WHO Collaborating Centers and was refined based on their comments and input. Future activities will focus on how this educational intervention will be disseminated and further improved.

Special appreciation is extended to Dr. Silvia Cassiani, the PAHO/WHO Regional Advisor on Nursing and Allied Health Personnel, our partners in the PAHO/WHO Collaborating Centers, and to the University of Alabama at Birmingham School of Nursing faculty work group who devoted their time and expertise to this collaborative effort.

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## ABBREVIATIONS

ALADEFE	Latin American Association of Nursing Schools and Faculty
CDC	Centers for Disease Control
EQI	Education Quality Improvement
HRSA	Health Resources and Services Association
ICM	International Confederation of Midwives
IPCP	Interprofessional Collaborative Practice
LAC	Latin American and Caribbean
MEAP	Midwifery Education Accreditation Programme
MFI	Model for Improvement
PAHO	Pan American Health Organization
PDSA	Plan-Do-Study-Act
PHC	Primary Health Care
QI	Quality Improvement
TJC	The Joint Commission
UG	Undergraduate
UH	Universal Health
WHO	World Health Organization

## BACKGROUND

In 2016, the Pan American Health Organization/World Health Organization (PAHO/WHO), in collaboration with the Latin American Association of Nursing Schools and Faculty (ALADEFE) and three PAHO/WHO Collaborating Centers in Nursing and Midwifery, developed and conducted the survey “*Analysis of Nursing Education in the Region of the Americas towards Primary Health Care and Universal Health.*” Latin American and Caribbean (LAC) nursing and midwifery programs were surveyed regarding their preparation of graduates to promote Universal Health (UH), their orientation towards Primary Health Care (PHC), and their focus on social determinants of health. Results identified several weaknesses and, subsequently, areas in need for quality improvement [\[1\]](#).

In the footsteps of the above study, the PAHO/WHO Collaborating Center in International Nursing at the University of Alabama at Birmingham was tasked with “*Development of a plan for Nursing and Midwifery Educational Program Quality Improvement.*” In collaboration with the PAHO/WHO Regional Nursing Advisor, a working group convened to: a) identify existing and potential resources on quality improvement (QI) in nursing and midwifery educational programs, and b) prepare a model for a QI Plan that could be used by nursing and midwifery educational programs in LAC to address weaknesses in UH and PHC within the framework of transformative education and competency-based interprofessional collaborative practice.

Expected deliverables included: a) identifying and inviting working group members for in-person and virtual meetings, b) identifying methodology for assessment and mapping of existing resources, c) preparing a plan for a model for QI and presenting to PAHO/WHO, d) disseminating the plan to stakeholders in Latin America for comments and feedback, e) formally presenting the plan at the Pan American Nursing Research Colloquium, f) finalizing the plan based on feedback received, and g) making the plan available from the PAHO/WHO Regional Observatory for Human Resources for Health.

## INTRODUCTION

Inequalities in comprehensive health service access in the Region of the Americas remain among the highest in the world, negatively affecting health outcomes [2]. PAHO has proposed two strategies to improve health outcomes: **Universal Access to Health** and **Universal Health Coverage**. In addition, **Interprofessional Collaborative Practice** is a promising solution to transforming health care and assuring an appropriate supply, mix and distribution of the world's health workforce [3].

**Universal Access to Health** is *“the absence of geographical, economic, sociocultural, organizational, or gender barriers...and is achieved through the progressive elimination of barriers that prevent all people from having equitable use of comprehensive health services determined at the national level”* [2].

**Universal Health Coverage** is *“the capacity of the health system to serve the needs of the population, including the availability of infrastructure, human resources, health technologies (including medicines) and financing. Universal Health Coverage implies that the organizational mechanisms and financing are sufficient to cover the entire population. Universal coverage is not in itself sufficient to ensure health, well-being, and equity in health, but it lays the necessary groundwork”* [4]. The goal is that everyone - regardless of who they are, where they live, or how much money they have - will get the quality health care they need and deserve.

**Interprofessional Collaborative Practice** (IPCP) takes place when *“when multiple health workers from different professional backgrounds work together with patients, families, caregivers, and communities to deliver the highest quality of care”* [3]. Decades of documentation indicate that when students learn about, from, and with each other in an interprofessional way, effective collaborative practice can take place, which, in turn, strengthens health systems and improves health outcomes.

Based on the right of every person to enjoy the highest attainable level of health, the strategies of **Universal Access to Health** and **Universal Health Coverage** are considered pillars of the PAHO Strategic Plan for 2014-2019 [5]. For consistency with previous work carried out by Cassiani et al. [1], we opted to use the term **Universal Health (UH)** to encompass both of the above concepts.

Closely tied to **UH** is **Primary Health Care (PHC)** which aims to achieve better health for all by [4]:

- Reducing exclusion and social disparities in health (universal coverage reforms)
- Organizing health services around peoples' needs and expectations (service delivery reforms)
- Integrating health into all sectors (public policy reforms)
- Pursuing collaborative models of policy dialogue (leadership reforms) and
- Increasing stakeholder participation.

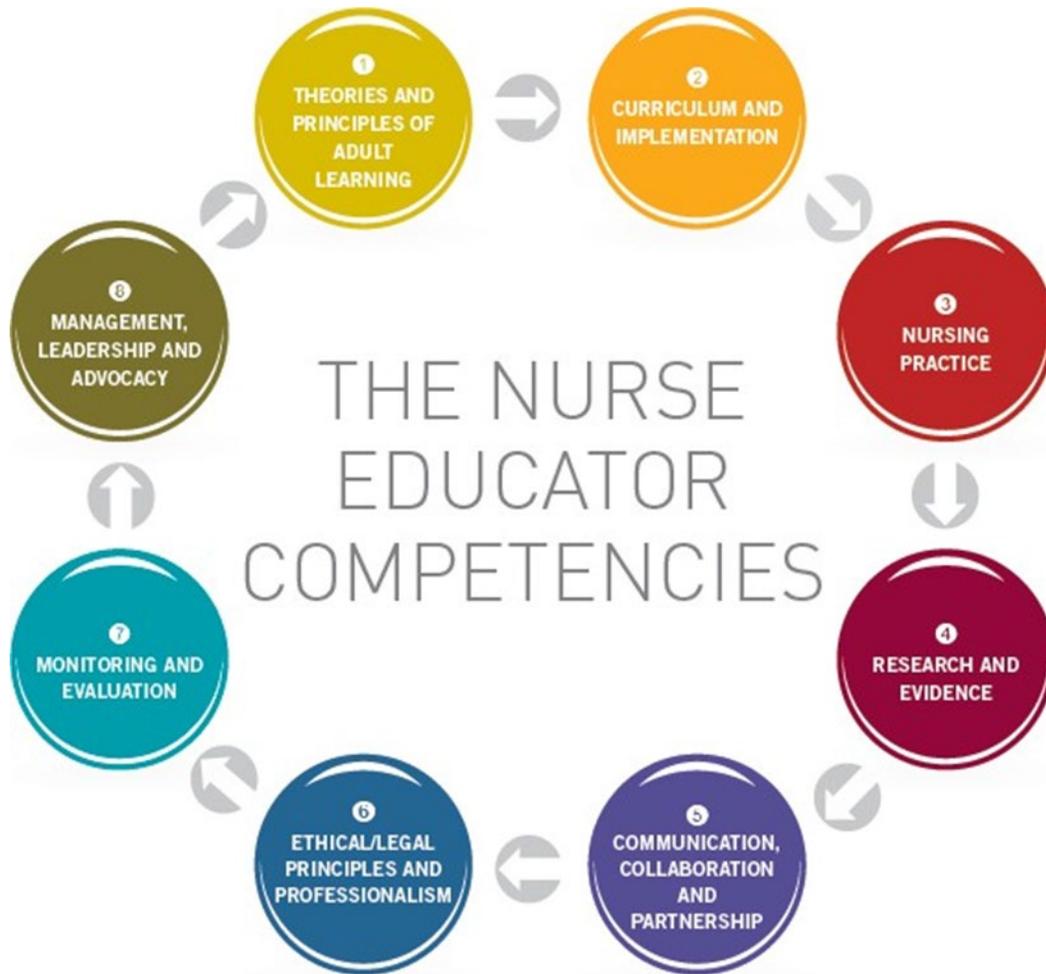
Given that nurses and midwives account for half of the health professional workforce globally and provide 90% of hands-on care, their potential contribution towards UH is considerable. Toward that end, the *Strategy on Human Resources for Universal Access to Health and Universal Health Coverage*, developed by PAHO [6], has set the stage. More recently, the 2020 Nursing Now Campaign has also put universal health coverage at the center of its five main action programs [7]. The campaign is based on the premise that we need to invest in nursing and enable nurses to achieve their full potential. This pre-supposes that nursing and midwifery education programs are oriented toward PHC and adequately prepare graduates to promote UH.

## OVERVIEW OF NURSING AND MIDWIFERY EDUCATION

Education is constantly evolving, affected by globalization, information technology advances and renewed attention to quality improvement in educational outcomes. Nurses and midwives must practice, lead and adapt based on available evidence, and ever-changing needs of diverse populations. From this perspective, preparation and continuous development of nurse and midwifery educators is critical to the development of knowledge, skills and attitudes of nurses and midwives.

Two seminal documents developed by the World Health Organization (WHO) through a participatory process using a global Delphi survey, lay the foundation for core competencies. *The Midwifery Educator Core Competencies* [8] and *the Nurse Educator Core Competencies* [9] were both developed through an elaborate consultative process with key partners in response to the World Health Assembly resolutions. These documents aim to support and guide educational institutions in developing competencies-based curricula for their education programs. Adaptation of these competencies reflects diversity in regional nursing and midwifery education programs and availability of resources to implement these programs. Set within a program framework, the eight broad competency domains and the 37 core competencies are related to cognitive, affective and psychomotor learning domains. These competencies are applicable to diploma and baccalaureate degree level educators. They form the basis for the development of curricula content including learning and methods of teaching, assessment and evaluation. Monitoring, assessment and evaluation of students and programs are listed as educator competencies for both nurses (**Figure 1**) and midwives (**Figure 2**). Integrating competency domains will facilitate the development of comprehensive educational programs, better assessment methods and reduce repetition of learning outcomes within curricula [9].

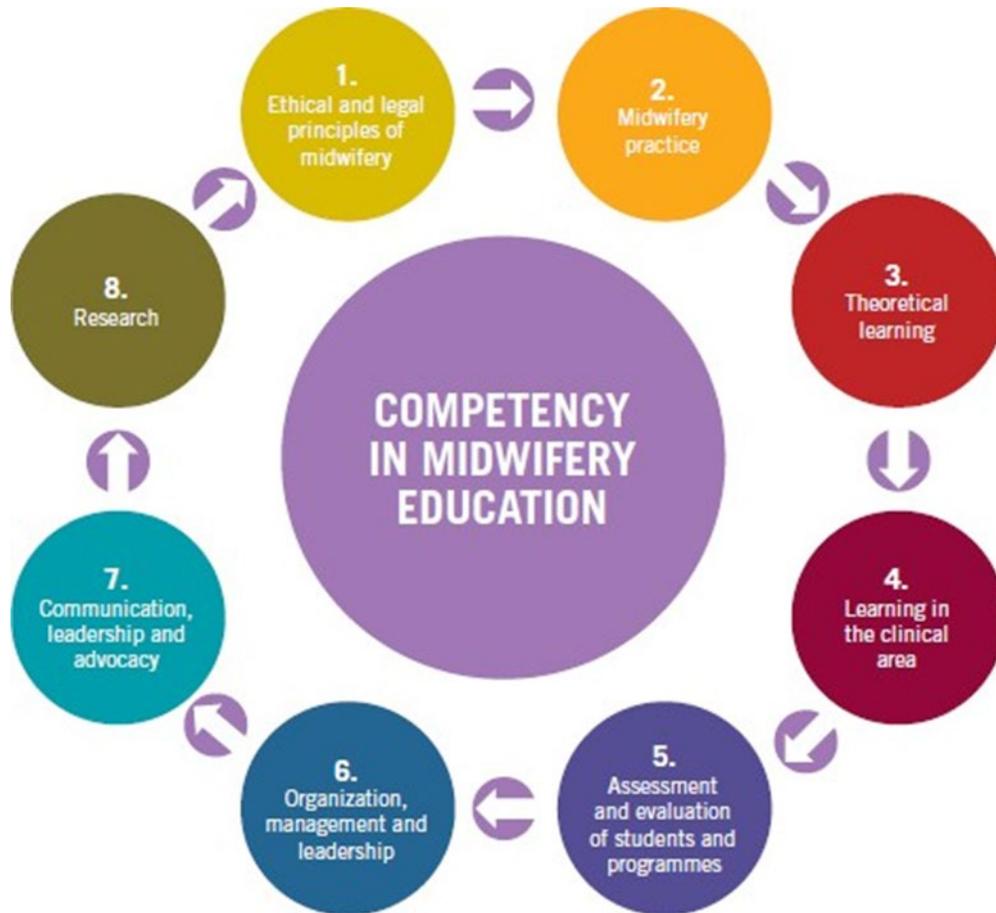
**Figure 1: The nurse educator competencies and requirements [9]**



**Requirements for nurse educators**

<b>Nursing education</b>	Satisfactorily completed a recognized nursing education programme, including both theoretical and practical components
<b>Nursing qualification</b>	Holds a current license/registration or other form of legal recognition to practice nursing.
<b>Clinical nursing experiences</b>	Completed a minimum of two years' full-time clinical experience across the scope of practice within the last five years.
<b>Educational training</b>	Acquired formal teaching preparation either before or soon after employment as an educator

Figure 2: The midwifery educator competencies and requirements [8]



**Requirements for becoming a Midwifery educator**

<b>Midwifery education</b>	Completed a recognized education programme in both theory and practice.
<b>Midwifery qualification</b>	Holds a current license/registration or other form of legal recognition to practice midwifery.
<b>Clinical midwifery experiences</b>	Completed a minimum of two years' full-time clinical experience across the scope of practice within the last five years.
<b>Educational training</b>	Formal teaching preparation either before or soon after employment.

Recently, the International Confederation of Midwives (ICM) developed the *Midwifery Education Accreditation Programme* (MEAP), a tool for assessing the capacity and efficacy of midwifery education programs in meeting the ICM standards [10, 11]. Developed through consultation with experts from all regions and informed by analysis of international documents on accreditation and best practice guidelines, MEAP is innovative in terms of midwifery education and regulation. It provides an independent, external assessment that identifies areas in need of improvement in order to reach the accreditation standard. Midwifery schools may use results to advocate for additional resources, based on this international assessment which carries additional weight. Pilot feedback in 2017 from Trinidad & Tobago, Comoros and from ICM's accreditation team has informed the final design and content. MEAP exemplifies how ICM can strengthen midwifery globally by harmonizing best practice with national, regional and institutional-driven solutions [10]. Future implementation of the MEAP tool may contribute to improvements in the quality of midwifery education and ultimately in health outcomes for mothers and newborns [11].

This *Education Quality Improvement Toolkit*, referred to in this document as *EQI Toolkit*, is intended for developing a QI model that provides entry-level nursing and midwifery education within LAC countries. Based on the WHO program framework and educator core competencies, it contains a variety of tools that can be used to develop a tailored QI plan for individual schools and/or programs in various LAC countries.

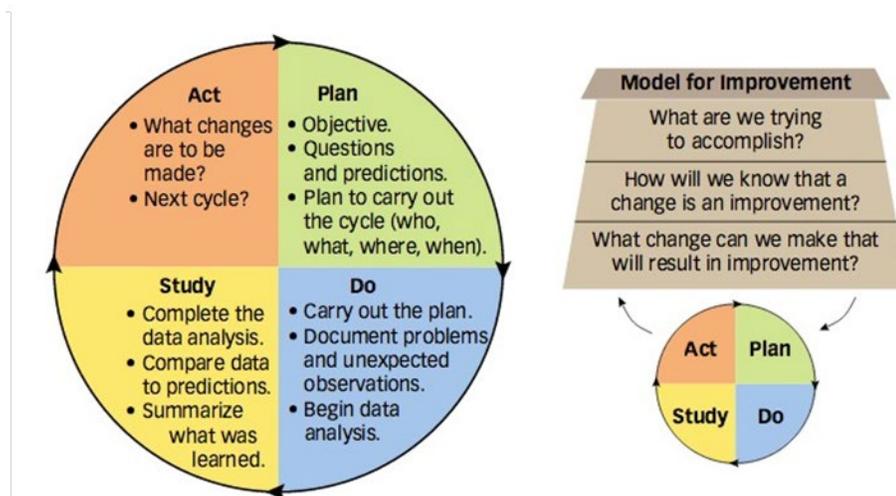
## QUALITY IMPROVEMENT IN NURSING AND MIDWIFERY EDUCATION

Quality improvement (QI) is defined by WHO as *“An approach to improvement of service systems and processes through the routine use of health and programme data to meet patient and programme needs”* [4]. Initially used in manufacturing, QI tools and methods were first adopted by healthcare organizations in the 1980's. The Health Resources and Services Administration (HRSA) and Centers for Disease Control and Prevention (CDC) have their own definitions, based on measurable improvement. HRSA defines QI as consisting of systematic and continuous actions that lead to measurable improvement in health care services and the health status of targeted patient groups [12]. The Joint Commission (TJC) views QI as a collaboration of disciplines coming together to improve processes [13]. The CDC uses the Plan-Do-Study-Act (PDSA) Cycles as a model for QI. It refers to a continuous and ongoing effort to achieve measurable improvements in the efficiency, effectiveness, performance, accountability, outcomes, and other indicators of quality services or processes in order to obtain equity and improve the health of the community. All of the above operational definitions of QI are tailored towards the specific characteristics and needs of organizations and other entities. For this project, the QI process is defined as a data- driven, formal approach to the analysis of performance and the systematic efforts to improve it, specifically in terms of nursing and midwifery educational program quality [14].

## METHODOLOGY

The purpose of this EQI Toolkit is to assist LAC country administrators and faculty at schools of nursing and midwifery in applying a structured QI process to improve undergraduate (UG) student outcomes related to UH and PHC. This toolkit uses the Model for Improvement (MFI) due to its widespread use across health care organizations globally, and its relative simplicity for end users [15]. The MFI, depicted in **Figure 3**, offers a series of steps that assist administrators and faculty to identify gaps in student, process or program characteristics associated with UH and PHC and systematically make improvements. The use of iterative PDSA cycles can help to build effective processes. Processes that may need improvement include knowledge assets (i.e. standard operating procedures, curricula) or human capital assets (i.e. faculty and staff education and training).

**Figure 3. Model for Improvement and the Plan-Do-Study-Act Cycles [15]**



[Used with permission from Moen R, and Norman CL. Source: Langley GL, Moen R, Nolan KM, Nolan TW, Norman CL, Provost LP. *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance* (2nd edition). San Francisco: Jossey-Bass Publishers; 2009, p. 24.]

When the MFI is used to improve nursing education programs or courses, the QI team must address three questions:

1. *“What are we trying to accomplish?”* (Create an aim statement or goal for the educational improvement effort)
2. *“How will we know a change is an improvement?”* (Identify the measures that determine whether the change led to improvement)
3. *“What change can we make that will result in improvement?”* (Identify and test changes in the current process that may lead to improvement)

Once an aim, measure(s), and tests of change have been identified, the QI team engages in a series of learning cycles known as Plan-Do-Study-Act (PDSA). PDSA cycles examine whether or not a proposed test of change actually results in the desired outcome. They are ideally implemented on a small scale, often in rapid succession, and over a short period of time. Multiple QI teams may be needed to address different gaps, use several different tests of change, and perform several small scale PDSA cycles to determine how to improve UH and PHC educational goals. This is further discussed and explained in the next section.

## USING THE MFI-PDSA CYCLES

The MFI can be used to systematically improve nursing education at the school, program, and course levels. However, nursing and midwifery faculty members are often not familiar with or sufficiently trained in the use of QI methods. A representative list of available resources to faculty, administrators, and students, such as online courses, tutorials, guidebooks, tools is provided in **Appendix E**. The following steps are a guide to using the MFI-PDSA cycles to improve educational outcomes.

### **Step 1: Organize a team**

Successful and sustainable improvement efforts require commitment and active involvement from a stakeholder team in support of UH and PHC education. Representatives from all disciplines and/or roles should be involved in the improvement activity. For example, it is highly encouraged to include not only faculty members, but also students on QI teams. Teams may vary in size but are typically 6-10 people.

### **Step 2: Assess the current state**

Assessing the situation (status) of the current processes will determine the scope of the improvement work needed. This important step is frequently overlooked by QI teams. Assessment might include talking to all stakeholders, such as faculty, staff, students, and even the employers who hire the students after graduation. Stakeholder questions could be simply posed as “what is going well and what is not going well?”

The QI team should also assess current processes, curriculum, and policies related to the identified problem and determine any observable patterns. For example:

- *How do students gain these necessary competencies? Who does what and to whom?*
- *What does the literature suggest as best teaching strategies? Are we using them consistently?*
- *What are the outcomes of our efforts?*

To assist each school/program carry out a self-assessment, the instrument “*Universal Health and Primary Health Care in Nursing & Midwifery Education: A Self-Assessment QI Tool*” was developed (**Appendix A**). Based on items from the Cassiani et al. [1] survey that had scored lower than 4.4 (out of 5.0), indicating areas in need of improvement, it is intended as a baseline to the current structure, process, and outcomes of your program in regard to UH and PHC, uncovering opportunities for improvement. If the team identifies more than one process/activity that requires improvement, you should then work with stakeholders to prioritize the order for QI activities. Priority order may be based on high risk, problem likelihood, high use, high value, availability of resources or feasibility. **Appendix B**, the “*Prioritization Matrix*”, is to be used as a guide in determining which of the problems or weak areas, identified through Appendix A, you should work on first.

### **Step 3: Set an aim/goal**

To identify which educational outcome of UH or PHC would benefit the most from improvement, you should first answer the question: “*What are we trying to accomplish?*” An aim statement is a written, measurable, and time-sensitive description of the accomplishments the faculty team expects to make from its improvement efforts. The key attributes of a good aim statement are specific and relevant to the problem, measurable, attainable, and timely. A clearly written aim statement helps assure that everyone is on the same page.

There are different ways to write an aim statement but ideally, they should be **SMART!** **SMART** stands for:

- **Specific:** targets a specific area
- **Measurable:** can be quantified in some reliable and valid way
- **Attainable:** it is actually do-able in the time frame indicated with available resources
- **Relevant:** addresses the problem identified
- **Timely:** specifies the date/time for reaching the goal

The following is an example of a poor aim statement:

“We will increase the amount of content on UH and PHC in the curriculum.”

What does this mean? Is it specific? Measurable? What will attainment look like? What is the timeframe for attaining this goal?

Here is a better example of an aim statement:

“By January 2020, we will increase the number of courses addressing UH and PHC concepts from 50% to 75%.”

#### **Step 4: Establish metrics/measures**

The next step is to establish metrics/measures for the improvement work. This allows the team to answer the question: “*How will we know a change is an improvement?*” In improvement work, we generally work with three categories of measures (data): outcome measures, process measures, and balancing measures. This is probably the most complicated part of improvement work. We have to use and/or create measures (metrics) that will give us the data so we can see if our changes are improvement. Most simply, measures are a standard way of expressing the size, amount, or degree of something physical or abstract.

Developing measures starts with a conceptual definition of the “thing” (the concept) of interest. What is the theoretical definition? What is the dictionary definition? Why is it important? The conceptual definition allows the team or the reader to know exactly what you are talking about. You are getting everyone “on the same page.”

After the conceptual definition is developed, you have to figure out how to measure that concept of interest. Most often, there is more than one way to measure the concept. You will need to choose the most accurate way to measure without making it too hard to do. The first type is the **outcome measure**. Outcomes are the end results of a specific process/system. The outcome of your improvement is usually part of your project

aim statement. These outcome measures tell you whether your changes are working towards achieving your aim.

The second type is the **process measure**. Process measures are indicators of the steps along the way to the outcome. In order to change the outcome, you need to make changes in the processes leading to the outcome. To ensure you are changing the process, you need measures of the process. In many ways, process measures can be more important than outcome measures. They are usually collected more frequently, and changes can be seen more quickly than with many outcome measures.

The third type is the **balancing measure**. Improvement work is done in the real world without controlling for extraneous variables. This makes it highly likely that attention to one part of the process/system will lead to less focus on another part of the system or have unintended consequences that make the overall system worse. Improvers have learned to include balancing measures in their work to make sure the change is really improving the overall system. Examples of balancing measures for educational efforts related to UH and PHC might include the cost or length of faculty training needed to teach UH and PHC concepts.

Note that these measures must be individually created for the specific problem, aim, and situation. Every organization is different, and the measures need to be relevant to the specific improvement activity you are undertaking at your nursing or midwifery program.

The team identifies the measures to evaluate all or part of the improvement activities. It is important to collect baseline data prior to undertaking any change in order to determine whether resulting change was an improvement or not. The following are characteristics of good metrics:

- Directly relates to the aim
- Specifies the population of interest
- Data are available and feasible to collect
- Data can be collected frequently and longitudinally for at least 12 months

### **Step 5: Identify change ideas**

The next step is to identify possible changes/innovations to reach the aim. This addresses the question: *“What change can we make that will result in improvement?”* Now that you have identified a problem, set an aim for improvement, created measures and understand your baseline performance, the next step is to test a change. Think about one thing your faculty could do differently that might help meet your aim (goal). Ideas can come from many places.

The following is a list of potential sources of improvement ideas:

1. Look at the evidence (curriculum, student knowledge, faculty preparedness, etc.) and evaluate if or how well your curriculum reflects UH and PHC demands.
2. Explore best practices and/or seek consultation
  - a. Review web-based and bibliographic databases and search for successful educational efforts shown to improve UH and PHC curriculum, student knowledge or faculty preparedness.
  - b. Ask faculty from other programs what they have done to improve UH and PHC outcomes.
  - c. Search for a UH and/or PHC expert to help plan your improvement project.
3. Examine your curriculum plan in terms of learning objectives, course length, materials needed, content and topics covered, and assignments.
4. Search for innovative teaching and learning methods associated with elevated levels of student UH and PHC capabilities
5. Brainstorm ideas with key stakeholders.

### **Step 6: Carrying out the PDSA cycles**

One of the best tools for planning and implementing small tests of change is the use of the Plan- Do-Study-Act (PDSA) cycle, summarized in **Table 1**. The PDSA cycle is a systematic method to plan, test, and analyze your change ideas, allowing for you to be as specific as possible. As a structured method for testing iterative changes in a process, it follows the scientific method.

- In the **Plan** stage, you decide to test an intervention that you believe will improve UH and PHC education: what, who, when, where, what data, collected by whom, collected when and from what

data source? You make predictions about what will happen and obtain baseline performance data if you have not already done so.

- In the **Do** stage, you carry out the test, document any problems, and begin data analysis.
- In the **Study** stage, you complete data analysis, compare to your predictions, and reflect on what you learned.
- Finally, in the **Act** stage, you determine what you should do next (adapt the change, adopt it as is, or abandon it) and then move back to the Plan stage for your next test of change.

**Table 1: PDSA Cycle Description and Steps [16]**

Cycle	Description	Steps
<b>Plan</b>	Plan the test or observation, including a plan for collecting data	<ul style="list-style-type: none"> <li>•State the object of the test</li> <li>•Make predictions about what will happen and why</li> <li>•Develop a plan to baseline current process and test the change (Who? What? When? Where? What data need to be collected?)</li> </ul>
<b>Do</b>	Try out the test on a small scale	<ul style="list-style-type: none"> <li>•Carry out the test</li> <li>•Document problems and unexpected observations</li> <li>•Begin analysis of the data</li> </ul>
<b>Study</b>	Analyze the data and study the results	<ul style="list-style-type: none"> <li>•Complete analysis of the data</li> <li>•Compare the data to your predictions</li> <li>•Summarize and reflect on what was learned</li> <li>•Adapt, Adopt or Abandon?</li> </ul>
<b>Act</b>	Refine the change based on what was learned from the test	<ul style="list-style-type: none"> <li>•Determine modifications to be made</li> <li>•Prepare a plan for the next test</li> </ul>

## **Step 7: Sustain the change**

Once you have identified a change that works, you need to take steps to maintain change over time. Consider the following ways to sustain the educational improvements you have made:

- Integrate into school/program policy
- Implement a continuous monitoring and quality improvement plan
- Implement new curricular models
- Disseminate/share your improvements with others
- Scale it
- Make organizational changes in support of the change

**Appendix D** provides two different approach case studies as exemplars of educational improvement in regard to UH and PHC. **Appendix D-1** is a PDSA-based case study focused on an interprofessional team-based immersive simulation with a pregnant patient in an acute care setting. **Appendix D-2** is a traditional case study focusing on teaching competencies for community-based perinatal care. Both cases were developed in an effort to improve UH and PHC educational outcomes for nurses and midwives. Next steps, after implementing these changes, would be to study whether the use of these cases improved student knowledge and skills. Finally,

faculty would need to determine whether the change was an improvement that should be incorporated and whether additional changes are needed.

Last, **Appendix E** provides a list of available resources for nursing and midwifery programs interested in quality improvement initiatives to enhance their outcomes. These resources represent the collective knowledge, experience, and expertise of the work group and international partners. Preceding all appendixes, a **Glossary** of terms, along with **Bibliography**, is included to enhance common understanding and clarity of concepts used throughout this document.

## CONCLUSION

Latin American and Caribbean (LAC) countries are severely impacted by a shortage of adequately qualified nurses and midwives, particularly in underserved areas, negatively affecting individual and population health outcomes. The potential for significant contributions by nurses and midwives in supporting PHC and UH access and coverage has been recognized, and campaigned for, by several leading organizations, including the UN, PAHO/WHO, ICN, and ALADEFE. To achieve this potential, entry-level nurses and midwives must be prepared to practice collaboratively, outside of traditional disciplinary silos, in ever changing environments. This challenge calls for nurse and midwifery educators equipped with a minimum of core competencies, as recommended by the WHO, who will prepare undergraduate students to provide, seek, advocate for, and champion health service access and coverage.

The intent of this EQI Toolkit is to provide a comprehensive and versatile plan and resource for nursing and midwifery programs in LAC countries, aiming to strengthen their graduates' preparation in UH and PHC. The strategies for UH and PHC are linked with transformational education, IPE, and IPCP. Furthermore, the WHO core competencies for nurse and midwifery educators provide important background and set the stage for introducing quality improvement as a strategy to improve student outcomes related to UH and PHC. The Model for Improvement (MFI) and Plan-Do-Study-Act (PDSA) cycles are proposed as a user friendly and adaptable methodology and process for educators to follow. A series of tools, including original and existing ones, are offered in order to systematically identify, prioritize, and manage areas in need of improvement.

First, the *Self-Assessment QI Tool* can be used to identify strengths and weaknesses within structures, processes, and outcomes related to UH and PHC. Next, the *Prioritization Matrix* provides an example of how to put in hierarchical order the results stemming from the first tool in order to decide where to begin the quality improvement (QI) work. The *PDSA Worksheet* provides a template for educators to develop their detailed plan for a test of change. This worksheet is used for each of the priorities selected for improvement. To exemplify how to use the MFI from a process standpoint, two case studies with teaching

strategies at a school of nursing or midwifery are included. One on *Interprofessional Team-Based Immersive Simulation* and the other one on *Teaching UH/PHC competencies in community-based prenatal care*. Finally, an appendix with a plethora of electronic resources on quality improvement in the education setting is offered for nursing and midwifery faculty. The combination of the above tools and resources is expected to contribute in initiating and establishing QI efforts within schools, programs, faculty or students.

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## GLOSSARY

**Accreditation:** *“The status of public recognition that an accrediting agency grants to an educational institution or program that meets the agency’s standards and requirements.”* [a]

**Evidence-Based Nursing (EBN) Education:** *“Evidence-based nursing is a rigorous methodology where all the research data for a particular problem or issue are analyzed together, also accounting for values and expert consensus. Nurse educators incorporate evidence-based practice into their curricula and use evidence-based strategies to support their teaching strategies.”* [b]

**Interprofessional Collaborative Practice (IPCP):** *“When multiple health workers from different professional backgrounds work together with patients, families, carers, and communities to deliver the highest quality of care. It allows health workers to engage any individual whose skills can help achieve local health goals.”* [c]

**Interprofessional Education (IPE):** *“When students from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes.”* [c]

**Midwifery Competencies:** *“The midwife has an important task in health counseling and education, not only for the woman, but also within the family and the community.”* [d]

**Nursing Competencies:** *“An expected level of performance that integrates knowledge, skills, abilities, and judgment.”* [e]

**Nursing Research:** *“Nursing research develops knowledge about health and the promotion of health over the full lifespan, care of persons with health problems and disabilities, and nursing actions to enhance the ability of individuals to respond effectively to actual or potential health problems.”* [f]

**Primary Health Care (PHC):** *“Essential health care based on practical, scientifically sound and socially acceptable models and technology made universally accessible to individuals and families in the community through their full participation and at the cost that the community can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination.”* [g]

**Quality Improvement (QI):** *“A data-driven, formal approach to the analysis of performance and the systematic efforts to improve it.”* [h]

**Simulation-Based Nursing Education:** *“A pedagogical approach that provides nursing students with opportunities to practice their clinical and decision-making skills through varied real-life situational experiences, without compromising the patient’s well-being.”* [i]

**Transformative Education:** *“Formulating and implementing evidence-based policies and strategies... to strengthen and transform the health workforce education and training, including but not limited to the promotion of interprofessional, community-based and health systems-based education, linkages of pre-service education to continuous professional development, and an accreditation system to ensure quality of training institutes and competency of health workforces; with a view to better respond to the health needs of people.”* [j]

**Underserved area/population:** the HRSA definition for Medically Underserved Areas (MUAs) and Medically Underserved Populations (MUPs) was adopted as follows: *“Geographic areas and populations with a lack of access to primary care services. MUAs have a shortage of primary care services within: 1)*

*a whole county; 2) a group of neighboring counties; 3) a group of urban census tracts; or 4) a group of county or civil divisions. MUPs are specific sub-groups of people living in a defined geographic area with a shortage of primary care services. These groups may face economic, cultural, or linguistic barriers to health care. Examples include but are not limited to: 1) homeless; 2) low-income; 3) Medicaid-eligible; 4) Native American; or 5) migrant farm workers.” [k]*

**Universal Access to Health:** *“The absence of geographical, economic, sociocultural, organizational, or gender barriers...and is achieved through the progressive elimination of barriers that prevent all people from having equitable use of comprehensive health services determined at the national level.” [l]*

**Universal Health Coverage (UHC):** *“The capacity of the health system to serve the needs of the population, including the availability of infrastructure, human resources, health technologies (including medicines) and financing. UHC implies that the organizational mechanisms and financing are sufficient to cover the entire population. Universal coverage is not in itself sufficient to ensure health, well-being, and equity in health, but it lays the necessary groundwork.” [m]*

**Universal Health (UH):** *“The term encompasses both Universal Access to Health and Universal Health Coverage in alignment with previous PAHO-tasked work carried out by Cassiani et al.” [a]*

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## APPENDIX A

### Universal Health and Primary Health Care in Nursing & Midwifery Education: A Self-Assessment QI Tool

“**Universal Health and Primary Health Care in Nursing & Midwifery Education: A Self-Assessment QI Tool**” is part of the “Educational Quality Improvement (EQI) Toolkit” that was developed in 2019 by a consortium of PAHO/WHO Collaborating Centers, led by the University of Alabama at Birmingham [1]. This self-administered tool aims to assist administrators and/or faculty at schools of nursing and midwifery in Latin American and Caribbean countries determine their schools’ or undergraduate programs’ strengths/challenges in preparing students/graduates to deliver Universal Health (UH) and Primary Health Care (PHC) services.

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#### Description

The tool consists of three parts, across 10 domains, with a total of 46 items that had emerged as opportunities for improvement from a comprehensive 2017 survey by Cassiani and colleagues [2].

Part 1 – **Structure**; mission/objectives/philosophy, resources, infrastructure & external relationships, policies (11 items)

Part 2 – **Process**; general competencies for students/graduates addressed in the curriculum, curriculum model and teaching/learning strategies, clinical experiences, nursing program evaluation, student evaluation (29 items)

Part 3 – **Outcomes**; outcomes for the school/program/faculty in relation to preparing students/graduates for universal health and primary health care service (6 items)

#### Citations:

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**Instructions:** Use tool in conjunction with “*Glossary of Terms*” and the Model for Improvement “*Plan-Do-Study-Act cycles*”. **This tool can be modified by the user to reflect the characteristics of the part of your organization being assessed (“unit level” = school/program/faculty of nursing and or midwifery).** If an item is not relevant or there is no information, please check the “Don’t Know/Not relevant” box. If needed, use the “Comments” box to enter clarifications to explain your answer.

<b>Universal Health (UH) and Primary Health Care (PHC) in Nursing &amp; Midwifery Education: A Self-Assessment QI Tool</b>				
<b>Part 1 – Structure</b>				
<p><b>What is the “unit level” at your institution being assessed? Please choose one.</b></p> <ul style="list-style-type: none"> <li><input type="radio"/> Faculty/School of nursing and/or midwifery (all programs)</li> <li><input type="radio"/> Undergraduate program</li> <li><input type="radio"/> Graduate program</li> <li><input type="radio"/> Other (specify)</li> </ul>				
<b>Mission, Objectives, and Philosophy</b>	<b>Yes</b>	<b>No</b>	<b>Don’t know / Not relevant</b>	<b>Comments</b>
1. The unit level integrates UH into its mission				
<b>Resources, Infrastructure and External Relationships</b>	<b>Yes</b>	<b>No</b>	<b>Don’t know / Not relevant</b>	<b>Comments</b>
2. The unit level offers laboratories with equipment and supplies to develop clinical and care skills.				
3. The unit level is sufficiently equipped with computer equipment with internet access for students and professors.				
4. The unit level has some faculty members who engage in professional practice related to UH and Primary Health Care.				
5. The unit level employs some nursing and/or midwifery faculty with experience in Primary Health Care and with the ability to develop and review the program.				
6. The unit level has the infrastructure necessary for persons with disabilities (ramps in good condition, handrails, signage, parking spaces and special elevators/lifts).				

7. The unit level has resources focused on UH available to teachers and students (such as textbooks, other scholarly materials, learning facilities, etc.).				
8. The unit level promotes collaboration with other national and international schools of nursing, midwifery or health-related institutions.				
<b>Policies</b>	<b>Yes</b>	<b>No</b>	<b>Don't know / Not relevant</b>	<b>Comments</b>
9. The unit level has a policy related to continuing professional education for professors related to UH.				
10. The unit level has policies assuring and supporting participation of members of vulnerable communities in the nursing and/or midwifery program.				
11. The policy on selection, employment and retention includes professors of other disciplines besides nursing and/or midwifery.				
<b>TOTAL</b>				
<b>Part 2 – Process</b>				
<b>General Competencies for Students/Graduates Addressed in the Curriculum</b>	<b>Yes</b>	<b>No</b>	<b>Don't know / Not relevant</b>	<b>Comments</b>
12. Knowledge of the principles of UH				
13. Knowledge about health policies, health systems, financing, and health law.				
14. Health program evaluation and continuous quality improvement.				
15. Information and health care technology.				
16. Environmental health.				
17. Global Health.				

18. Respect for and understanding of different cultures and the impact of culture on human life.				
19. Leadership, advocacy, management of change, coordination and administration of health care services.				
20. Disaster and emergency preparedness, response and recovery.				
21. Development of complex and systemic-wide thinking.				
22. Development of evidence-based clinical problem-solving and decision-making skills.				
23. The importance of life-long learning.				
24. The principles of research methodology and evidence-based nursing, including analytical and critical thinking.				
25. Content for the strengthening of health systems through the values of UH and Primary Health Care.				
<b>Curriculum Model and Teaching/Learning Strategies</b>	<b>Yes</b>	<b>No</b>	<b>Don't know / Not relevant</b>	<b>Comments</b>
26. The unit level offers an adequate combination of learning experiences at the level of Primary Health Care.				
27. The unit level provides students with the opportunity to learn with students from other disciplines in addition to nursing.				
28. The unit level includes interprofessional teamwork practical experience either in the classroom or simulation laboratories.				
29. Faculty use teaching strategies to promote active learning.				
30. Faculty use teaching strategies to promote individualized learning.				
31. Teaching in the classroom is interprofessional and interdisciplinary.				
32. The curriculum incorporates community service as part of the learning process.				

33. The curriculum incorporates the use of clinical simulation or the use of simulations experiences in Primary Health Care.				
<b>Clinical Experiences</b>	<b>Yes</b>	<b>No</b>	<b>Don't know / Not relevant</b>	<b>Comments</b>
34. The nursing and/or midwifery personnel at the places of practical learning participate in planning the activities of the students.				
35. There is integration between health care services and the school/program/faculty.				
<b>Nursing Program Evaluation</b>	<b>Yes</b>	<b>No</b>	<b>Don't know / Not relevant</b>	<b>Comments</b>
36. The unit level carries out a periodic evaluation of its program with students' participation.				
37. The results of the program evaluation are shared with educational authorities and professional organizations.				
38. The process of program evaluation assesses the extent to which the school prepares students to contribute to UH.				
<b>Student Evaluation</b>	<b>Yes</b>	<b>No</b>	<b>Don't know / Not relevant</b>	<b>Comments</b>
39. The final evaluation integrates the evaluation results from the distinct curricular elements.				
40. Results of student evaluations are shared with students.				
<b>TOTAL</b>				
<b>Part 3 – Outcomes</b>				
<b>Outcomes:</b>	<b>Yes</b>	<b>No</b>	<b>Don't know / Not relevant</b>	<b>Comments</b>
41. Disseminates indicators obtained from the program evaluation to coordinators, professors, and other interested persons.				
42. Establishes an indicator for each program goal and develops an improvement plan to reach its goals.				

43. Collects data regarding employment of graduates.				
44. Analyzes the number of graduates employed in primary health care and in hospital-based care.				
45. Collects data regarding the number of students who carry out work or social service in vulnerable communities.				
46. The research projects developed by nursing and/or midwifery faculty analyze, facilitate and/or evaluate the competency of the country or region in achieving UH.				
<b>TOTAL</b>				

**Summary of Self-Assessment**

**Structure:** Total # of “Yes” \_\_\_\_\_ “No” \_\_\_\_\_ “Don’t Know/Not Relevant” \_\_\_\_\_

**Process:** Total # of “Yes” \_\_\_\_\_ “No” \_\_\_\_\_ “Don’t Know/Not Relevant” \_\_\_\_\_

**Outcomes:** Total # of “Yes” \_\_\_\_\_ “No” \_\_\_\_\_ “Don’t Know/Not Relevant” \_\_\_\_\_

## APPENDIX B

### PRIORITIZATION MATRIX

**Steps:**

1. From your completed *Self-Assessment Quality Improvement* (Appendix A), identify the **top three items that scored “No”** which the team considers as most important and feasible areas to improve. Place them in the left column of the Prioritization Matrix as Option 1, 2, & 3 respectively.
2. Next, **identify up to four decision-making criteria** you will use to determine implementation, and list them across the top as columns 1-4. Decision-making criteria items in the example below can be adjusted according to your own priorities.
3. Using a scale from 1-3, **weigh the criteria for each option** with “1” indicating the lowest effort to implement and “3” indicating the highest effort. Do this for each option and criterion.
4. Total the scores across for each option to prioritize where to begin to make improvements. **The option with the lowest total score is the easiest to implement and should be where your team begins.** See below a blank Prioritization Matrix, followed by an example.

Priorities for Improvement	Decision-Making Criteria				Total
	#1	#2	#3	#4	
Option 1 (enter item #from Appendix A)					
Option 2 (enter item #from Appendix A)					
Option 3 (enter item #from Appendix A)					

#### EXAMPLE OF COMPLETED PRIORITIZATION MATRIX

Options (enter item #from Appendix A)	Decision-Making Criteria				Total*
	Cost	Expertise	Space or Location	Organizational Culture	
#12 Knowledge of the principles of Universal Health.	1	2	1	2	6
#33 The curriculum incorporates the use of clinical simulation or simulation experiences in Primary Health Care.	3	3	3	1	10
#34 Nursing and/or midwifery personnel at the places of practical learning participate in planning the activities of the students.	2	1	2	3	8

*\* Lowest score is easiest to implement and should be pursued first.*

## APPENDIX C

### PDSA WORKSHEET

**Directions for use:** Upon completing the Prioritization Matrix (Appendix B), take the top priority (lowest scoring option) and develop a detailed plan for test of change by using this PDSA worksheet. See example, next.

Cycle: 1 Date: \_\_\_\_\_

<b>PLAN: Detailed plan for test of change</b>			
PDSA Cycle 1:  Plan for change or test:			
<b>Who?</b>			
<b>What?</b>			
<b>When?</b>			
<b>Where?</b>			
<b>Predictions:</b>			
<b>Plan for data collection:</b>			
<b>Definitions</b>	<b>Data Source</b>	<b>Frequency</b>	<b>Responsibility</b>
<b>Outcome measure:</b>			
<b>Process measure:</b>	Evaluation of process for PDSA Cycle 1		
<b>Balancing measure:</b> An audit of the staff's perception of the process of change	Staff perception of the process	One time toward end of the PDSA cycle	
<b>Comments:</b> <u>Out of scope:</u> <u>In scope:</u>			
<b>Questions to be addressed before proceeding:</b> Available resources, time? Cost-benefit?			
<b>DO:</b> Carry out the change or test and collect data. Document problems and unexpected observations. Begin analysis of the data.			
<u>Start date:</u> <u>Stop date:</u> <u>Number of patients:</u> <u>Data collection:</u>			
<b>STUDY:</b> Analyze data and summarize what is learned. Compare data to your predictions. Reflect on what was learned.			
<b>ACT:</b> Describe and discuss what you learned from the cycle. Take action based on what you learned. If no improvement, go through the PDSA cycle again with a modified or different plan. If the change brought improvement, incorporate what you learned to plan new improvements.			

**APPENDIX C-1/PDSA EXAMPLE 1**

**PDSA WORKSHEET**

Cycle: 1

Date: August 29, 2022

<b>PLAN: Detailed plan for test of change</b>			
<p><b>PDSA Cycle 1:</b> Findings from an internal evaluation of course curricula for the school’s undergraduate (BSN entry) nursing program found there was no content related to nurses’ professional responsibility to secure and improve local and national Universal Health Coverage (UHC) policy. Therefore, the aim of this PDSA cycle is to:</p> <p>1) increase the number of courses teaching how nurses can influence UHC policy from the current 0% to 10% within one year, and 2) have at least 10% of students indicate they plan to participate in UHC policy efforts after graduation.</p> <p><b>Plan for change or test:</b></p> <ol style="list-style-type: none"> <li>1. Determine UHC policy roles appropriate for BSN graduates</li> <li>2. Agree on a minimum of 10% courses to include UHC policy content</li> <li>3. Write and add UHC policy objectives for selected courses</li> <li>4. Plan assignments and grading rubrics to evaluate student proficiency</li> <li>5. Train faculty to deliver UHC policy content</li> <li>6. Teach the courses with UHC policy content</li> </ol>			
<b>Who?</b>			
Faculty teaching one or more BSN entry courses will plan, implement and evaluate the change. We are going to initially test the change for students enrolled in two upper-level BSN courses.			
<b>What?</b>			
Our intent is to test the addition of educational content on nurse role in UHC policy for students enrolled in two courses.			
<b>When?</b>			
Make course changes in the Fall semester and implement changes in the Spring semester of this academic year.			
<b>Where?</b>			
The BSN entry program in our nursing school.			
<b>Predictions:</b>			
We expect students to become engaged in UHC policy and respond to calls to action in our local area.			
<b>Plan for data collection:</b>			
<u>What data do we need to collect?</u>			
Subjective findings from a faculty survey quantifying the amount of UHC content that was actually delivered during the course and rating their perception of student understanding, engagement, and synthesis of UHC content.			
Subjective findings from a student survey about the amount of UHC content delivered during the course (too much, too little or just right), and rating their personal knowledge and plans for current and future engagement in UHC policy efforts.			
<u>Who will collect the data?</u> Faculty teaching the courses.			
<u>When will the data be collected?</u> During the academic year.			
<u>Where will the data be collected?</u> In our nursing school.			
<b>Definitions</b>	<b>Data Source</b>	<b>Frequency</b>	<b>Responsibility</b>
<b>Outcome measures:</b>			
1. Proportion of BSN entry courses containing UHC policy content.	BSN entry programmatic reviews	Annually	BSN entry program director
2. Proportion of BSN entry students who plan to participate in UHC policy efforts after graduation.	BSN entry student survey	Annually	BSN entry program director

<p><b>Process measures:</b></p> <ol style="list-style-type: none"> <li>1. Number of UHC policy roles appropriate for BSN prepared nurses identified before Fall semester.</li> <li>2. Number of courses scheduled to include UHC policy content before Fall semester.</li> <li>3. Number of courses with UHC policy objectives before Fall semester.</li> <li>4. Number of courses with assignments and grading rubrics to evaluate student proficiency with UHC policy content before Fall semester.</li> <li>5. Number of faculty trained to deliver UHC policy content.</li> <li>6. Number of completed courses with UHC policy content.</li> </ol>	<p>BSN entry programmatic reviews</p>	<p>1-4 end of summer semester  5 &amp; 6 every semester</p>	<p>BSN entry program director  BSN entry program director</p>
<p><b>Balancing measure:</b> Faculty perception of the process and value for adding UHC policy content.</p>	<p>Faculty survey</p>	<p>One time toward end of PDSA cycle</p>	<p>BSN entry program director</p>
<p><b>Comments:</b>  <u>Out of scope:</u> Courses beyond the BSN entry program. UHC policy content taught outside of an undergraduate course.  <u>In scope:</u> Faculty, students and courses within the BSN entry program.</p>			
<p><b>Questions to be addressed before proceeding:</b>          What resources do we have to train faculty on UHC?          Where do we get needed resources?</p>			
<p><b>DO:</b> Carry out the change or test and collect data.          Document problems and unexpected observations. Begin analysis of data.</p>			
<p><u>Start date:</u> January 2, 2019  <u>Stop date:</u> December 1, 2019  <u>Number of faculty; number of students:</u> 5;5  <u>Data collection:</u> see above measures</p>			
<p><b>STUDY:</b> Analyze data and summarize what is learned.          Compare data to your predictions. Reflect on what was learned.</p>			
<p><u>Complete data analysis by:</u> see above data plan  <u>Compare data to your predictions:</u>  <u>Summarize what was learned:</u>  <b>Adapt, Adopt or Abandon?</b></p>			
<p><b>ACT:</b> Describe and discuss what you learned from the cycle. Take action based on what you learned. If no improvement, go through the PDSA cycle again with a modified or different plan. If the change brought improvement, incorporate what you learned to plan new improvements.</p>			
<p>Modifications to be made?          Prepare next plan:</p>			

## APPENDIX D -1 Case Study 1

### Teaching Strategies at a School of Nursing or Midwifery

#### **An MFI Case Study using the PDSA Cycles: Interprofessional Team-Based Immersive Simulation**

**Problem statement:** Upon conducting clinical course evaluations, faculty identified areas for improvement in active learning, team-based learning, and interprofessional development opportunities. Faculty believed that improvement in these strategies would enhance student understanding of universal health and primary health care. Together, faculty brainstormed ideas to address these gaps. Ideas included faculty development on active learning, creation of case studies to increase involvement of students in the learning process, and others. Faculty then prioritized their ideas and identified a plan for interprofessional team-based immersive simulations as their initial strategy.

**Aim** – what are we trying to accomplish? To expose students to situations and scenarios they may not encounter in their clinical rotations and to do it as realistically as possible. The goal in planning these immersive simulations is to make sure each student has the opportunity to practice what they have learned and experience the potential consequences of their decisions in a safe environment.

**Measures** – how will we know that a change is an improvement? After developing the scenario, faculty identified metrics for evaluating the effectiveness of student learning. A tool was developed that assessed students' confidence with interprofessional communication, advocacy, and team-work. The tool would be used as a pre and post simulation assessment.

**Change idea** – what changes can we make that will result in an improvement?

#### **Detailed plan**

**Situation:** Delivery by an interprofessional team

**Learning Objectives:** At the end of this simulation, students should be able to:

- Advocate for the patient while acting as a valuable and respectful interprofessional team member
- Discuss patient needs in an inter-professional team
- Assess if mother and baby are at risk
- Support the mother's delivery method choice

**Description of participants:** Attending doctor (nursing professor), 3-4 Registered Nurses (nursing students), pregnant woman (actress or nursing professor/instructor), doula (actress or nursing professor/instructor)

#### **Plan Cycle**

**Scenario Description:** A 22-year-old woman, 37 weeks pregnant who had come to the hospital because her delivery time was near. The attending doctor who was scheduled to deliver the baby was nearing the end of his shift and had somewhere else to be. So, he was urging the expectant mother to have a Cesarean section, even though mother and baby were doing just fine. The patient was hesitant because she wanted an un-medicated birth and because her husband would not get to the hospital for several hours.

**Scenario Organization:** Free-standing Birth Center or Labor and Delivery Hospital Clinic

**Equipment:** Hospital bed for patient

**Simulator level:** standardized patient

### **Do Cycle**

**Scenario Implementation:** Two of the students asked the doctor to step outside the patient's room to discuss the situation. Both were firm in telling the doctor they believed the situation should be handled differently. Inside the room, the third student was discussing options with the mother-to-be and her doula -- a nonmedical person who assists a woman before, during, and/or after childbirth.

The main point was that if mother and baby were not at risk, it was ultimately the mother's choice as to how her baby would be delivered. When everyone was gathered in the room once again, the doctor agreed to consult with his partner coming on duty to have him do the delivery and the decision was made.

A small group of students were asked to participate in a pilot of the immersive simulation. As with any real-life situation, students were being asked to respond to changing circumstances, different than the ones initially expected. So, what had started as an exercise in managing an uncomplicated labor and delivery had turned into one on patient advocacy and the responsibilities of a nurse in that capacity.

### **Study Cycle**

When implementing the simulation for the larger class, three to four students took part in the simulation, with the remaining students watching via Skype in the classroom. An extensive debriefing involving all the students took place afterwards. After one semester of implementation, course evaluations improved and feedback from students indicated an appreciation of more "real life" learning.

### **Act Cycle**

Refine the change based on what was learned from the test. Based on student feedback, consider what additional strategies may enhance the experience of "real life" learning. Prepare a plan for the next test/PDSA cycle.

## APPENDIX D-2 Case Study 2

### Teaching Strategies at a School of Nursing or Midwifery

#### A Traditional Case Study: Teaching UH/PHC competencies in community-based prenatal care

##### Learning Objectives:

1. Evaluate and apply clinical midwifery knowledge and evidence-based practice, utilizing relevant data to analyze midwifery care outcomes.
2. Identify gaps between evidence and midwifery practice and consider potential solutions for bridging gaps.

The case study is structured around three stages/scenarios:

- 1) months before the consultation
- 2) the first prenatal consultation
- 3) management options for pregnancy complications

Mrs. Julia, age 35, is a petite woman, who has completed only the second year of high school. For the last 15 years, she has been doing housework: her day starts at 6:00 am cooking with firewood and taking care of her family. Her house is made of wood, has a dirt floor and a latrine, and the drinking water is scarce and expensive.

Mrs. Julia (G6P5) has five live and healthy babies and a history of a newborn weighing 4 kilograms at birth.

##### Scenario 1 - Prior to the prenatal consultation

Mrs. Julia has discovered she is pregnant after missing her period for the third consecutive month. Today, she plans to talk to her husband when he returns from work. She is happy, but also fearful of how he will react to the news of her pregnancy. During dinner, while talking with her husband about the new pregnancy, they agree she will go to the local Health Center next month, when they have saved a little money. The distance is 45 minutes on-foot.

Questions to stimulate discussion:

- What potential risk factors are evident?
- If you make a home visit to Mrs. Julia, what would the prenatal care goals be for the visit?
- What prenatal care actions (including education) would you perform during the visit?
- Would you recommend or administer supplements such as iron, folic acid and prenatal multivitamins?
- What glucose figures indicate risk for Gestational Diabetes?
- What lab tests would you request for Mrs. Julia?

## **Scenario 2 - During the prenatal consultation**

5th July 10:00 am

Today, Mrs. Julia presents to the Emergency Department of the Women and Infants Hospital. She reports malaise, of two days duration, repeated nausea and vomiting, pain in the lumbar region and polyuria.

Expected Date of Delivery (EDD): October 5th.

Physical examination: Temperature 37.8° C, BP 110/80 mmHg; positive Giordans.

Fetal Heart Rate 172; Fundal Height 28cm; Sporadic uterine contractions 1 / 20min / + 20. Upon examination posterior cervix, softened, 30% effacement, 1cm of dilation, intact membranes.

The rapid urine test reports: cells: abundant; blood: traces; nitrites: positive; protein: negative; leukocytes: ++ 75; pH: 7.

Questions to stimulate discussion:

- What additional data should be collected as part of the physical assessment??
- What does the symptomatology suggest is the probable diagnosis?
- What specific medications would be recommended for treatment?
- What non-pharmacological care interventions can the pregnant woman perform?
- Considering the FDA Classification of drugs during pregnancy; in which category do the medications recommended for treatment of Mrs. Julia's condition belong? and what risks do they have?
- What is the prognosis of tocolysis according to the Gruber-Baumgarten index?
- Considering the prognosis of tocolysis, do you classify it as a threat of preterm labor or preterm labor in development?
- What are the pharmacological interventions that contribute to the prevention of preterm delivery?
- What are the interventions in the prevention of preterm delivery that contribute to the reduction of neonatal morbidity and mortality?
- What are the pathophysiological effects of fever on the fetus?
- What effective measures could be provided for the treatment of fetal tachycardia?

## **Scenario 3 - Management Options for pregnancy complications**

Explore the evidence support for the two possible management options:

### **Option 1: At home under observation**

Questions to stimulate discussion:

- What are the surveillance indicators you must follow?
- What recommendations or advice should Julia and her family receive?
- What evidence supports home-based surveillance in the diagnosis of risk for preterm labor?

## **Option 2: Admission to hospital for observation**

Questions to stimulate discussion:

- What additional tests or evidence-based procedures would you recommended to occur upon admission to the Labor and Delivery Unit of the Hospital?
- What pharmacological agents might be included in Mrs. Julia's treatment plan?
- What effective screening instruments could be used to guide possible interventions?
- What other midwifery care strategies could be used to improve the condition of Mrs. Julia and her fetus?
- What are the possible outcomes for Mrs. Julia and her newborn if premature labor progresses to birth?

### **Applying the MFI-PDSA cycles**

To evaluate the effectiveness of this case study in achieving objectives 1 & 2, please consider the following questions:

- 1) What are we trying to accomplish?
- 2) Are there measurable targets?
- 3) How will we know that a change is an improvement?
- 4) What changes can we make that will result in an improvement?

After you have answered the above questions, you will be in a position to fill out the PDSA Cycle (Appendix C).

**APPENDIX E**

SOURCE	RESOURCE	PURPOSE/COMMENTS
<p>Accreditation Commission for Midwifery Education (ACME)</p>	<p><a href="http://www.midwife.org/Program-Accreditation">http://www.midwife.org/Program-Accreditation</a></p>	<p>ACME advances excellence in midwifery education.</p>
 <p>Accreditation Council for Graduate Medical Education (ACGME)</p>	<p><a href="https://www.acgme.org/about/publications-and-resources/">https://www.acgme.org/about/publications-and-resources/</a></p>	<p>Employ best practices, research, and advancements across the continuum of medical education to demonstrate dedication to enhancing health care and graduate medical education. Links to the Journal of Graduate Medical Education (JGME) website, books, reports, papers and other tools produced by ACGME.</p>
 <p>Agency for Healthcare Research and Quality (AHRQ)</p>	<p><a href="http://www.ahrq.gov">www.ahrq.gov</a></p>	<p>Produce evidence to make health care safer, higher quality, more accessible, equitable, and affordable, and to work within the U.S. Department of Health and Human Services and with other partners to make sure that the evidence is understood and used.</p>
 <p>Latin American Association of Nursing Schools Asociación Latinoamericana de Escuelas y Facultades de Enfermería (ALADEFE)</p>	<p><a href="https://www.instagram.com/aladefeooficial/">https://www.instagram.com/aladefeooficial/</a></p>	<p>Seek technical cooperation among developing countries to achieve improvement in nursing practice and promote the development and improvement of nursing education in Latin America.</p>
<p>American College of Nurse-Midwives (ACNM)</p>	<p><a href="http://www.midwife.org/">http://www.midwife.org/</a></p>	<p>Professional organization for certified nurse- midwives and certified midwives.</p>
<p>American Midwifery Certification Board (AMCB)</p>	<p><a href="https://www.amecbmidwife.org/">https://www.amecbmidwife.org/</a></p>	<p>A national certifying body for candidates in nurse-midwifery and midwifery who have received their graduate level education in programs accredited by the Accreditation Commission for Midwifery Education (ACME).</p>

<p>Center for Nursing Education of the Brazilian Nursing Association - Brazil Associação Brasileira de Enfermagem</p>	<p><a href="http://www.abennacional.org.br/site/centro-de-educación/">http://www.abennacional.org.br/site/centro-de-educación/</a></p>	<p>To expand the scope of action of the Nursing Education Board of Brazil.</p>
<p>COFEN - Brazilian Federal Nursing Council – Education in Nursing Conselho Federal de Enfermagem</p>	<p><a href="http://www.cofen.gov.br/educacao-em-enfermagem">http://www.cofen.gov.br/educacao-em-enfermagem</a></p>	<p>National association of nurses in Brazil.</p>
<p>College of Midwives of Chile Colegio de Matronas Chile</p>	<p><a href="http://colegiodematronas.cl/">http://colegiodematronas.cl/</a></p>	<p>National association of midwives of Chile - 20 Regional Councils throughout the country with a total of 2,500 registered midwives. A member of ICM and the Inter-American Federation of Obstetricians / FIO.</p>
 <p>Commission on Collegiate Nursing Education (CCNE) - USA</p>	<p>Standards for Accreditation of Baccalaureate and Graduate Nursing Programs (February 2016)</p> <p><a href="https://cnea.nln.org/">https://cnea.nln.org/</a></p>	<p>Serves the public interest by assessing and identifying programs that engage in effective educational practices. As a voluntary, self-regulatory process, CCNE accreditation supports and encourages continuous QI in nursing education. CCNE accredits baccalaureate degree nursing programs, master’s degree nursing programs, nursing doctorates that are practice-focused and have the title Doctor of Nursing Practice (DNP), and post-graduate certificate programs that prepare Advanced Practice Registered Nurses (APRNs). CCNE also accredits post-baccalaureate nurse residency programs.</p>
<p>Council for the evaluation, accreditation and certification of the quality of university higher education – Peru</p> <p>Consejo de evaluación, acreditación y certificación de la calidad de la educación superior universitaria (CONEAU) – Peru</p>	<p>Quality Standards for the Accreditation of University-Level Professional Careers in Medicine, Nursing and Obstetrics</p> <p>Estándares de Calidad para la Acreditación de las Carreras Profesionales Universitarias de Medicina, Enfermería y Obstetricia – 2010</p> <p>Notes: -Page 45 expands the application of this document from Peru to all of Latin America. -Page 52 table entitled: “Dimensions, factors, criteria and standards for accreditation of the professional nursing career”</p>	<p>The Standards are designed to improve the quality of university professional careers and to better control the processes implemented by CONEAU accreditation. The Model comprises 3 dimensions, 9 factors, 16 criteria, 84 indicators, 253 referential verification sources and 125</p>

	Pages 53-65 table entitled: “Model of quality for the accreditation of the professional career of nursing”	management indicators. It is based on the systemic approach, applying the cycle: "plan-do-study-act".
 <p><b>Institute for Healthcare Improvement</b> Institute for Healthcare Improvement (IHI)</p>	<p>IHI Open School</p> <p><a href="https://www.ihl.org/education/ihl-open-school">https://www.ihl.org/education/ihl-open-school</a></p> <p>-The Role of Didactic Learning in Quality Improvement -A Roadmap for Facilitating Experiential Learning in QI -How to Improve with the Model for Improvement -Leading Quality Improvement</p>	<p>IHI Open School’s multi-media online courses cover a range of topics in QI, patient safety, system design, leadership and population management. Courses offer a dynamic learning environment to inspire students, educators and health professionals at all levels. A sampling of available courses is listed to the left.*</p> <p>*Basic Certificate in Quality and Safety = The Open School offers a certificate of completion to learners who complete 13 essential courses.</p>
International Confederation of Midwives (ICM)	<a href="https://internationalmidwives.org/es/quienes-somos/">https://internationalmidwives.org/es/quienes-somos/</a>	An accredited non-governmental organization that supports, represents and works to strengthen professional associations of midwives throughout the world (132 associations, representing 113 countries). ICM works closely with WHO, UNFPA and other UN Agencies
International Federation of Gynecology and Obstetrics  La Federación Internacional de Ginecología y Obstetricia) (FIGO)	<a href="https://www.figo.org/es">https://www.figo.org/es</a>	For over 60 years, FIGO has collaborated with professional societies of obstetricians and gynecologists in 130 member countries/territories. FIGO's vision is to achieve the highest possible standards of physical, mental, reproductive and sexual health and wellbeing for women throughout their lives.
National League for Nursing (NLN) – USA	<p>Accreditation Standards for Nursing Education Programs</p> <p>Free download: <a href="https://www.nln.org/docs/default-source/uploadedfiles/accreditation-services/cnea-standards-final-february-201613f2bf5c78366c709642ff00005f0421.pdf">https://www.nln.org/docs/default-source/uploadedfiles/accreditation-services/cnea-standards-final-february-201613f2bf5c78366c709642ff00005f0421.pdf</a></p>	CNEA is a programmatic accrediting body established in Sept. 2013 committed to setting

		standards that foster quality and excellence in nursing education. Accreditation process encourages the development of a culture of continuous QI. The NLN CNEA Standards of Accreditation are applied to all types of nursing programs, including distance education programs.
PAHO Latin American Center for Perinatology and Women's Reproductive Health Centro latinoamericano de perinatología, salud de la mujer y reproductiva de la OPS	Virtual Health Library CLAP/SMR <a href="https://iris.paho.org/bitstream/handle/10665.2/49255/9789275318317-spa.pdf?sequence=5&amp;isAllowed=y">https://iris.paho.org/bitstream/handle/10665.2/49255/9789275318317-spa.pdf?sequence=5&amp;isAllowed=y</a> <a href="http://perinatal.bvsalud.org/">http://perinatal.bvsalud.org/</a>	Guide focuses on strengthening the role of the professional midwife in providing quality care during pregnancy and delivery and in other reproductive and sexual health services.
Quality and Safety Education for Nurses (QSEN) - USA	<a href="http://qsen.org/about-qsen/">http://qsen.org/about-qsen/</a> A central repository of information on the core QSEN competencies, teaching strategies, and faculty development resources.	QSEN Institute is a collaborative of healthcare professionals focused on education, practice and scholarship to improve quality and safety of healthcare systems.
<b>SQUIRE</b> <i>Promoting Excellence in Healthcare Improvement Reporting</i> Promoting Excellence in Healthcare Improvement Reporting - USA	SQUIRE-EDU v0.9 – Standards for Quality Improvement Reporting Excellence – 2017 <a href="https://www.squire-statement.org/index.cfm?fuseaction=Page.ViewPage&amp;PageID=471">https://www.squire-statement.org/index.cfm?fuseaction=Page.ViewPage&amp;PageID=471</a>	An interprofessional and international advisory panel of health professional educators are working on an extension of the SQUIRE guidelines for use in educational systems. Goal: Using the SQUIRE 2.0 Guidelines as a starting point, develop and publish guidelines to increase the completeness, transparency, and replicability of published reports that describe systematic efforts to improve the quality and value of health professions education.
Registered Nurses' Association of Ontario (RNAO) – Canada	Books: Educator's Resource on Integration of Best Practice Guidelines (BPGs) AND Practice Education in Nursing: Quick Reference Guide  English Free Download: <a href="https://rmao.ca/sites/rmao-ca/files/Educators_Resource_-_Integration_of_Best_Practice_Guidelines.pdf">https://rmao.ca/sites/rmao-ca/files/Educators_Resource_-_Integration_of_Best_Practice_Guidelines.pdf</a>	Provide evidence-based recommendations that promote and sustain the undergraduate nursing student's application of knowledge to practice in a variety of clinical learning environments. Recommendations help nurse educators,

	Spanish Free Download: <a href="http://rnao.ca/bpg/resources/recursos-para-el-docente">http://rnao.ca/bpg/resources/recursos-para-el-docente</a>	preceptors, staff nurses, and interprofessional health-care team members understand how to foster and support effective teaching and learning strategies in a variety of practice settings, as well as how they can advocate for change.
Registered Nurses' Association of Ontario (RNAO) – Canada	Toolkit: Implementation of Best Practice Guidelines (available in English, French, Spanish)  English Free Download: <a href="http://rnao.ca/bpg/resources/toolkit-implementation-best-practice-guidelines-second-edition">http://rnao.ca/bpg/resources/toolkit-implementation-best-practice-guidelines-second-edition</a> Spanish Free Download: <a href="https://rnao.ca/bpg/resources/recursos-para-el-docente">https://rnao.ca/bpg/resources/recursos-para-el-docente</a>	Provide a toolkit to maximize the potential of Best Practice Guidelines, through systematic and well-planned implementation.
Ibero-American Research Network in Education in Nursing Red Iberoamericana de Investigacion en Educacion en Enfermeria (RIIEE)	<a href="https://www.observatoriorh.org/enfermeria/red-%20iberoamericana-de-investigacion-en-educacion-en-%20enfermeria-riiee">https://www.observatoriorh.org/enfermeria/red-%20iberoamericana-de-investigacion-en-educacion-en-%20enfermeria-riiee</a>	A group of nursing professionals, committed to the development of Research in Education, at a National and International level, interested in sharing experiences and contributing to achieve the quality of education, nursing care and the advancement of the discipline. In favor of the improvement and innovation of new educational models and the promotion of quality in the training of nursing professionals.