Description of Nursing Regulation and Nursing Regulatory Bodies in East, Central, and Southern Africa

Carey Fayne McCarthy

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Reading Committee:

Joachim Voss, Chair

Marla Salmon

Patricia Riley

Scott Barnhardt

Program Authorized to Offer Degree:

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Abstract

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Carey McCarthy

Chair of the Supervisory Committee

Associate Professor Joachim Voss

Department of Biobehavioral Nursing

Introduction: Many global health initiatives involve strategies to expand the capacity of the health workforce. Strategies, such as task shifting/task sharing and strengthening pre-service education institutions, have been instrumental in scaling up HIV services in sub-Saharan Africa and have advanced nursing and midwifery practice and education. Incorporating the advancements into nursing and midwifery regulation can increase the sustainability of the strategies and facilitate further scale-up of HIV and other health services. There is insufficient information on what practice and education regulations currently exist in sub-Saharan Africa, how to involve key stakeholders in adapting regulations, and how to measure the impact of efforts to adapt regulations.

Methods: A survey of national nursing council registrars from 14 countries in east, central and southern Africa was conducted on February 28, 2011. The survey asked about what nursing regulations were currently enacted in their country and about task shifting to nurses. A survey of three regulation stakeholders from each of the 14 countries was also conducted on February 28, 2011. The surveyed asked about their roles and activities pertaining to national nursing regulation and about task shifting. An evaluation framework was developed to measure the impact of efforts to update and strengthen national regulations in the 14 countries. The framework was developed using focus groups with representatives from five African countries and pilot testing with three African countries.

Results: 12 Nursing council registrars and 32 regulation stakeholders from 13 African countries responded to the surveys. The majority of all respondents stated task shifting to nurses is taking place yet regulations have not been updated to reflect task shifting. Major nursing regulations in the 14 countries are similar with regard to registration, licensure, continuing professional development and scope of practice. Nursing regulation stakeholders have complementary and strategic roles to play in updating regulations. The evaluation framework successfully documented actual stages of regulations in three pilot countries and accurately captured the progress of countries in updating regulations.

Discussion: Many opportunities exist to assist countries to modernize regulations to incorporate important advancements from task shifting and pre-service reform. A regionally relevant, stakeholder vetted framework was created to measure the impact of efforts to update regulations in the region.

Conclusion: Appropriate, revised regulations can help ensure the sustainability of successful health workforce strategies and play an important role in future scale-up of HIV services and other global health priorities.

SECTION ONE

Results of a Baseline Survey of Nursing and Midwifery Regulation in East, Central and Southern Africa

Corresponding Author

Carey F. McCarthy RN, MPH
Research Fellow
Division of Global HIV/AIDS
Center for Global Health
Centers for Disease Control and Prevention
1600 Clifton Road, MS-E41
Atlanta, GA 30333, USA
Phone: +1 404 825 2384
E-mail: cmccarthy@cdc.gov

Peggy Vidot, RN, FRCN
Adviser (Health)
Social Transformation Programmes Division
Commonwealth Secretariat
Marlborough House
Pall Mall
London SW1Y 5HX, UK
Phone: +44 20 7747 6320
E-mail: P.Vidot@commonwealth.int

Co-Authors

Joachim Voss, RN, PhD
Assistant Professor
School of Nursing
University of Washington
1959 NE Pacific Street
Seattle, WA 98195, USA
Phone: +1 206 616 7819
E-mail: vossj@uw.edu

Marla E. Salmon, ScD, RN, FAAN
Dean, School of Nursing
Professor School of Public Health
University of Washington
1959 NE Pacific Street
Seattle, WA 98195, USA
Phone: +1 206 543 8736
E-mail: msalmon@uw.edu

Andre Verani, JD, MPH
Health Policy Analyst
Division of Global HIV/AIDS
Center for Global Health
Centers for Disease Control and Prevention
1600 Clifton Road, MS-E41
Atlanta, GA 30333, USA
Phone: +1 404 888 8888
E-mail: averani@cdc.gov

Patricia L. Riley, CNM, MPH, FACNM
Team Lead, Health Systems & Human Resources
Division of Global HIV/AIDS
Center for Global Health
Centers for Disease Control and Prevention
1600 Clifton Road, MS-E41
Atlanta, GA 30333, USA
Phone: +1 404 639 8106
E-mail: pyr0@cdc.gov

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Key Words: Nursing, Midwifery, Regulation, PEPFAR, Africa

Abbreviated Title: Nursing and Midwifery Regulation in East, Central and Southern Africa

Key Messages: Updating nursing and midwifery regulations in Africa is essential to ensuring the sustainability of task shifting and pre-service education strengthening. Updated regulations can play an important role in future scale-up of HIV services and other global health priorities. Many opportunities exist to assist countries to modernize regulations to incorporate important advancements from task shifting and pre-service reform.

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ABSTRACT

Introduction: Many global health initiatives involve strategies to expand the capacity of the health workforce. Strategies, such as task shifting/task sharing and strengthening pre-service education institutions, have been instrumental in scaling up HIV services in sub-Saharan Africa and have advanced nursing and midwifery practice and education. Incorporating the advancements into nursing and midwifery regulation can increase the sustainability of the strategies and facilitate further scale-up of HIV and other health services. The recently launched PEPFAR-supported African Health Professional Regulatory Collaborative (ARC) assists 14 countries in east, central, and southern Africa to update and strengthen national nursing and midwifery regulations. There is insufficient information on what practice and education regulations currently exist in the 14 countries; such information is a critical starting point from which to measure the impact of efforts to strengthen the health workforce.

Methods: A survey was conducted on task shifting and national nursing and midwifery regulations, such as registration, licensure, scope of practice, pre-service education accreditation, continuing professional development, and use of international guidelines. The survey used a convenience sample of 13 national nursing and midwifery regulatory body leaders in attendance at the ARC meeting in Nairobi, Kenya on February 28, 2011. Survey data were analyzed to present country-level, comparative, and regional findings.

Results: Countries vary with regard to the status of practice and education regulations currently in place. Task shifting to nurses and midwives takes place in almost all countries in this region, yet only Tanzania indicated that nursing and midwifery regulations have been updated to reflect this practice.

Discussion: Many opportunities exist to assist countries to modernize regulations to incorporate important advancements from task shifting and pre-service reform.

Conclusion: Appropriate, revised regulations can help ensure the sustainability of successful health workforce strategies and play an important role in future scale-up of HIV services and other global health priorities.

INTRODUCTION

The efforts by countries to respond to the HIV epidemic has highlighted the importance of the health workforce and created a focus on the practice and education of health care workers [1-4]. Many global health initiatives involve strategies to expand the capacity of the health workforce, such as strengthening of health professional pre-service education institutions and task shifting/task sharing[1] [5-7]. The President's Emergency Plan for AIDS Relief (PEPFAR), through encouragement of task shifting to deliver essential HIV services and expanding the capacity of institutions to increase the production of well-trained health workers, has contributed to important advancements in health professional practice and education in sub-Saharan Africa [6, 8-10]. Across this region, many HIV-related tasks previously under the purview of physicians, such as diagnosing HIV infections, initiating anti-retroviral therapy (ART) and administering prevention of mother-to-child (PMTCT) regimens, are now carried out by nurses and midwives [10-14]. There is wide agreement in the global health community that in order to be sustainable, workforce strategies, such as task shifting/sharing and pre-service strengthening should be incorporated into nationally endorsed health professional regulatory frameworks [1, 9, 15-17].

Health professional regulation ensures the safety and quality of health professional practice and education[18-20]. National legislation (e.g., a nurses and midwives act) often establishes a national health professional regulatory body, such as a nursing and midwifery council, and defines their mandate to regulate that profession[21]. The nurses and midwives act often provides broad authority to regulatory councils or ministries of health to issue regulations for licensure, define the scope of practice, set requirements for continuing professional development (CPD), and the establish the criteria for accrediting pre-service education programs and institutions (Table 1). Regulations for nursing and midwifery are well established in some areas of the world, due in large part to the leadership of organizations such as the International Council of Nurses (ICN), the International Confederation of Midwives (ICM), the Commonwealth Nurses Federation and the World Health Organization (WHO). These organizations assist the development of nursing and midwifery regulatory bodies and professional associations across the world. In sub-Saharan Africa, leadership from the East, Central, and Southern African College of Nursing (ECSACON) has been instrumental in advancing nursing and midwifery practice and education regulations in the region.

[1] In the latest Institute of Medicine report, Preparing for the Future of HIV/AIDS in Africa, task sharing is considered a more appropriate term to reflect how roles expand or contract according to health care delivery needs in low-resource environments.

While regional and global leadership in nursing and midwifery has helped advance professional organization and regulation, keeping nursing and midwifery legislation and regulation on pace with dynamic national and international health priorities has been challenging [22]. Global health policy makers and donors have called for sustainable support of task shifting/sharing and pre-service strengthening by revising national regulatory frameworks, including licensing and registration, scopes of practice, and pre-service education accreditation [5, 16, 23]. Nursing and midwifery legislation and regulations that allow for and incorporate task shifting/sharing and pre-service strengthening can be instrumental in helping sub-Saharan African countries reach new UNAIDS HIV goals "Getting to Zero" [24-26]. Such regulation is crucial not only to HIV/AIDS but to other major health challenges affecting countries in this region. However, there are major gaps in our understanding of the current state of global health professional regulation and insufficient guidance on best practices for enacting legislative and regulatory strengthening.

A recently launched PEPFAR-supported initiative reflects the importance of nurses and midwives in addressing HIV and seeks to strengthen regulation as a means of ensuring the sustainability of advancements to practice and education. The African Health Profession Regulatory Collaborative for Nurses and Midwives (ARC) supports nationally identified regulation strengthening priorities in 14 east, central, and southern African (ECSA) countries (Figure 1). ARC builds upon a long history of collaboration between nursing and midwifery leaders in these countries as well as coordination and leadership from the ECSACON and The Commonwealth Secretariat, a voluntary association of 54 countries that support each other and work together towards shared goals in democracy and development. Detailed information on the ARC initiative can be found elsewhere [27]. In order to assess the impact of ARC, a survey was conducted to establish a baseline of regulation present in each of the 14 countries, against which any advancements in regulation could be measured.

METHODS

The intent of the survey was to describe the current status of nursing and midwifery regulations in the countries participating in the ARC inaugural meeting. The meeting, held February 28-March 2, 2011 in Nairobi, Kenya, brought together nursing and midwifery leaders responsible for regulation in the 14 ECSACON countries. A convenience sample of the leaders representing their national nursing and

midwifery council was used for a survey about key regulatory functions in their country[2]. A 30-item survey to elicit information on registration and data collection, licensure, scopes of practice, accreditation of pre-service institutions, CPD, standards used for setting regulations, and task shifting was administered on February 28, 2011. Surveys were in English, as all countries, except Mozambique, were Anglophone; the Mozambican survey participant was provided an official translator to assist in completing the survey. All study materials were approved by the University of Washington Institutional Review Board and the Centers for Disease Control and Prevention (CDC) Office of the Associate Director for Science.

RESULTS

Thirteen surveys were completed from the 14 countries represented at ARC (the nursing council registrar from South Africa was not in attendance at the ARC meeting). Results from the 13 surveys are provided below and divided into information on task shifting, registration and data collection, licensure, CPD, scopes of practice, pre-service accreditation, and use of standards. While survey responses were not provided from South Africa, information on their regulations are included in the results to the extent that the information was available in the peer-reviewed literature and governmental websites.

Task shifting

All but two of the 13 survey participants stated that task shifting from physicians to nurses and midwives takes place in their country (Figure 2). Six of the 13 participants provided comments on which tasks are commonly shifted to nurses and midwives: Lesotho, Malawi and Zambia indicated that task shifting is related to diagnosis of HIV and/or tuberculosis (TB) and prescription of HIV and TB medication; in Seychelles and Uganda, task shifting is limited to geographical areas with health workforce shortages; in Namibia, task shifting from physicians to nurses is limited to voluntary medical male circumcision (VMMC) services. In Kenya, task shifting is not officially endorsed but may occur in some circumstances. Of the 11 survey participants who indicated task shifting takes place in their countries, only Tanzania indicated that regulations for nurses and midwives have been updated to incorporate task shifting.

[2] A senior member of the national professional nursing association of Mozambique filled out the registrar's survey, as there is not a nursing council in Mozambique.

Registration

Professional registers are one means by which countries track the nurses and midwives in the country and enforce requirements for recognition by the professional governing body. If kept updated, a register can provide crucial information about the numbers and qualifications of nurses and midwives in the country, allowing for identification of deficits in the number and type of health professionals, assist in planning the distribution of existing staff, and track the production of new nurses and midwives. All ECSA nursing and midwifery council registrars indicated they have a national register and collect data on nurses and midwives, although there is variation in what information is recorded in the register and whether the registers are electronic or paper-based (Table 2). In order to be entered on the council register, a nurse or midwife must show evidence of graduating from a recognized or accredited pre-service program (not yet implemented in Namibia), as well as pay a registration fee. All councils in this region require the nurse or midwife to maintain a current status on the register by "renewing" their registration or professional license every one or three years.

Licensure

Almost all ECSA countries indicated that professional practice is limited to those persons who have been issued licenses to practice nursing and midwifery (Table 3). Six nursing and midwifery councils require a licensure examination to ensure initial knowledge and competency standards are met; other councils issue licenses upon proof of passing the final nursing education program examinations.

Continuing Professional Development (CPD)

Five ECSA countries responded that nurses and midwives must show evidence of completing a minimum number of hours engaged in accepted activities of CPD for licensure renewal (Table 3). Seven of the remaining countries indicated they are either in the process of designing CPD programs or have CPD programs which are not linked to licensure renewal.

Pre-Service Accreditation

Twelve ECSA countries indicated that national accreditation programs are in place to assure the quality of nursing and midwifery pre-service education (Table 3). In ten countries, the national nursing and midwifery council is involved in formal accreditation of nursing and midwifery education institutions or programs. In three countries, the nursing and midwifery council has set a specific requirement for the pre-service institution or program to renew their accreditation status.

Scope of Practice

Almost all countries in the ECSA region have a scope of practice for nurse and midwives articulated in nursing and midwifery legislation and/or regulations (Table 4). In Mozambique, which does not yet have a nursing council, the scopes of practice for each cadre are regulated by the Ministry of Health. There are differences among the countries with regard to how recently scopes of practice have been updated.

Standards

There is wide variation in the standards used to design both practice and education-related regulations, as stated by the registrars (Table 5). Most ECSA countries use a combination of international, regional, or national standards. There is greater consistency regarding professional scopes of practice. Eight countries use some pairing or combination of guidelines provided by ECSACON, ICN, ICM, and WHO.
in the global health community that in order to be sustainable, workforce strategies, such as task shifting/sharing and pre-service strengthening should be incorporated into nationally endorsed health professional regulatory frameworks

DISCUSSION

The ARC initiative assists countries in strengthening their national nursing and midwifery regulation to reflect the new demands and realities in practice settings. The findings of this study suggest that task shifting is widely implemented in the ECSA region. While the WHO task shifting guidelines recommend both rapid and long-term reforms to incorporate task shifting/sharing into national regulatory frameworks, most ECSA countries indicated that such regulatory reform has not yet taken place. This situation may threaten the sustainability of workforce strategies that contributed to the successful scale-up of HIV services and important advancements to pre-service education in the region. However, it also suggests there is great opportunity for ECSA countries to update their legislative and regulatory frameworks. Amending legislation and regulations, such as updating scopes of practice, licensure, CPD, pre-service accreditation, standards, and registration, can help ensure sustainable advancements within the practice and education of nursing and midwifery.

Nine ECSA countries indicated they have reviewed or revised nursing and midwifery scopes of practice in the last five years. Only Tanzania indicated that nursing and midwifery regulations specifically address task shifting/sharing. Eight ECSA countries did not incorporate task shifting/sharing into recently revised scopes of practice. Updating scopes of practice is important for all the countries to ensure that, upon graduating with updated knowledge and competencies, new nurses and midwives from pre-service institutions, such as those targeted by pre-service strengthening programs, will be able to practice to the full extent of their training.

Only half of the councils in ECSA administer an examination before licensing a nurse or midwife. In many developed countries, licensure is a requirement for designating proficiency in advanced clinical practice by a nurse or midwife, such as diagnosing illnesses, prescribing medications, ordering certain tests and procedures, and interpreting the results [28, 29]. Training and certifying of nurses for prescription of ART and management of HIV/AIDS patients has been implemented in a few countries in the ECSA region, most notably Botswana, South Africa, and Zambia [30-33], and could prove critical to further expansion of HIV treatment and delivery of vital health services across sub-Saharan Africa. Incorporating advanced practice nursing into legislation and regulation requires careful consideration and possible amendment of other laws, policies, statutes, and drug schedules [34] .

ECSA countries are at various phases of requiring CPD for re-licensure, including three countries still in the design stage. Thus, there is great opportunity to assist nursing and midwifery councils to develop or modernize CPD programs in a way that would build on recent advancements in both pre-service education and the practice environment. For examples, CPD modules on complicated ART and PMTCT regimens, new techniques for VMMC, and other developments in evidence based and best-practice guidelines can be developed for use by nurses and midwives. CPD can also help ensure nurses and midwives who graduated prior to pre-service reforms are able to give the same level of care as recent and future graduates.

The survey results indicate that ECSA countries are at different stages of carrying out accreditation of pre-service nursing and midwifery education. Once granted, most countries do not require pre-service institutions or programs to maintain their accreditation status. As illustrated in Table 5, because pre-service accreditation standards vary widely across the region, it is likely that the consistency and quality of nursing and midwifery education also varies widely. National nursing and

midwifery education standards can help ensure curricula contain updated information on HIV, PMTCT is included in maternal and child health curricula, and students are taught skills and competencies necessary to meet population health needs. Pre-service strengthening initiatives involving nursing and midwifery curricula revisions, infrastructure enhancements, skills practice labs improvements and faculty development could help institutions reach and maintain accreditation status. Accreditation criteria which reflect updated education standards and pre-service strengthening can increase the quality, relevancy, and consistency of education across a country. Developing national pre-service accreditation standards that are harmonized regionally and aligned with global standards would be an important advancement in nursing regulation in the region [5].

This study found inconsistent application of international guidelines and standards to design regulations, suggesting that harmonization of major regulatory elements may be challenging. However, with donor support for south-to-south collaboration and leadership from experienced entities such as ECSACON, regional harmonization of regulations reflective of recent advancements in education and practice could be realized [35]. Models of harmonized nursing education standards and licensure examinations can be found in the European and Caribbean regions [36, 37].

The survey findings suggest that most ECSA countries use some sort of electronic database as a register. A number of non-governmental organizations and development partners are now focusing on human resource information systems (HRIS) and working with nursing and midwifery councils to align HRIS with council's registries [38-40]. In response to the US Congressional mandate to address health workforce shortages impacting HIV service delivery, PEPFAR committed to training 140,000 new providers by 2013 and increasing their retention in the national workforce. Accordingly, this focus has been echoed by development partners such as the Commonwealth Secretariat, who advocates for training over 350,000 midwives globally, and the Japanese International Cooperation Agency's effort to prepare 100,000 health care professionals by 2013 [41-44]. Meeting these commitments requires accurate and dependable means of counting and tracking nurses and midwives, from their enrollment in pre-service education to their practice settings, making electronic and updateable registries an important global health focus for this region [40, 45].

This study contributes to the understanding of how legislation and regulations can sustain national health priorities, successful workforce strategies, and important advancements in pre-service

education and health workforce infrastructure. The limitations of this study include the relatively small convenience sample of countries used and the limited number of regulations that the survey questions addressed. The study focused solely on nursing and midwifery regulations and involved countries with similar regulatory frameworks based on a British model of health professional education and legislation. Thus, the survey findings cannot be generalized beyond nursing and midwifery and the ECSA region. This study did not address the capacity or resources required to adapt regulatory frameworks in the region. Further studies are needed to understand how regulatory frameworks and workforce initiatives impact scaling-up HIV and other health services within and beyond the ECSA region. Future research is needed to assist in determining the most effective ways to facilitate and objectively measure progress in regulatory strengthening and expanding the capacity of regulatory bodies to carry out key regulatory functions.

CONCLUSION

Achieving the MDGs and reaching ambitious new targets for an AIDS-free generation will require a continued commitment to strengthening the global health workforce. Integrating important advancements to nursing and midwifery practice and education into legislation and regulation will help ensure the sustainability of these health workforce achievements. What is learned from the experiences of responding to HIV/AIDS can help sustainably strengthen the delivery of health services in a broad variety of health care settings. This survey presents results describe the current state of nursing and midwifery legislation and regulation in 14 countries in sub-Saharan Africa and identifies key areas and actions for support of legislative and regulatory reform in the region. Although we focused on east, central and southern Africa, the findings have potential to assist other countries seeking to sustain advancements to nursing and midwifery education and practice with updated legislation and regulation.

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COMPETING INTERESTS

The authors declare that they have no competing interests.

AUTHOR CONTRIBUTIONS

CM drafted and revised the manuscript. JV, AV, PV, MS and PR provided critical revisions to the manuscript for intellectual content.

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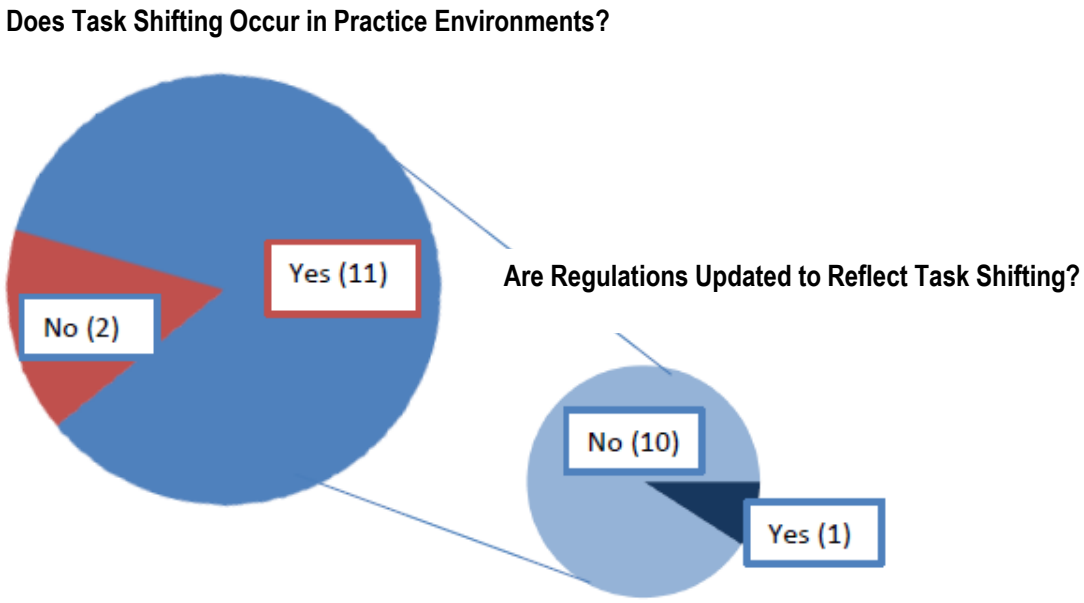
Figure 1: Countries Participating in the ARC Initiative

Table 1: Common Elements in Nursing and Midwifery Legislation and Regulation [21, 46]

Legislative and Regulatory Element	Explanation
Nurses and Midwives Act	• Delineates the authority of the regulatory body and the functions of the registrar • Authorizes the regulatory body or ministry of health to issue more specific regulations (e.g., registration, licensing) to implement national nursing and midwifery legislation • Defines the terms “nurse”, “midwife”, “nursing”, and “midwifery”
Registration	• Mandates that that nurses and midwives register with the regulatory body • Sets criteria and procedures for initial entry onto the register • Sets criteria to maintain or lose registration status
Licensure	• Sets criteria for initial issuance of a license to practice as a nurse or midwife • May mandate and administer an examination before a license is issued • Sets criteria for maintenance and renewal of licensure
Practice Standards	• Establishes what standard of care must be followed in the practice setting • Sets the legal scope of practice each cadre must practice within • Sets an expected code of conduct for delivery of care
Discipline and Conduct standards	• Prohibits and punishes illegal practice in order to protect professional titles • Sets procedures for investigation of allegations • Outlines sanctions for misconduct and a process for appeals and reinstatement
Education Standards	• Describes different academic levels of programs and sets criteria for entering the programs • Sets expected competencies for different levels of nurses and midwives • Defines education standards and definitions of specialist and auxiliary personnel
Pre-Service Education Accreditation	• Sets criteria for formal recognition of a nursing and midwifery education program or institution by the regulatory body • Sets requirements for faculty, lecturers and facility infrastructure • Sets minimum standards for curricula, teaching methods and materials such as skills labs

Continuing Professional Development	• Requires or authorizes regulatory body to encourage or mandate continuing professional development (CPD) • May mandate CPD for renewal of registration or licensure • May require accreditation of CPD providers or accreditation of CPD content

Figure2: Task shifting and Reflection in Regulations*



*South Africa is not included in Figure 2, however, peer-reviewed literature indicates task shifting has been widely implemented for provision of ART and PMTCT, with numerous trials of nurse-prescribed ART taking place in the country.

Table 2: Nursing and Midwifery Council Register Information in East, Central and Southern Africa

Country**	Registered Nurses and midwives	Enrolled Nurses or midwives	Nursing Specialty	Nurse Educators	CO*	Nursing and Midwifery Students	Employment Status	Type of Register	Required Renewal of Status on Register
Botswana	√	√				√	√	Paper & Electronic	1 year
Kenya	√	√	√			√		Paper & electronic	3 years
Lesotho	√		√	√	√	√	√	Paper & electronic	1 year
Malawi	√	√				√	√	Electronic	1 year
Mauritius	√		√	√			√	Electronic	1 year
Namibia	√	√				√	√	Electronic	1 year
Seychelles	√							Electronic	3 years
South Africa	√	√	√			√	√	Electronic	1 year
Swaziland	√	√	√			√	√	Electronic	1 year
Tanzania	√	√				√		Electronic	3 years
Uganda	√	√	√			√	√	Paper & electronic	3 years
Zambia	√	√					√	Paper & electronic	1 year
Zimbabwe	√	√	√		√	√		Electronic	1 year

* Clinical Officers

** In Mozambique, the registration of health professionals is done by the Ministry of Health.

Table 3: Nursing and Midwifery Licensure, Continuing Professional Development, and Accreditation of Pre-Service Education in East, Central and Southern Africa

Country	Licensure		Continuing Professional Development (CPD)		Pre-Service Education Accreditation	
	Licensure Exam Required for Nurses and Midwives	Licensing of Clinical officers (CO) or Private Nurse Clinics (PNC)	CPD Program in Place	CPD Required for License Renewal	Accreditation Body	Renewal of Accreditation Status
Botswana	No	No	In design	N/A	No response provided	No response provided
Kenya	Yes	PNC	Yes	Yes	Nursing and midwifery council Commission for Higher Education	Requirement not established
Lesotho	Yes	CO, PNC	In design	N/A	Nursing and midwifery council	Every 2 years
Malawi	Yes	PNC	Yes	Yes	Nursing and midwifery council	"Annually then periodically"
Mauritius	N/A	PNC	Yes	No	Nursing and midwifery council	Every 2 years
Mozambique	N/A	PNC*	No	N/A	Ministry of Education Ministry of Health	"Regularly"
Namibia	Yes	PNC	Yes	Planned	National Qualification Authority	Requirement not established
Seychelles	No	PNC	Yes	Yes	N/A	N/A
South Africa	Yes	PNC	Yes	Yes	Nursing and midwifery council**	"Regularly"**
Swaziland	No	No	In design	N/A	Nursing and midwifery council	No response provided
Tanzania	No	PNC	No	N/A	Nursing and midwifery council National Council for Technical Education Commission for Education	Every 2 years
Uganda	Yes	PNC	Yes	Planned	Nursing and midwifery council	Requirement not established
Zambia	No	PNC	Yes	No	Nursing and midwifery council	Requirement not established
Zimbabwe	No	CO, PNC	Yes	Yes	Nursing and midwifery council	"As necessary"

* Private nurse clinics are licensed through private sector regulation.

** Nursing Strategy for South Africa 2008. Department of Health, Republic of South Africa.

Table 4: Nursing and Midwifery Scopes of Practice in East, Central and Southern Africa

Country	Most Recent Update of Scope of Practice
Botswana	"Regulations in the process of being gazetted"
Kenya	"Within last 3 years"
Lesotho	2008; Not yet approved by Ministry of Health
Malawi	2008
Mauritius	N/A
Mozambique	Not updated
Namibia	"Under review now"
Seychelles	"About to review Act"
South Africa	2004
Swaziland	2010
Tanzania	2010
Uganda	1996
Zambia	1997
Zimbabwe	2006

Table 5: Guidelines or Standards Used to Design Nursing and Midwifery Regulations in East, Central and Southern Africa

Country	Licensure Examination	Scope of Practice	Continuing Professional Development	Pre-Service Education Accreditation
Botswana	N/A	ECSACON* ICN** ICM§	N/A	No response provided
Kenya	Ministry of Education Nursing and midwifery council	ECSACON ICN ICM	ICN ICM WHO†	WHO
Lesotho	ICN ECSACON WHO	ICN ECSACON WHO	ICN ECSACON WHO	ECSACON ICN WHO
Malawi	ICN ICM Regional standards	ICN ICM Regional standards	ICM National standards	ICN Regional standards
Mauritius	N/A	ICN ECSA WHO	ECSA ICN	ICN
Mozambique	N/A	ICN National Standards SANNAM‡ WHO	N/A	ICN National Standards SANNAM WHO
Namibia	Nursing and midwifery council Training institutions	Nursing and midwifery council	Nursing and midwifery council Service providers	Nursing and midwifery council
Seychelles	N/A	International regulatory body	No response provided	ECSACON
Swaziland	N/A	ECSACON	ECSACON ICN	No response provided
Tanzania	N/A	ECSACON ICN	N/A	ICN
Uganda	Ministry of Education	Ministry of Health Nursing and midwifery council	Ministry of Health Nursing and midwifery council	Nursing and midwifery council
Zambia	N/A	Nurses and midwives act	Nursing and midwifery council	Nursing and midwifery council
Zimbabwe	ECSACON ICN	ICN National standards	International guidelines National standards	International guidelines National standards

*East, Central and Southern Africa College of Nursing
**International Council of Nurses
§ International Confederation of Midwives
† World Health Organization
‡South African Network of Nurses and Midwives

SECTION TWO

Results of a Stakeholder Survey on Nursing and Midwifery Practice and Education Regulation in East, Central and Southern Africa

Carey F. McCarthy, Joachim Voss, Maureen E. Kelley and Patricia L. Riley

Introduction: Due to a severe shortage of physicians in sub-Saharan Africa, nurses and midwives now take on many HIV treatment tasks which were previously under the purview of physicians (task shifting). Institutionalizing task shifting and enacting the educational reform it necessitates are critical to major global health goals, especially for HIV. Effective and sustainable task shifting requires updating the scope of nursing and midwifery practice and education regulations, typically the responsibility of national nursing and midwifery regulatory bodies. Other key stakeholders are the chief nursing officers (CNO) in ministries of health, the nursing professional associations, and nursing and midwifery academia. Their roles, activities and involvement with regard to task shifting and education reform are not well understood.
Methods: A survey was conducted on the involvement of these three stakeholder groups in national nursing and midwifery regulations, task shifting, and challenge in regulatory reform. The survey used a convenience sample of nursing and midwifery leaders from east, central and southern African (ECSA) countries who had convened on February 28, 2011 for a meeting of the African Health Profession Regulatory Collaborative (ARC).
Results: A total of 32 stakeholders from 13 ECSA countries participated in the survey. The majority reported task shifting took place in their countries and many indicated that regulations had not been updated to reflect the new tasks. Stakeholders reported different roles and levels of involvement with regard to nursing and midwifery regulation. The most frequently cited challenge in nursing and midwifery regulation was the capacity of and resources available to the regulatory body to carry out its key functions.
Discussion: Updating nursing and midwifery regulations may be a challenge for countries in the ECSA region. Stakeholders such as CNOs, nursing associations and academicians have varied and complementary roles with regard to practice and education regulation.
Conclusion: Involvement of key stakeholders can contribute to efforts to strengthen practice and education regulations in the ECSA region.
Key Words: nursing, midwifery, workforce, regulation, capability maturity, Africa

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Word Count: Abstract: 300 words; Text: 3,000 words; References: 36; Tables/Figures: 3/1

Address correspondence to Carey F. McCarthy, R.N., M.P.H.; email cmccarthy@cdc.gov. Carey F. McCarthy and Patricia L. Riley, C.N.M., M.P.H., F.A.C.N.M., are with the Division of Global HIV/AIDS, Center for Global Health, Centers for Disease Control and Prevention, 1600 Clifton Road, MS E-30, Atlanta, GA 30333. Joachim Voss, R.N., Ph.D. is with the Biobehavioral Nursing and Health Systems Department of the University of Washington School of Nursing, 1959 NE Pacific Street, Seattle, WA 98195.

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

INTRODUCTION

Nurses and midwives are increasingly recognized by the global health community as vital to the success of global health initiatives [1-3]. Great strides in HIV treatment, care and prevention in sub-Saharan Africa were achieved in large part by an expansion of the HIV services provided by nurses and midwives [4-6]. Due to a severe shortage of physicians in most of the region, nurses and midwives took on many HIV treatment tasks which were previously under the domain of physicians, an approach called task shifting or task sharing [7-9]. Because of the continued shortage of physicians, progress towards global health goals, such as the Millennium Development Goals, an AIDS-Free Generation and the UNAIDS 2011-2015 targets, will depend in part on the extent to which countries can ensure effective task shifting [9-12]. Task shifting essentially expands the scope of services provided by nurses and midwives in practice settings, often beyond what they were taught in their education and training institutions [13-15]. Thus, effective task shifting involves not only broadening the scope of work for nurses and midwives but also adapting the education system to prepare them to perform these new tasks [4, 12, 16, 17]. These types of changes necessitate an update of the regulations that govern nursing and midwifery practice and education. [5, 6, 17-20] The update of regulations has not yet taken place in some countries in this region, prompting an increase in donor support for regulatory bodies to update and strengthen nursing and midwifery practice and education regulations [9, 12, 21-25].

Nursing and midwifery regulations are usually set by nursing and midwifery councils whose mandate is to protect the public by ensuring nurses and midwives are competent to practice [26, 27]. Regulations typically mandate that nurses and midwives register with the council and often stipulate that nurses and midwives pass an examination by the council to receive their license [28]. The scope of practice that nurses and midwives must work within is usually established by the regulatory council, as are the standards for nursing and midwifery education [23, 27, 29]. In some countries, educational institutions must be inspected and accredited by the council in order to graduate students [23]. With the wide adoption of task shifting and the focus by donors on strengthening health professional education, the practical work by nurses and educational reform sometimes outpaces the regulations that should encompass these advancements [3, 7, 20]. There is a clear need for supportive regulatory frameworks that reflect the evolving skills, knowledge and tasks of nurses, yet still protect health workers and patients receiving care [7, 16, 24, 30, 31].

Issuing regulations is primarily the responsibility of the regulatory council; however there are key stakeholders that should also be involved [3, 32]. Three important stakeholders in nursing and midwifery regulation are the chief nursing officer (CNO) in the ministry of health, the professional nursing association or union, and nursing and midwifery educators [3, 24, 33]. These three groups have different responsibilities and constituencies, yet each group also has an essential role and activities related to regulation of nursing and midwifery practice and education [29]. The primary role of chief nursing officers is to represent and lead nursing within the government and set policies for nursing services; nursing and midwifery professional associations advocate for the safety and wellbeing of their members; and educators or academicians are responsible for developing and delivering the educational experience of nursing and midwifery students [3, 23, 34]. Given the push to increase practice responsibilities for nurses and midwives, and the advancements in education needed to do this, the relevance of these three groups in institutionalizing task shifting is evident. These stakeholders can be key facilitators to regulatory advancements. If not engaged in the process, they can be potential barriers to reform [4]. To date, our understanding of how best to strategically involve CNOs, the associations, and academicians in strengthening nursing and midwifery regulations in sub-Saharan Africa is inadequate.

The purpose of this paper is to present the results of a survey of CNOs, presidents of professional nursing and midwifery associations, and academicians in the ECSA region to understand their roles, engagement, and, most importantly, their perspectives on adapting regulations governing nursing and midwifery practice and education.

METHODS

A survey instrument to gather information on professional regulation was developed after an examination of peer-reviewed and grey literature on professional regulation. It was evaluated for face and content validity by the former president of the East, Central, and Southern African College of Nursing (ECSACON). Use of the survey was approved by the Institutional Review Board at the University of Washington and at the U.S. Centers for Disease Control and Prevention's Associate Director for Science Office. The survey, written in English, was given to the chief nursing officers, the presidents of the professional nursing and midwifery association, and nursing/midwifery academicians from 13 Anglophone African countries on February 28, 2011 in Nairobi, Kenya. These stakeholders were already

convened for a meeting of the African Health Profession Regulatory Collaborative for Nurses and Midwives (ARC), a regulation strengthening initiative involving nursing and midwifery leaders in the east, central, and southern African (ECSA) region [22]. The nine-item survey contained questions about that stakeholder's roles, activities, and engagement in nursing and midwifery regulation. Survey questions also asked about task shifting from physicians to nurses and midwives and asked for the most important issue in nursing and midwifery regulation today. Responses to survey questions could be in the form of written answers, selection of multiple-choice options, and rating agreement with statements on a Likert-type scale. The survey was anonymous; however, one question asked participants to identify the country and the stakeholder group they represented.

Prior to taking the survey, all participants received printed information describing the study, and a verbal overview of the survey. Written consent was waived in order to limit potential identification of survey participants. Survey participants were invited to complete the survey to any degree and to leave the survey in a folder by the door. Completion of the survey served as non-verbal assent to participate in the study. Survey responses were recorded on an Excel spreadsheet. Responses were tallied for each question separately and analyzed for comparison across stakeholder groups.

RESULTS

A total of 32 stakeholders from 13 countries completed some or all of the survey, with approximately equal representation from each of the three stakeholder groups: 11 CNOs, 11 professional association presidents and 10 academicians. Stakeholders were asked to describe the role of their respective organization in nursing and midwifery regulation and to list the activities they engage in with the national regulatory council (Table 1). There was a clear differentiation of roles according to the stakeholder group without much overlap of roles across the three groups. These findings suggest that the roles of these three groups in regulation are complementary as opposed to redundant. In contrast, there was substantial overlap across groups in terms of the types of activities the groups engage in with the council. For example, the CNO and association president groups both listed the activities of "advising the council" and "engaging in professional development of nurses and midwives" with the highest frequency; "collaborating with other stakeholders" was in the top three responses for all three groups in terms of their activities.

Stakeholders were asked if their respective organization was represented on the council (Table 2). The CNO group was the best represented on their national nursing councils: 100% of CNO

respondents indicated they were represented while only 78% of academicians stated they were represented on the national council; 82% of association presidents said their organization was represented. Respondents were also asked to rate their agreement with a statement that their organization's input mattered and they were engaged in decisions around nursing and midwifery regulation. The CNO group had the highest perception that their input mattered and that their organization was engaged in council decisions--90% of CNO respondents either agreed or strongly agreed with those statements. The association presidents had the lowest rating of agreement—only 60% agreed or strongly agreed; 40% were either neutral or disagreed. There was near complete accord within and across the different stakeholder groups that the primary means of communicating with the council was via their organizations' activities and representation on the council.

Stakeholders were asked if nurses and midwives in their country performed task-shifted services, if regulations (such as scope of practice) reflected the new tasks nurses preform, and what their role should be in updating regulations to include the new tasks and related educational reforms (Table 3). The majority of all three groups stated that nurses and midwives were engaged in task shifting. However, only one-third of CNOs and association presidents felt the regulations in their country had been updated to reflect task shifting. The roles of the stakeholders in adapting regulations were different for each stakeholder group. For example, the majority of CNOs stated their role in adapting regulations was to "support the council"; the association presidents most often stated their role in adapting regulations was to "collaborate in decision making" and "keep the council informed"; and the academicians felt their primary roles in adapting regulations was to "communicate with the council" and "collaborate with stakeholders."

Stakeholders were asked to list the two most important issues or challenges in nursing regulation (Figure 1). The most important issue or challenge cited from all three groups was the "capacity of the council" to carry out its regulatory functions. Of the 13 responses identifying the capacity of the council as the biggest challenge in national nursing and midwifery regulation, five identified the autonomy of the council as the main challenge; three listed insufficient human resources on the council; another three cited insufficient expertise in council members; one named insufficient financial resources at the council; and one stated the importance the registrar was not recognized. . The next most frequently-cited answers were issues related to the regulation of practice (e.g. regulating private practice and monitoring professional conduct) and the regulation of education (e.g. duration of education, tracking students).

DISCUSSION

Task shifting is uniformly recognized as an important component in reaching global health targets. However, our understanding of how best to strategically involve stakeholders in updating the regulation and licensing of nurses to support task shifting in sub-Saharan Africa is weak. We report the results of a survey of stakeholders in nursing and midwifery regulation from 13 countries in the ECSA region. More than two-thirds of the survey respondents stated that task shifting to nurses and midwives took place in their country, yet less than half stated that regulations for practice and education accounted for task shifting. This suggests that, in some countries, scopes of practice may not encompass the wider array of HIV-related tasks now performed by nurses and midwives. More importantly, the licensure examinations might not contain questions to ensure competencies related to initiation of HIV therapy or prescription of other medications. Similarly, if the licensing examinations do not reflect current reforms in nursing curricula and nursing education, recently graduated nurses may not be allowed to practice to the full range of newly acquired skills and competencies. Our data suggest there is a need to update regulations in some countries. Our data also indicated that stakeholders feel they have important roles in assisting regulatory councils to do so. When analyzed individually (not by stakeholder group), 16 respondents stated their role was to advise, support and collaborate with the council in updating regulations; five mentioned assisting in an area of education regulation and four mentioned roles in the area of practice regulation.

The highest ranked challenge in nursing and midwifery regulation in the ECSA region was the capacity of the national regulatory council to carry out its functions. With task shifting and pre-service reform creating an urgency to update regulations, the perception that the capacity of the regulatory body is sub-optimal is concerning. This is buoyed by the fact that most respondents are represented on the council and almost 100% indicated they interact with the council in professional capacities. If councils do not have the resources or capacity to create supportive regulatory frameworks for nursing practice, it could slow efforts to ensure the sustainability of task shifting and pre-service reform. It is imperative to determine whether capacity of the council could be bolstered by contributions of stakeholder groups. Our data indicate that stakeholder groups play complementary roles in regulation with *so*me substantial overlap in activities, which suggests that appropriately involved stakeholders could assist the council to carry out complicated or time consuming steps in regulation reform. Input

from the survey respondents suggest that councils could do more to ensure stakeholder groups are engaged and feel their input matters. Our findings indicate that only 60% felt engaged, and only 78% felt of academicians were adequately represented on the regulatory council.

This study supports literature from the normative international nursing and midwifery groups with regard to the roles of stakeholder groups and their specific roles in creating or adapting regulations. The findings of this study are consistent with similar studies that investigated the challenges faced by CNOs in their role; many of challenges previously identified in those studies were l identified in this study [35, 36]. Our findings also confirm previous reports in the literature that the regulatory frameworks in some countries still need to be updated. While guidelines on task shifting and recommendations on transforming health professional education exist, this study provides new evidence that countries in the ECSA region may face obstacles to adapting their practice and education regulations accordingly.

Limitations to this study include a small number of respondents (10 or 11) from each stakeholder group and not all respondents answered every question on the survey. While number of respondents from each group was not large, responses were fairly consistent within groups, suggesting that the number of respondents was sufficient to capture a consensus in the stakeholder group. Given the small number of respondents in each group, the generalizability of study findings are potentially limited by the personal or professional bias that may have influenced survey responses. Additionally, because of the open-ended nature of certain survey questions, some responses were unique to one individual, contributing to small modes and long tails in frequency of responses. This study was not able to clarify or solicit more information from survey respondents nor cross-check statements about task shifting and the currency of national regulations.

The findings of this study have implications for the growing number of global health initiatives relying on activities carried out by nursing and midwifery regulatory councils. Global health agencies may find that regulatory councils, regardless of their crucial role in protecting the public, may lack the resources or capacity to carry out all of their key functions. Interest and investments in strengthening nursing and midwifery regulation are increasingly through initiatives such PEPFAR, the Nurse Education Partnership Initiative, Human Resources Alliance for Africa, and the ARC initiative. Planning for the success of these initiatives and others may require capacity building of councils or greater involvement

of stakeholders who can complement and support the diverse work of the council. Future research is needed to understand the extent to which task shifting is happening and examine what regulatory changes task shifting and pre-service reform require . Studies to determine what regulations currently exist and how they might be updated would be a major addition to the field. Future research is also needed to document the baseline capacity of the councils and measure the effectiveness of efforts aimed at building their capacity.

Conclusion

Sustaining the significant contributions of the nursing and midwifery workforce by strengthening regulations is a growing interest in global health. This study suggests that updating regulations to support the sustainability of task shifting and pre-service reform is not fully implemented in the ECSA region. This could be due to the potential low capacity of the nursing and midwifery council, as reported by stakeholders in the current study. These findings suggest global health initiatives may have to address strengthening the capacity of the regulatory councils to carry out their important functions. The findings of this study also suggest that various stakeholders could be valuable contributors to efforts to advance nursing and nursing regulatory frameworks.

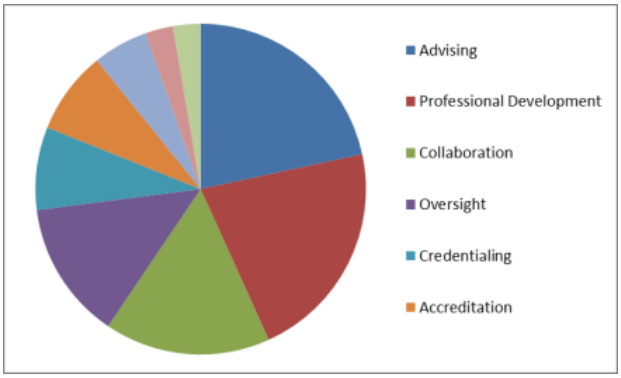
TABLES AND FIGURES

Table 1: Roles of Stakeholders Groups in Professional Regulation

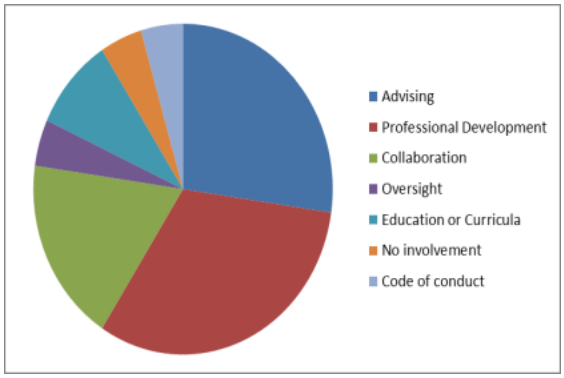
	Chief Nursing Officers	Association Presidents	Academicians
	9 Respondents (82% response rate)	10 Respondents (91% response rate)	8 Respondents (80% response rate)
Role of Stakeholder Group in Regulation	• Advise on policy; Supervise(5) • Support the Council (2) • Enforcement; ensure regulations protect the public (2)	• Collaborate and liaise between council and nurses (4) • Advocate on behalf of nurses (4) • Ensure compliance with licensure and professional development (2)	• Advise on training standards and curricula (6) • Collaboration between Ministry of Health and education institutions (2)

Figure 1: Activities with the Regulatory Council by Stakeholder Group

Chief Nursing Officers (n=39 responses)



Professional Associations (n=23 responses)



Activities of Academicians (n=15 responses)

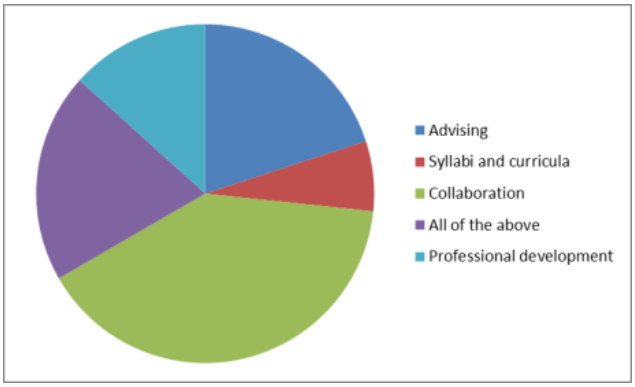


Table 2: Stakeholder Representation on, Input to, and Communication with the Regulatory Council

	Chief Nursing Officers	Association Presidents	Academicians
Representation of Organization on the Council	Yes: 9 (100%) No: 0	Yes: 9 (82%) No: 2	Yes: 7 (78%) No: 2
Agreement that Organization's Input Matters & Are Engaged in Council Decisions	Strongly Agree or Agree: n=9 (90%) Neutral: n=1	Strongly Agree or Agree: n= 6 (60%) Neutral or Disagree: n= 4	Strongly Agree or Agree: n=7 (87.5%) Neutral: n=1
Organization's Primary Means of Communication with the Council	Meetings and representation on the council: n=8 Direct communications: n=1 Telephone: n=1	Meetings and representation on the council. n=11	Meetings and representation on the council: n=8 Formal approvals of curricula n=1

Figure 2: Perception of Task Shifting and Currency of Regulations

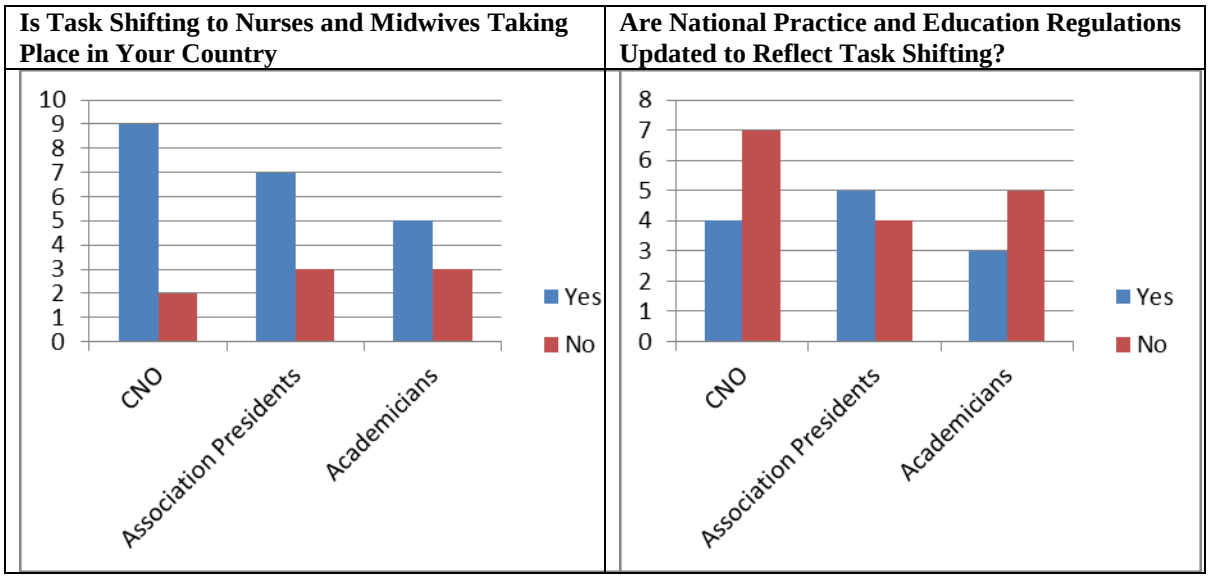
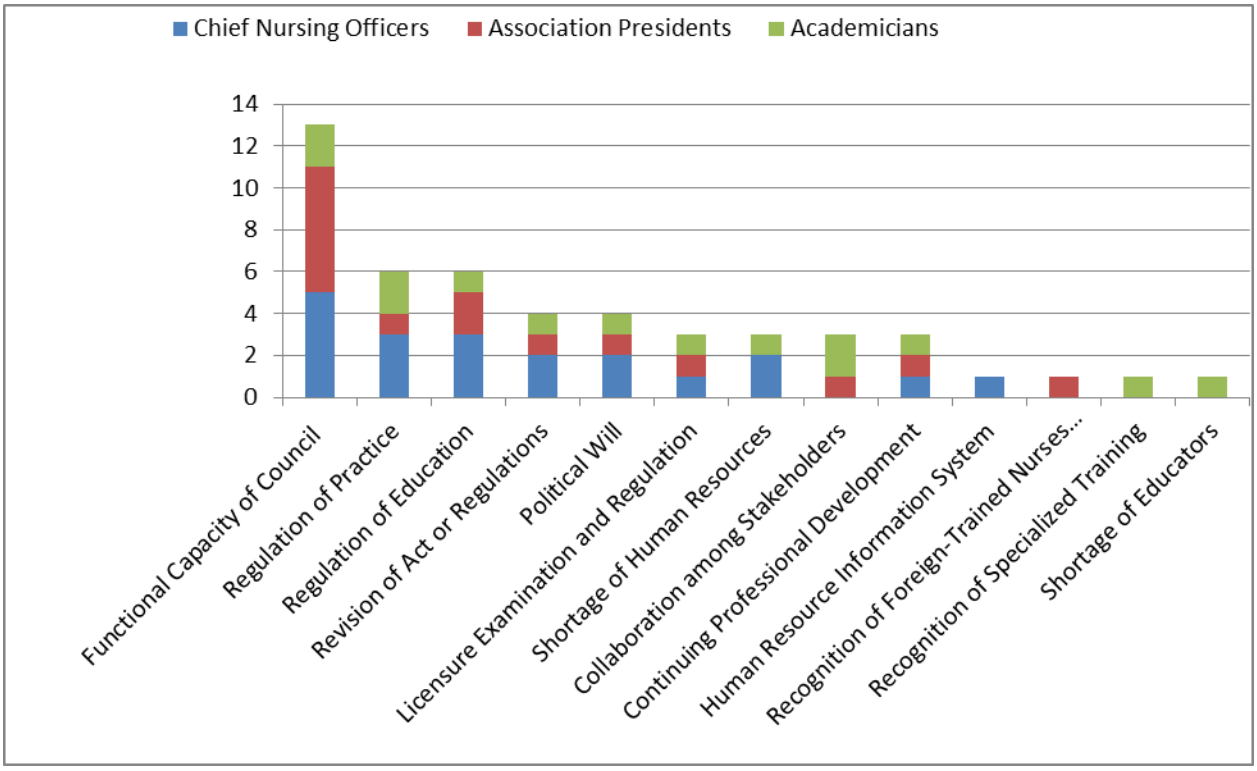


Table 4: Stakeholder Roles in Adapting Regulations

	Organizational Roles in Adapting Regulations
Chief Nursing Officers	• Support the council in its functions (n=3) • Give recommendations (n=1) • Involve the community (n=1) • Reform nursing education (n=1) • Review of regulatory framework, education curricula, national policy & strategy (n=1) • Update regulations to include new cadres (n=1) • CNO must be at higher MoH level to do anything(n=1)
Association Presidents	• Collaboration, involvement with council in decision making: (n=4) • Keep council informed/updated regarding practice: (n=3) • Participate in curricula reviews (n=1) • Advocate for reform to Ed system (n=1)
Academicians	• Communicate and collaborate with council and other stakeholders (n=4) • Assist with upgrading lower nursing and midwifery cadres (n=2) • Assessing and marking new colleges (n=1) • The nurses and midwives act must be revised (n=1)

Figure 2: Most Important Issues or Challenges Facing Nursing and Midwifery Regulation, by Stakeholder Group



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SECTION THREE

Development of a Framework to Measure the Impact of Strengthened Health Workforce Regulation in East, Central and Southern African

Carey F. McCarthy, Joachim Voss, Andre R. Verani, Patricia L. Riley, and Michael E. St. Louis

Introduction: National health professional regulation and infrastructure are increasingly recognized as critical to strengthening the health workforce. The President's Emergency Plan for AIDS Relief (PEPFAR) has begun a four-year initiative to strengthen nursing and midwifery health workforce regulation in 15 countries of east, central and southern Africa (ECSA), called the African Health Profession Regulatory Collaborative (ARC). This project sought to develop a framework for measuring the impact of ARC on regulation in the ECSA region, based on a Capability Maturity Model.
Methods: Methods included a review of published and grey literature on nursing and midwifery regulation and focus groups with nursing and midwifery leadership during an ARC meeting. A Regulatory Function Framework (RFF) was developed which identifies the key functions of a nursing and midwifery regulatory organizations and describes five sequential stages of increasing capability for each function. The RFF was pilot tested with three countries to evaluate its potential use in tracking country and regional progress in strengthening nursing and midwifery regulation.
Results: The RFF successfully identified actual regulatory capabilities of three ECSA countries and captured meaningful advancements in national regulations.
Discussion: A regionally relevant and stakeholder-vetted framework for assessing the stepwise progression of improvements in nursing and midwifery regulation was developed. This framework will allow for documenting each country's baseline stage of regulation, assessing yearly progress in updating and strengthening regulation, and tracking the overall impact of ARC on national and regional workforce regulation.
Conclusion: The framework is the first of its kind to document and measure progress towards sustainably strengthening nursing and midwifery regulation in Africa. This project promotes a scientific approach to the area of regulation and seeks to incorporate the best available science and latest knowledge, thereby contributing to the global evidence base for health workforce initiatives.
Key Words: nursing, midwifery, workforce, regulation, capability maturity, Africa

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Address correspondence to Carey F. McCarthy, R.N., M.P.H.; email cmccarthy@cdc.gov. Carey F. McCarthy, Michael E. St. Louis, M.D., Andre R. Verani, J.D., M.P.H., and Patricia L. Riley, C.N.M., M.P.H., F.A.C.N.M., are with the Division of Global HIV/AIDS, Center for Global Health, Centers for Disease Control and Prevention, 1600 Clifton Road, MS E-30, Atlanta, GA 30333. Joachim Voss, R.N., Ph.D. is with the Biobehavioral Nursing and Health Systems Department of the University of Washington School of Nursing, 1959 NE Pacific Street, Seattle, WA 98195.

INTRODUCTION

Sufficient numbers of adequately trained health professionals, such as physicians, nurses, and midwives, are critical to achieving major global health goals and targets in sub-Saharan Africa [1-4] In many countries in this region, ensuring the quality of care delivered by health professionals is the responsibility of national health professional regulatory councils, such as a nurses and midwives council [5]. Regulatory councils typically issue regulations, such as requiring healthcare workers to register with the council, holding examinations before issuing licenses to practice, and setting standards for practice and education [6, 7] (Table 1). The goal of regulations is to protect the public by ensuring health professionals are sufficiently educated and competent to provide care [8]. Despite this important role, professional councils are not always engaged in global health initiatives that impact health professional education and practice [9, 10]. For example, in African countries partnering with the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), nurses and midwives carry out HIV care and treatment tasks that were previously only performed by physicians (called task shifting) [11, 12]. Task shifting to nurses and midwives was necessary due to a severe shortage of physicians in sub-Saharan Africa and is now widely practiced in the region [13-15]. However, without the involvement of the nurses and midwives councils, certain regulations relating to the tasks that nurses are trained to do and permitted to perform are likely out of date[16-18]. For example, licensure examinations for nurses and midwives might not yet contain questions on diagnosing HIV and prescribing antiretroviral therapy (ART), even though these tasks are commonly expected of nurses practicing in this region [19, 20].

Global health donors and policy makers have increasingly recognized the importance of involving health professional councils and updating health professional regulation [10, 14, 21, 22]. There is wide encouragement for nursing and midwifery councils in sub-Saharan Africa to update licensure examinations and broaden the nursing scope of practice to include diagnosis and prescription of medication [10, 23-25]. To ensure nurses and midwives are adequately prepared for the new demands in the practice setting, countries and donors are also focusing on revising nursing and midwifery education in the region[26, 27]. As a result, certain education regulations set by the council, such as education standards, end of program examinations, and institutional accreditation processes may also need to be updated [25, 27, 28]. While support for regulatory councils is strong, the peer-reviewed literature lacks evidence of the impact of investments in regulatory bodies and the success of efforts to strengthen practice and education regulation [22, 29, 30]. To address the need to enhance regulation in

sub-Saharan Africa and contribute to the evidence base, the PEPFAR-supported African Health Professional Regulatory Collaborative for Nurses and Midwives (ARC) was launched last year[31].

ARC is a four-year initiative to build capacity of nursing and midwifery regulatory bodies and enhance regulation in the 15 countries which make up the east, central and southern African (ECSA) region. The ARC approach is a regional collaborative in which ECSA nursing and midwifery leadership teams convene annually with global experts in regulation to discuss and identify priorities for strengthening regulation at both the regional and national levels. Through an annual competitive grants process, country leadership teams, led by the national nursing and midwifery council, are supported to identify and address a regulation priority that relates to nursing practice or education. A key goal of ARC is to measure the effectiveness of this approach in building regulatory capacity and strengthening regulation in the region. The purpose of this paper is to describe the development of a framework based on the capability maturity model and to evaluate the potential of the framework to document the level of regulation by councils in ARC countries and measure their progress strengthening nursing and midwifery regulations.

Capability Maturity Models

Capability Maturity Models (CMMs) are tools to assess the capability of an organization to perform the functions necessary to meet organizational objectives[32]. CMMs have two major components: identification of the key functions the organization must carry out and a description of a stepwise path to improving the way each key function is performed [33]. The best known CMM was developed by the Carnegie Mellon University Software Engineering Institute (SEI) to assist organizations in improving their software design processes [34]. The SEI CMM identified the key functions of a software design process and provided descriptions of five different stages of "capability maturity" that any key functions could potentially be in at any given time[33]. The possible levels of capability ranged from an "initial" stage, representing a time when capability is still low, to an "optimizing" stage, characterized by high organizational capability and a focus on continuous quality improvements [35] (Table 2).

Each stage in a CMM represents a discrete level of capability, characterized by certain capacities or processes which must be demonstrated before advancing to the next stage. The stages are sequential and together comprise an "evolutionary improvement path," on which organizations advance from one stage to the next once key characteristics of each stage are met [32] (Figure 1). Advancement from one stage to the next represents a meaningful improvement in organizational functioning and lays a

successive foundation of competency from which to continue improving upon the element [33]. Together, the five stages outline an ordinal scale for assessing capacity and measuring advancement in key organizational elements and helps identify and prioritize improvement goals. The generic nature of the CMMs makes them adaptable to use by a variety of disciplines or organizations interested organizational quality improvement [32, 35]. While a CMM will not capture all the elements important to an organization, the intent is to reflect a "common sense" approach that is recognized and relevant across a given field [33].

METHODS

1. Application to Nursing and Midwifery Regulation

The first step in designing a CMM is to identify the key functions necessary to achieve organizational objectives. In the field of health professional regulation, the organizational objectives are to protect the public from harm and to support practices that strengthen health service delivery [8]. To identify the functions highly relevant to the objectives of nursing and midwifery regulation, a literature search was conducted between November 2010 and January 2011. The literature search included peer-reviewed articles, grey literature and websites pertaining to nursing and midwifery regulation.

Ample peer-reviewed information exists on issues related to task shifting to nurses and midwives and educational reform in sub-Sahara Africa [28, 36-38]. Grey literature and publications from policy makers, such as the United Nations (UN),the International Council of Nurses (ICN), the International Confederation of Midwives (ICM), the World Health Organization (WHO), PEPFAR and the East, Central and Southern African College of Nursing (ECSACON) include documents which are highly relevant to nursing and midwifery regulation in this region [5, 7, 23, 24, 39-42]. Websites of nursing and midwifery councils in the ECSA region provided information on national nursing and midwifery laws and regulations. Based on the available literature, seven essential regulatory functions were selected:

- Registration and data collection
- Licensure
- Scope of practice
- Continuing professional development,
- Accreditation of pre-service institutions,
- Professional conduct and discipline
- Revising nursing and midwifery legislation

The second step in designing a CMM is to describe an evolutionary path of improvement from an early capability level to a level of high capability in carrying out each key function. The literature search provided examples of regulations in certain countries and recommendations or guidelines for developing or advancing regulatory frameworks [19, 24, 37, 42-44]. Examples and recommendations reflected an emphasis on the use of international nursing and midwifery standards to ensure the quality of a practice or education regulation; applying and enforcing a regulation uniformly across the country; using technology when appropriate; and generating evidence of the effectiveness and impact of regulations [5, 7, 39, 40, 45]. These constructs were used to generate names and descriptions of five capability stages for nursing and midwifery regulations (Table 3). These stages would serve as the template from which to define capability stages for each key regulatory function.

2. Input from Stakeholders and Regulation Experts

An ARC meeting was held on June 24-26, 2011 in Durban, South Africa with global regulation experts and six country teams implementing ARC-supported regulation projects. The country teams were either working on strengthening the regulation for continuing professional development (CPD) or revising national nursing and midwifery law. In a presentation to participants, the principles and purposes of the regulatory CMM were introduced, along with the list of the selected key regulatory functions, and the five-stage template was explained. Each country team was asked to review the seven functions and consider if they appropriately reflected the key functions of a nursing and midwifery regulatory council. Small group discussions were held with each team to note their feedback. Subsequently, all country teams and global experts participated in an exercise using the five-stage template to create capability paths for CPD regulation and revising national nursing and midwifery law.

From the six small group discussions with country teams, feedback was in support of maintaining the seven key regulatory functions initially presented. The large group session resulted in a group consensus on the five stages of capability in the areas of CPD regulation and revising nursing and midwifery law (Table 4). These two functions were then used as examples on which to base descriptions of five-step capability paths for the remaining five functions to create a complete regulatory CMM. The CMM for documenting and evaluation progress in nursing and midwifery regulation in the ECSA region was named the Regulatory Function Framework (RFF) (Table 5).

3. Pilot Testing

A draft RFF was piloted testing with three ECSA countries receiving ARC regulation improvement grants at a regional ARC meeting in Arusha, Tanzania on October 5-7, 2011. Each country team was given the RFF to review and asked to select the stage (1-5) which best characterized the state of each regulation in their country at the beginning of ARC (February 2011). If a stage did not adequately reflect a country's stage with regard to a regulation, they were instructed not to select a stage for that function. Each team was also asked to look specifically at the regulatory function for which they were receiving ARC funding and indicate two stages for that function--the stage the regulation was in at the beginning of ARC (February 2011) and the stage which best characterized the regulation at that moment (October 2011).

RESULTS

Documenting Stages of Regulation

All three countries used the RFF to indicate what stage they were in for each of the seven regulatory functions (Figure 2). This provides documentation of the current level of capability in that regulation, allows for identification of areas for improvement, and establishes a baseline against which advancements in the regulations can be measured. For example, in Country A the function of registering nurses and midwives is currently in Stage 2—a paper-based register which has to be manually updated and queried. If Country A wanted to strengthen their registration function they could look at Stage 3 of the registration function and start planning how to transition to an electronic register or software which would automatically update the register and generate reports on the workforce. Once these criteria were accomplished, Country A would advance from Stage 2 of registration to Stage 3, constituting an increase in functioning from baseline. The responses on the RFF also allow for cross-country comparisons to gain an understanding of nursing and midwifery regulations in the ECSA region. For example, only two of the three countries are using software for their registration system and data collection and countries are at very different stages when it comes to licensing nurses and midwives. Some countries seem to be advancing their key regulations at a fairly even pace: all but one of Country A's regulations are in Stages 2 or 3; Country B's regulations are all in Stages 3 or 4. In Country C, however, some regulatory functions are fairly advanced (Stage 4), such as regulations around professional misconduct, yet Country A has almost no regulation on accrediting education institutions. Overall average for the region, the majority of the key regulatory functions are in Stage 3.

Measuring Country Progress

Country A was able to indicate progress made on their ARC-supported CPD regulation project (Figure 3). Country A began their project at Stage 1 of CPD regulation—the ministry of health had issued a policy that all health professionals should be required to undergo CPD but the council had not yet designed the CPD regulation for nurses and midwives. Over the course of the ARC initiative, Country A developed a draft of a CPD framework and developed a pilot testing plan. This progress moved Country A from Stage 1 to Stage 2. Country B, also with a CPD project, began the ARC initiative at a Stage 3—the council had already established CPD regulation for nurses and midwives, but they wanted to strengthen compliance with the regulation (Figure 4). Through ARC, Country B increased the delivery of CPD to nurses and midwives; however, at the time of recording, they had not yet implemented the system to electronically track which nurses engaged in CPD. For that reason, Country B reported not yet advancing to Stage 4. Country C began the ARC initiative at the initial stage of revising their national nursing and midwifery law (Figure 5). Over the course of the ARC initiative, Country C moved from gathering consensus with stakeholders (Stage 1), to commitment by the Ministry of Health to advance the draft law (Stage 3).

DISCUSSION

A stakeholder-vetted and piloted framework for assessing the stepwise progression of improvements in key nursing and midwifery regulation was developed. The results of a three-country pilot study with the RFF suggest it adequately reflects actual stages of regulations of countries in the ECSA region and could be used to assess the impact of ARC on national and regional regulation. In the pilot, the RFF successfully captured each country's baseline status in regulations and reflected meaningful advancements in key regulatory functions. Regardless of what stage a given regulation is in (excluding Stage 5), the criteria for reaching the next stage are clear, making this a potentially useful tool for planning and priority-setting by countries. Donors and country governments alike could use the RFF to guide allocation of resources to strengthen regulations and generate evidence for sustaining or revising the focus of investments over time.

The RFF attempts to document actual capabilities and allows for consideration of regulations in terms of stages of capability, as opposed to just the presence or absence of a certain regulation. The varying stages of regulations in the region indicate that improvement goals will not be identical for all countries. The RFF helps set a common pathway for improvement and documents progress not only if regulations reach Stage 5, but also through meaningful incremental achievements. By capturing

smaller-scale achievements, the RFF could be a valuable instrument to measure the impact of initiatives involving support for professional councils or regulatory reform. This RFF could be easily adapted for use with other health care cadres, such as clinical officers or physicians, or for use in other regions of the world.

The RFF reflects consistency with the normative guidance from the ICN, the ICM, the WHO, and ECSACON. Alignment with the regional or global guidelines established by these groups is a characteristic of all regulations in Stage 5. Development of the RFF complements calls in the peer-reviewed literature for updating regulatory frameworks by providing practical examples of steps that countries can take and that donors can support to strengthen regulations.

There are a number of limitations to the RFF. Because it is a model, the RFF is inherently a simplification of reality and cannot incorporate all the issues involved in advancing regulation. Instead, it focuses only on a limited set of regulatory functions and deliberate actions to improve them. To remain relevant, the RFF must continuously evolve to reflect changing practice and education guidelines, technological advancements, and to incorporate user feedback. The next step with the RFF is to undergo a validation process with all 15 countries at the ARC annual meeting on June 20-22nd, 2012. Once the RFF has been validated it will be used to document the status of major regulatory functions and to measure the progress of countries working to strengthen their nursing and midwifery practice and education regulations through the ARC initiative.

CONCLUSION

The ARC initiative provided an opportunity to develop a tool and test its ability to document the status of nursing and midwifery regulations and measure the impact of efforts to enhance nursing and midwifery regulations in the ECSA region. The intent with the RFF is to generate and use the best available science and latest knowledge in the field of regulation; to foster an ongoing dialogue regarding the evidence base and standards in health workforce regulation; and to contribute to wider discourse on planning and performance measurement in the field of health workforce or regulation.

TABLES AND FIGURES

Table 1: Common Regulatory Functions of Nursing and Midwifery Councils[40]

Function	Explanation
Definitions of "nurse" and "midwife"	The title 'nurse' and 'midwife' can be protected by law and used only by those legally authorized to practice nursing and midwifery
Registration	Qualifications required to register with the council; requirements to maintain registration.
Licensure	Criteria for initial licensure; procedures to obtain a license (e.g. registration, examination).
Scope of practice	Specific or general guidance on the tasks which may be performed by nurses and midwives and their various roles and responsibilities on a health care team.
Education standards	Entry criteria for nursing and midwifery schools; duration of education programs, levels of nursing education (certificate, diploma, degree).
Discipline and conduct standards	Mechanisms for investigations of misconduct, sanctions, and a reinstatement process.
Accreditation of Education Programs or Schools	The formal legitimization of an institution to grant degrees, enabling its graduates to achieve licensure and certification for professional practice.[28]
Continuing professional development (CPD)	Requirements to engage in learning to maintain or increase professional knowledge and competency.
Data collection	The council maintains a database (usually the register) on the nursing and midwifery workforce (e.g. number registered, education level, employment status, compliance with CPD requirements

Table 2: Five Possible Stages in the SEI Capability Maturity Model [32, 33]

Stage	Name	Description of Stage
1	Initial	The organization typically operates without formalized policies or processes; project activities are reactive rather than proactive or planned; achievements are usually the result of exceptional efforts by individuals.
2	Repeatable	Organizational policies and processes guide project management; basic project data is collected; there is a reasonable measure of commitment or control in projects; early successes can be repeated; new challenges are frequently encountered.
3	Defined	The organization has achieved the foundation for major and continuing progress; project management processes are documented, standardized and integrated; technical data on projects is tracked.
4	Managed	Organizational processes are well-defined, predictable and quantifiable; expanded data collection methods indicate that project performance consistently falls within acceptable quantified boundaries.
5	Optimized	The organization is now focused on continuously improving processes; data is used to identify the weakest elements in a process and improve it; improvements are incremental and incorporate new technologies and innovations.

Figure 1: Stepwise Profession through Five Stages of a CMM

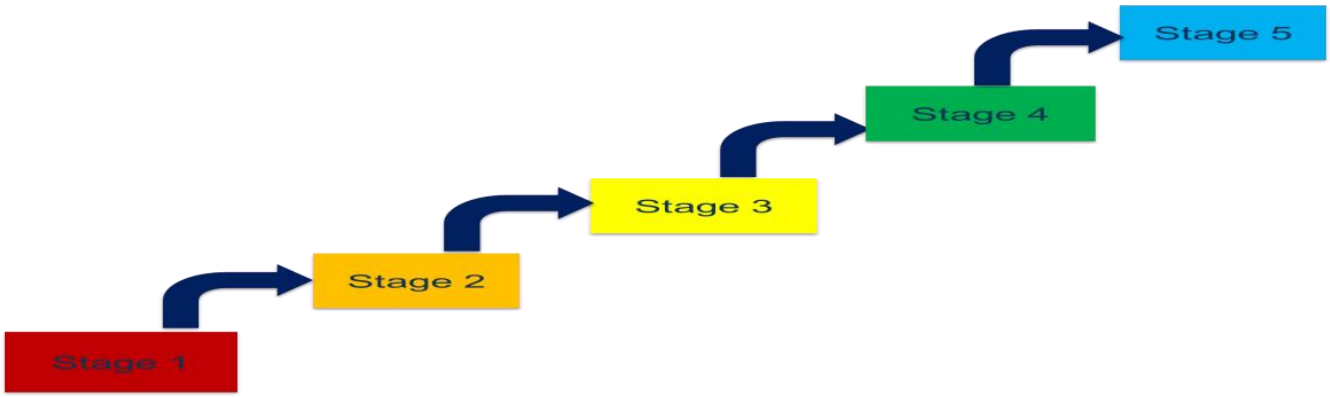

Table 3: Application of Capability Maturity Model Stages to Nursing and Midwifery Regulation

Stage	Name	Description of Stage
1	Planning	Regulations not in place or not uniformly applied throughout the country. Paper-based systems are used instead of technology. Data collection is ad hoc.
2	Developing	Regulations exist in basic forms across the country or in pilot stages. Minimal technology used. Data collection on basic indicators.
3	Defining	Regulations are well-established across the country. Systems are primarily electronic. Data collection is systematic and can reflect compliance with regulations.
4	Managing	Regulations are comprehensive and compliance with them is high. Only electronic systems are used. Data is automatically generated and used for advanced queries and performance analysis.
5	Optimizing	All regulations reflect best practices and align with regional standards or global guidelines. Technology is sought out to improve performance. Data is used to understand and continually improve the effectiveness of regulations.

Table 4: CMM as Applied to CPD Regulation and Revising Nursing and Midwifery Law

	Planning (Stage 1)	Developing (Stage 2)	Defining (Stage 3)	Managing (Stage 4)	Optimizing (Stage 5)
Continuing Professional Development (CPD)	Ministerial policy for CPD in place. National CPD framework for nurses and midwives in planning stages	National CPD framework developed. Implementation of CPD program in pilot or early stages. CPD not y et required for re-licensure.	CPD program in place across the country. CPD is required for re-licensure. Tracking system not yet fully electronic	CPD content is accredited. Electronic tracking of CPD in place. Various levels of CPD compliance exist	Multiple models of web-based CPD available. CPD content aligns with regional standards or global guidelines. CPD requirement fully enforced
Revising Nursing and Midwifery Law	Consensus among key stakeholders around agenda/concept to be changed. Planning law reform to give effect to updated policy	Updated draft of policy/act has been approved by stakeholders. MoH approval for reform agenda	MoH fully engages, supports, advances and represents updated draft of policy/act.	Draft referred to legislative body for induction and passage.	Act promulgated and gazetted. Implementation in nursing and midwifery practice environments. Compliance and impact monitored.

Table 5: The Nursing and Midwifery Regulatory CMM

	Planning (Stage 1)	Developing (Stage 2)	Defining (Stage 3)	Managing (Stage 4)	Optimizing (Stage 5)
Registration System and Use of Registration Data	Registration is legally required for nurses and midwives to practice. A paper system is used for the register.	Renewal of registration is required. Both paper and electronic (Excel) system is used. Data can answer basic queries (e.g. verify a nurse's credentials).	Registration system is primarily electronic (use of software). Data regularly updated. Data fairly complete; Data produce reliable, routine workforce reports	Registration database complete and electronic. Database used for specific queries and analysis (e.g. nurse vacancy rates by province).	Online registration and renewal is available. Database linked with MoH workforce systems. Data is used to drive policy and planning.
Licensure	Licenses not required to practice	Licenses are issued with initial registration. Renewal of license is required.	Examination required for initial licensing. Licensure exam is centralized and paper-based.	Licensure examination content is reviewed every year. Compliance with licensure renewal is enforced	Licensure examinations are electronic and scored immediately. Content aligns with global guidelines or regional standards
Scope of Practice (SoP)	SoP not standardized. SoP decided by the employer or based on service delivery needs at the health facility.	Basic SoPs exist. SoP not differentiated by category of nurse or midwife. SoP reviewed or revised within 10 years.	Nationally standardized SoP set for most nurse and midwife categories. SoP reviewed or revised within 5 years.	SoP set for each category of nurse and midwife. Regular review and revision of SoP; SoPs reflect task shifting/sharing as per MoH policy.	All SoP align with global guidelines for nursing and midwifery SoP review according to global standard.
Continuing Professional Development (CPD)	Ministerial policy for CPD in place. National CPD framework for nurses and midwives in planning stages.	National CPD framework developed. Implementation of CPD program in pilot or early stages. CPD not required for re-licensure.	CPD program in place across the country. CPD is required for re-licensure. Tracking system not yet fully electronic.	CPD content is accredited. Electronic tracking of CPD in place. Various levels of compliance status exist.	Multiple models of web-based CPD available. CPD content aligns with regional standards or global guidelines.
Accreditation of Pre-Service Education	Accreditation system not in place or in planning stage. Government schools may be "endorsed" by the council.	Accreditation is required by the government. Basic procedures for accreditation visits and assessment criteria in place. Paper tracking system used.	Initial assessment visits carried out according to schedule. Renewal visits not regularly carried out. Data collected on standardized measures.	Initial and renewal visits carried out regularly. Electronic tracking system used. Varying levels of accreditation exist (i.e. probationary, conditional) depending on score.	Accreditation criteria align with global guidelines or regional standards. Interdisciplinary committee used for visits. Institutions scores or status is available to the public.
Professional Misconduct and Disciplinary Powers	Standards for professional and ethical conduct not yet officially established.	Council has the authority to investigate or initiate an inquiry into professional misconduct. Basic types complaints and sanctions are in place.	Complaints and sanctions well-documented, including timeframes and a range of disciplinary measures. Complaint investigation and misconduct determination are separated.	Complaint and appeals processes are transparent and timely. Processes in place to review and remove penalties and sanctions.	Complaint and appeals processes are transparent to the public. Data on time from complaint to resolution is tracked to improve timeliness.
Revisions to Nursing and Midwifery Law	Consensus among key stakeholders around agenda or issue to be changed. Planning law reform to give effect to updated policy.	Updated draft of policy/act has been approved by stakeholders. MoH approval for reform agenda.	MoH fully engages, supports, advances and represents updated draft of policy/act.	Draft referred to legislative body for induction and passage.	Act promulgated and gazetted. Implementation in nursing and midwifery practice environments. Compliance and impact monitored.

Figure 2: Use of Regulatory Function Frameworks by Three Pilot Countries

Baseline of Regulations in Country A (February 2011)

Country A	Planning (Stage 1)	Developing (Stage 2)	Defining (Stage 3)	Managing (Stage 4)	Optimizing (Stage 5)
Registration System and Use of Registration Data	Registration is legally required for nurses and midwives to practice. A paper system is used for the register.	Renewal of registration is required. Both paper and electronic (Excel) system is used. Data can answer basic queries (e.g. verify an individual's credentials).	Registration system is primarily electronic (use of software). Data regularly updated. Data fairly complete; Data produce reliable, routine workforce reports	Registration database complete and electronic. Database used for specific queries and analysis (e.g. nurse vacancy rates by province).	Online registration and renewal is available. Database linked with MoH workforce systems. Data is used to drive policy and planning.
licensure	Licenses not required to practice	Licenses are issued with initial registration. Renewal of license is required.	Examination required for initial licensing. Licensure exam is centralized and paper-based.	Licensure examination content is reviewed every year. Compliance with licensure renewal is enforced	Licensure examinations are electronic and scored immediately. Content aligns with global guidelines or regional standards
Scope of Practice (SoP)	SoP not standardized. SoP decided by the employer or based on service delivery needs at the health facility.	Basic SoPs exist. SoP not differentiated by category of nurse or midwife. SoP reviewed or revised within 10 years.	Nationally standardized SoP set for most nurse and midwife categories. SoP reviewed or revised within 5 years.	SoP set for each category of nurse and midwife. Regular review and revision of SoP; SoPs reflect task shifting/sharing as per MoH policy.	All SoP align with global guidelines for nursing and midwifery SoP review according to global standard.
Continuing Professional Development (CPD)	Ministerial policy for CPD in place. National CPD framework for nurses and midwives in planning stages.	National CPD framework developed. Implementation of CPD program in pilot or early stages. CPD not required for re-licensure.	CPD program in place across the country. CPD is required for re-licensure. Tracking system not yet fully electronic.	CPD content is accredited. Electronic tracking of CPD in place. Various levels of compliance status exist.	Multiple models of web-based CPD available. CPD content aligns with regional standards or global guidelines.
Accreditation of Pre-Service Education	Accreditation system not in place or in planning stage. Government schools may be "endorsed" by the council.	Accreditation is required by the government. Basic procedures for accreditation visits and assessment criteria in place. Paper tracking system used.	Initial assessment visits carried out according to schedule. Renewal visits not regularly carried out. Data collected on standardized measures.	Initial and renewal visits carried out regularly. Electronic tracking system used. Varying levels of accreditation exist (i.e. probationary, conditional) depending on score.	Accreditation criteria align with global guidelines or regional standards. Interdisciplinary committee used for visits. Institutions scores or status is available to the public.
Professional Misconduct and Disciplinary Powers	Standards for professional and ethical conduct not yet officially established.	Council has the authority to investigate or initiate an inquiry into professional misconduct. Basic types complaints and sanctions are in place.	Complaints and sanctions well-documented, including timeframes and a range of disciplinary measures. Complaint investigation and misconduct determination are separated.	Complaint and appeals processes are transparent and timely. Processes in place to review and remove penalties and sanctions.	Complaint and appeals processes are transparent to the public. Data on time from complaint to resolution is tracked to improve timeliness.
Revisions to Nursing and Midwifery Law	Consensus among key stakeholders around agenda or issue to be changed. Planning law reform to give effect to updated policy.	Updated draft of policy/act has been approved by stakeholders. MoH approval for reform agenda.	MoH fully engages, supports, advances and represents updated draft of policy/act.	Draft referred to legislative body for induction and passage.	Act promulgated and gazetted. Implementation in nursing and midwifery practice environments. Compliance and impact monitored.

Baseline of Regulations in Country B (February 2011)

COUNTRY B	Planning (Stage 1)	Developing (Stage 2)	Defining (Stage 3)	Managing (Stage 4)	Optimizing (Stage 5)
Registration System and Use of Registration Data	Registration is legally required for nurses and midwives to practice. A paper system is used for the register.	Renewal of registration is required. Both paper and electronic (Excel) system is used. Data can answer basic queries (e.g. verify an individual's credentials).	Registration system is primarily electronic (use of software). Data regularly updated. Data fairly complete; Data produce reliable, routine workforce reports	Registration database complete and electronic. Database used for specific queries and analysis (e.g. nurse vacancy rates by province).	Online registration and renewal is available. Database linked with MoH workforce systems. Data is used to drive policy and planning.
Licensure	Licenses not required to practice	Licenses are issued with initial registration. Renewal of license is required.	Examination required for initial licensing. Licensure exam is centralized and paper-based.	Licensure examination content is reviewed every year. Compliance with licensure renewal is enforced	Licensure examinations are electronic and scored immediately. Content aligns with global guidelines or regional standards
Scope of Practice (SoP)	SoP not standardized. SoP decided by the employer or based on service delivery needs at the health facility.	Basic SoPs exist. SoP not differentiated by category of nurse or midwife. SoP reviewed or revised within 10 years.	Nationally standardized SoP set for most nurse and midwife categories. SoP reviewed or revised within 5 years.	SoP set for each category of nurse and midwife. Regular review and revision of SoP; SoPs reflect task shifting/sharing as per MoH policy.	All SoP align with global guidelines for nursing and midwifery SoP review according to global standard.
Continuing Professional Development (CPD)	Ministerial policy for CPD in place. National CPD framework for nurses and midwives in planning stages.	National CPD framework developed. Implementation of CPD program in pilot or early stages. CPD not required for re-licensure.	CPD program in place across the country. CPD is required for re-licensure. Tracking system not yet fully electronic.	CPD content is accredited. Electronic tracking of CPD in place. Various levels of compliance status exist.	Multiple models of web-based CPD available. CPD content aligns with regional standards or global guidelines.
Accreditation of Pre-Service Education	Accreditation system not in place or in planning stage. Government schools may be "endorsed" by the council.	Accreditation is required by the government. Basic procedures for accreditation visits and assessment criteria in place. Paper tracking system used.	Initial assessment visits carried out according to schedule. Renewal visits not regularly carried out. Data collected on standardized measures.	Initial and renewal visits carried out regularly. Electronic tracking system used. Varying levels of accreditation exist (i.e. probationary, conditional) depending on score.	Accreditation criteria align with global guidelines or regional standards. Interdisciplinary committee used for visits. Institutions scores or status is available to the public.
Professional Misconduct and Disciplinary Powers	Standards for professional and ethical conduct not yet officially established.	Council has the authority to investigate or initiate an inquiry into professional misconduct. Basic types complaints and sanctions are in place.	Complaints and sanctions well-documented, including timeframes and a range of disciplinary measures. Complaint investigation and misconduct determination are separated.	Complaint and appeals processes are transparent and timely. Processes in place to review and remove penalties and sanctions.	Complaint and appeals processes are transparent to the public. Data on time from complaint to resolution is tracked to improve timeliness.
Revisions to Nursing and Midwifery Law	Consensus among key stakeholders around agenda or issue to be changed. Planning law reform to give effect to updated policy.	Updated draft of policy/act has been approved by stakeholders. MoH approval for reform agenda.	MoH fully engages, supports, advances and represents updated draft of policy/act.	Draft referred to legislative body for induction and passage.	Act promulgated and gazetted. Implementation in nursing and midwifery practice environments. Compliance and impact monitored.

Baseline of Regulations in Country C (February 2011)

COUNTRY C	Planning (Stage 1)	Developing (Stage 2)	Defining (Stage 3)	Managing (Stage 4)	Optimizing (Stage 5)
Registration System and Use of Registration Data	Registration is legally required for nurses and midwives to practice. A paper system is used for the register.	Renewal of registration is required. Both paper and electronic (Excel) system is used. Data can answer basic queries (e.g. verify an individual's credentials).	Registration system is primarily electronic (use of software). Data regularly updated. Data fairly complete; Data produce reliable, routine workforce reports	Registration database complete and electronic. Database used for specific queries and analysis (e.g. nurse vacancy rates by province).	Online registration and renewal is available. Database linked with MoH workforce systems. Data is used to drive policy and planning.
Licensure	Licenses not required to practice	Licenses are issued with initial registration. Renewal of license is required.	Examination required for initial licensing. Licensure exam is centralized and paper-based.	Licensure examination content is reviewed every year. Compliance with licensure renewal is enforced	Licensure examinations are electronic and scored immediately. Content aligns with global guidelines or regional standards
Scope of Practice (SoP)	SoP not standardized. SoP decided by the employer or based on service delivery needs at the health facility.	Basic SoPs exist. SoP not differentiated by category of nurse or midwife. SoP reviewed or revised within 10 years.	Nationally standardized SoP set for most nurse and midwife categories. SoP reviewed or revised within 5 years.	SoP set for each category of nurse and midwife. Regular review and revision of SoP; SoPs reflect task shifting/sharing as per MoH policy.	All SoP align with global guidelines for nursing and midwifery SoP review according to global standard.
Continuing Professional Development (CPD)	Ministerial policy for CPD in place. National CPD framework for nurses and midwives in planning stages.	National CPD framework developed. Implementation of CPD program in pilot or early stages. CPD not required for re-licensure.	CPD program in place across the country. CPD is required for re-licensure. Tracking system not yet fully electronic.	CPD content is accredited. Electronic tracking of CPD in place. Various levels of compliance status exist.	Multiple models of web-based CPD available. CPD content aligns with regional standards or global guidelines.
Accreditation of Pre-Service Education	Accreditation system not in place or in planning stage. Government schools may be "endorsed" by the council.	Accreditation is required by the government. Basic procedures for accreditation visits and assessment criteria in place. Paper tracking system used.	Initial assessment visits carried out according to schedule. Renewal visits not regularly carried out. Data collected on standardized measures.	Initial and renewal visits carried out regularly. Electronic tracking system used. Varying levels of accreditation exist (i.e. probationary, conditional) depending on score.	Accreditation criteria align with global guidelines or regional standards. Interdisciplinary committee used for visits. Institutions scores or status is available to the public.
Professional Misconduct and Disciplinary Powers	Standards for professional and ethical conduct not yet officially established.	Council has the authority to investigate or initiate an inquiry into professional misconduct. Basic types complaints and sanctions are in place.	Complaints and sanctions well-documented, including timeframes and a range of disciplinary measures. Complaint investigation and misconduct determination are separated.	Complaint and appeals processes are transparent and timely. Processes in place to review and remove penalties and sanctions.	Complaint and appeals processes are transparent to the public. Data on time from complaint to resolution is tracked to improve timeliness.
Revisions to Nursing and Midwifery Law	Consensus among key stakeholders around agenda or issue to be changed. Planning law reform to give effect to updated policy.	Updated draft of policy/act has been approved by stakeholders. MoH approval for reform agenda.	MoH fully engages, supports, advances and represents updated draft of policy/act.	Draft referred to legislative body for induction and passage.	Act promulgated and gazetted. Implementation in nursing and midwifery practice environments. Compliance and impact monitored.

Figure 3: Progress in CPD Regulation by Country A Between February and October 2011

Country A	Planning (Stage 1)	Developing (Stage 2)	Defining (Stage 3)	Managing (Stage 4)	Optimizing (Stage 5)
Continuing Professional Development (CPD)	Ministerial policy for CPD in place. National CPD framework for nurses and midwives in planning stages	National CPD framework developed. Implementation of CPD program in pilot or early stages. CPD not required for re-licensure.	CPD program in place across the country. CPD is required for re-licensure. Tracking system not yet fully electronic	CPD content is accredited. Electronic tracking of CPD in place. Various levels of compliance status exist.	Multiple models of web-based CPD available. CPD content aligns with regional standards or global guidelines.

Figure 4: Progress in CPD Regulation by Country B Between February and October 2011

Country B	Planning (Stage 1)	Developing (Stage 2)	Defining (Stage 3)	Managing (Stage 4)	Optimizing (Stage 5)
Continuing Professional Development (CPD)	Ministerial policy for CPD in place. National CPD framework for nurses and midwives in planning stages	National CPD framework developed. Implementation of CPD program in pilot or early stages. CPD not required for re-licensure.	CPD program in place across the country. CPD is required for re-licensure. Tracking system not yet fully electronic	CPD content is accredited. Electronic tracking of CPD in place. Various levels of compliance status exist.	Multiple models of web-based CPD available. CPD content aligns with regional standards or global guidelines.

Figure 5: Progress in Revising Nursing & Midwifery Law by Country C Between February and Oct. 2011

Country C	Planning (Stage 1)	Developing (Stage 2)	Defining (Stage 3)	Managing (Stage 4)	Optimizing (Stage 5)
Revisions to Nursing and Midwifery Law	Consensus among key stakeholders around agenda or issue to be changed. Planning law reform to give effect to updated policy.	Updated draft of policy/act has been approved by stakeholders. MoH approval for reform agenda.	MoH fully engages, supports, advances and represents updated draft of policy/act.	Draft referred to legislative body for induction and passage.	Act promulgated and gazetted. Implementation in nursing and midwifery practice environments. Compliance and impact monitored.

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