Reviewing and Development of the National Curricula for Diploma of Nursing and Certificate for Community Health Workers Framework.

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Technical Report Regulation and Education Review and Recommendations

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Michele Rumsey
WHO Collaborating Centre, University of Technology Sydney

CONTENTS

ACRONYMS

CHW	Community Health Worker
CPD	Continuing Professional Development
DFAT	Department of Foreign Affairs and Trade
DHERST	Department of Higher Education Research Science and Technology
NDoH	National Department of Health
NGO	Non-government organisation
PNG	Papua New Guinea
PNG NC	Papua New Guinea Nursing Council
SOWN	State of World's Nursing
UOG	University of Goroka
UPNG	University of Papua New Guinea
WHO	World Health Organization
WHO CC UTS	WHO Collaborating Centre at the University of Technology Sydney

EXECUTIVE SUMMARY

Nursing and community health workers (CHWs) are the largest cadre of the health workforce in Papua New Guinea (PNG) (WHO 2020). The recently released World Health Organization (WHO) State of World's Nursing (SOWN) Report PNG Country profile (Annex 2) shows nurses, midwives and CHWs are 72% of the country's health workforce, which is 75% female. The report highlights the significant shortage of nurses, estimating a shortfall of 20,000 – 30,000 by 2030, only 10 years away.

We know there is a 28% shortage of nursing educators in PNG[7-13] with only 50% holding an education qualification, resulting in low quality graduates and leading to a health workforce under pressure. In addition there are few opportunities for continuing professional development for health workers. Recently there has been significant increase in Schools of Nursing (SON) with the goal to have one in each province that has resulted in an increase of Schools over the last 6 years from 8 to 17. There are 14 are carrying out a Diploma in General Nursing (DGN), 1 carrying out bachelor-level program, and 2 carrying post-registration programs (at University of Goroka (UOG) and University of Papua New Guinea (UPNG). A further 3 are trying to get accredited. Following the World Bank (2011) report, The PNG National Department of Health (NDOH) has suggested a school should be located in every Province. Although an increase in numbers of nursing students has being achieved in recent years, the PNG Nursing Council accreditation audit review[10] has significant concerns about the quality of graduates from Schools using the outdated and old curricula (late 1990s)and with a significant shortage of skilled and qualified educators. With new schools proposed the already stretched educational system for nurses and CHW will continue to weaken without urgent action.

Investment in health system improvement in Papua New Guinea has led to many projects being undertaken since 2011 focussing on health education, governance, service delivery and infrastructure. This report builds on the results of a major project conducted in partnership with the NDoH, WHO PNG Office and Department of Foreign Affairs and Trade Australia (DFAT) (2012-2017) which integrated work to address the four areas affecting the health workforce: governance, education, association and regulation. All of these projects aligned with each other and grew out of previous work undertaken such as the Ministerial Taskforce on Maternal Health Papua New Guinea 2009 and DFAT Nursing and CHW Educational Diagnostic Audits across PNG in 2012 with over 1,200 stakeholders.

For a full summary of these health projects please see https://www.uts.edu.au/research-and-teaching/our-research/who-collaborating-centre/what-we-do/3.-regulation-and-education/integrating-health-projects-papua-new-guinea

This technical report outlines the key result areas (KRAs) 1-7 achievements and challenges of regulation within NDOH over the last 6 years. Significant headway has been made in regulation, accreditation, standards and data, and many links have been provided to show case some of that work. Attached below are some summary points from this technical report. The SOWN country profile (Annex 2) and human resources for health and regulation issues paper Annex 2, further provide a comprehensive picture of current nursing and midwifery regulation data in PNG.

Summary points:

- Of the PNG health workforce, nurses, midwives and CHWs are the main component of 71% of registered practitioners, followed by allied health 12%, dental 1%, medical practitioners 12%, medical specialists 0.5%, health extension officers 3.5% (Annex 2);
- Nursing and CHW Curriculums do not follow National Health Standards 2011-2020 and need urgent review;
- Nurses and midwives in PNG total around 5,500, CHWs around 4,500 which is well below the WHO baseline benchmark of 23 per 10,000 population (which would equate at = 20,171 health workforce of nurses, midwives and doctors in PNG (Annex 2);
- These figures concur with the WHO SOWN Report 2020 that states that between 20,000 – 30,000 nurses are needed by 2030 (Annex 2);
- Only 75% educational institutes met the NDOH staff ceiling stated in PNG NC 2017 [8] review;

- In 2017 before the significant increase in institutes there was a shortfall of around 38 educators in PNG;
- There are no masters programs for nursing in PNG and only 28% of educators have a master's level qualification;
- Only 60% of educators have any educational qualification;
- Student attrition rate is very high in some institutes suggesting poor quality education.

Achievements

- Regulations systems and process and been significantly improved and strengthened with majority of policies, forms, reports now available on NDOH web site.
- Strengthening of regulatory procedures, accreditation, communication strategy, policies, standards, documentation archiving (50 years) and committee structures has occurred;
- Accreditation of old and new nursing and midwifery institutes has been carried out;
- Registration fees have been increased and renewal changed to every other year with PNG Nursing Council (PNG NC) finances strengthened from 2PGK 10,000 to over 300,000 PGK;
- License renewal process streamlined - 3,758 in 2012, has doubled to **6,271** 2015, and is now back to 5,000;
- Stakeholder review of Health Practitioner Bill (HPB) completed;
- Committees and processes and reliance have received professional acknowledgment;
- Significant registrar leadership and support achieved;
- Graduates receive provisional registration after 6 months and go through competency-based approval by clinicians (preceptors) to become fully registered;
- Review conducted over the 10 year period 2004–2014 showed only 44% conversion to full registration, with increase in 2014–15 up to 69%, and 2016 73%.

Positive impacts

- An increase from 8-17 nursing institutes, with a further 3 in the pipeline yet to be accredited. (Table 4 Annex 2)
- PNG NC audit review indicated nursing student enrollments exceeded **projections from** 157 to 505 (2012-2017) (Table 2 Annex 2);
- Midwives registered for first time in 2014, support to Midwifery Schools increasing from 4 to 5 with others in pipeline[11,18,,] Increased number of midwives in PNG from 293 to 780 (2009-2019) Figure 1;
- 18 month Midwifery Curriculum approved in 2017, now running in 3 of 5 institutes, last two to start in 2020 and review of midwifery competences and midwifery skills log book complete;
- PNG NC Roadshows held in **all Provinces** to discuss regulation, competences, ethical practice;
- Building a body of Evidence and Research See Annex 2 for more details.

Challenges and ongoing work:

- Nursing Curriculums do not follow National Health Standards 2011-2020 and need urgently review.
- Registration staffing is currently weak with only one administrator, NDOH have not replaced the DFAT supported position. Staffing assistance will be required for registration to continue under Medical Registration Act 1980.
- Lack of Chief Nursing and Midwifery Officer for strategic governance and leadership for 72%[35]of workforce within NDOH and across PNG (see Annex 2);
- Regulation financial viability infrastructure and staffing still to be worked on;
- Many new graduates are not being employed by Provinces;
- Increase needed for Preceptorship training for clinical facilitators to ensure student clinical practice assessments are in line with national competencies and reviewed curriculum;
- Government and employer ratification that continuing professional development (CPD) is required and sponsored to enable pathway for health professionals to become educators;

- Renewal of regulation legalisation (HPB) and recurring license renewal tied to CPD required;
- Exploration of issues such as: workforce, scope of practice, specialisation, competency, language and skill mix, arising from overseas trained health care workers continues to be needed.

SITUATION ANALYSIS

Role of regulation

The PNG Nursing Council (PNG NC) regulation authority was established as a Statutory Body in the early 1960s. Like an overarching legal framework of the National Department of Health (NDoH), its mandated roles and responsibilities are stipulated in the current PNG Medical Registration Act 1980. This Act gives PNG NC a major responsibility to:

> ***'Promote and promote the public interest through the maintenance of nurses' standards of conduct and competencies'***.

In order to achieve this purpose, PNG NC has a statutory mandate to approve and monitor education programs that lead to registration as a nurse in any category or midwife. (See Annex 2)

Functions and powers of the PNG NC

Functions and powers of the PNG NC include advising the Health Minister on policy matters relating to nursing, in particular-

(i) The formulation, review and replacement of the Medical Registration Act 1980;
(ii) The registration and licensure of nurses;
(iii) An inspection of nursing and midwifery schools;
(iv) Approval of training schools;
(v) Setting of standards for training schools;
(vi) The publication of persons registered;
(vii) Allowing register for inspection by public;
(viii) Issuing of certificates of graduation;
(ix) Disciplinary action against nurses convicted of an offence.

Heath workforce and regulation

Papua New Guinea's (PNG) health worker density in 2013 was estimated to be 0.58 per 1000 population compared to the recommended density of 2.5 per 1000[7] for the effective provision of primary health care services. More than half of the current health workers were approaching retirement age in the next decade (2011 -2021). Critical cadres such as nurses, midwives and community health workers (CHWs) are particularly low, and there is insufficient capacity within training facilities to produce the number and quality of health workers needed[7]. The gap between population needs and the number of nurses is set to further increase, with an estimated shortage range of 20,000 to 30,000 nurses projected by 2030 (WHO, 2020). Therefore there is an urgent need to increase the quality and quantity of registered nurses and nursing educators in PNG to support this increased need.

The last decade has indeed seen an increasing amount of work in PNG focusing on the human resources for health crisis outlined by the World Bank Report (2011) and the Sustainable Development Goals. Several scenarios for change are outlined by the World Bank of which the recommended scenario would envisage:

> "i) A gradual reduction in the population-to-doctor, nurse and CHW ratios; ii) maintaining nurses and CHWs as the backbone of the service-delivery system-particularly rural service delivery …." (World Bank, 2011. p. 125)

This scenario, which outlines the need to more than double nurses by 2030, did not however include midwifery in its projections and costing. The regulation of this group of health professionals falls under the mandate of the PNG NC and needed urgent review and strengthening to provide a streamlined efficient registration of qualified and graduating students.

In 2001, the projected numbers of nursing graduates for 2010 were 445 for entry-level, requiring an increase of 64 extra academic staff and 25 replacement staff needed. In 2012 there were only eight schools providing pre-registration nursing education, majority providing a diploma-level program

except for the one bachelor-level program at PAU. University of Papua New Guinea (UPNG) provided post-registration programs, but not undergraduate nursing programs. Yet in 2012 the number of annual graduates was only 157[23].

To support PNG to increase the size and quality of its health workforce, AusAID (2013) embarked on a diagnostic audit[12,23,]that resulted in fully funded in-country scholarships, and regulation support. The aim was to increase the quality and quantity of nursing and midwifery students to 456 annual graduates, improvements in curriculum, educator numbers and faculty development support by 2016 Table 1[8, 25] .

Summary of recommendations from the 2013 Nursing Diagnostic Audit:

- PNG NC has limited human resources and capacity to carry out its role and the structure of PNG NC needs review.
- Registration processes needed to be simplified.
- Accreditation audit framework process should be a simplified.
- Completing nursing students should be registered promptly in order to facilitate their entry into the workforce as quickly as possible and without legal risk.
- The curriculum for all Schools of Nursing to be reviewed and updated by November 2013 ensuring they include the National Health Plan 2011-2020 and National Health Service Standards 2011-2020.
- PNG NC competency standards need to be printed and distributed for all registered nurses at all levels in PNG.
- A national registration model should be produced outlining the role of the NDoH, PNG NC, Schools of Nursing (SONs), affiliated and amalgamated universities and other stakeholders.
- All SON must ensure nursing competencies are integrated throughout programs by November 2013 including: units, subjects, log books, student portfolios and assessments.
- PNG NC and Human Resources Branch (Training and Curriculum Development Section) NDoH and DHERST in partnership should audit the schools every three years to monitor the implementation of the standards within education programs, as some have not been audited for 30 years. Audits should cover
    - educational resources and infrastructure
    - adequate teaching support at clinical sites as well as the required case mix,
    - specialist practitioners and a safe environment for optimal student learning.

PNG NC registration and accreditation processes were weak in 2013 and legislation overseeing registration is carried out through outdated Medical Registration Act 1980. Link to summary of previous work in PNG **Integration Health Projects in Papua New Guinea** and DFAT diagnostic audit reports.

This technical report outlines the many achievements carried out to meet the above recommendations.

KRA 1 – STREAMLINE REGISTRATION

KRA 1. Expedited resolution of existing backlog in Nurse and Midwife registrations, as demonstrated by: processing of all registration requests currently outstanding and routine issue of Probationary Registration Licenses by the Nursing Counsel to new Nurses Graduating from colleges each year.

- Provide advice and support to the Registrar and staff to improve systems and processes involved in the registration of Nurses, Midwives and Paediatric Nurses in PNG, with this support to be initially targeted at improving efficiency in registrations of graduate Nurses and Midwives;
- Provide hands on-support to the Registrar and her staff with processing the backlog of Nurse and Midwife registrations and renewals;

Summary of achievements:

- Streamlining of registration practice was carried out in the first few years including developing overseas policy and all PNG NC forms that were uploaded onto the NDOH webpage for the first time.
- Backlog of registrants cleared.
- DFAT provided administration support to achieve this significant work.
- System to register Double Majors achieved.
- Registrar position finally approved after 5 years of acting.
- Advice provided on how to improve systems covered in KRA 2.
- Adviser's model of short term inputs with regular contact with country counterparts enabled a continuous support model while keepings costs low.

Links to relevant evidence

- PNG NC NDOH link to resources on Webpagehttps://www.health.gov.pg/subindex.php?health_ministry=7
- PNG NC Reports *https://www.health.gov.pg/subindex.php?health_ministry=7*
- PNG NC Reports *http://www.health.gov.pg/nursing_pdf/PNGNCR_2016.pdf*
- Link to youtube of Registration activity in PNG https://youtu.be/or5vOc_NQ8k

KRA 2 - STRENGTHENING NURSING COUNCIL SYSTEMS

KRA 2. Strengthened Nursing Council systems for registration for Nurses and Midwives, as demonstrated by: streamlined governance processes, reduction in processing times, clear documentation of processes, clear registration **competency requirements.**

- Provide advice and support to the Registrar and staff to improve **systems and processe**s involved in the registration of Nurses, Midwives and Paediatric Nurses in PNG, with this support to be initially targeted at improving efficiency in registrations of graduate Nurses and Midwives;

Summary of achievements:

- Consultation with all partners and agreed changes to all policies by Nursing Council Board took considerable amount of time and negotiation -
    - For example, development of the Overseas Practitioners Policy required consultation with non-government organisations (NGOs) and employers, Department of Employment and Immigration and review of their work visa policies to ensure they worked with PNG NC. An individual now must be registered before they can obtain a work visa.
    - Temporary registration - it was agreed that Temporary Registration could be approved by officers, following a check list, the reported to the Board to speed up the process for short term visiting practitioners.
    - As a result, the number of renewals, registrants and provisional registrants to full registration has improved from 44% - 73% (see Annex 2).
- Health Care Practitioners Registration System (HPRS) development, data analysis, field and form review and update was carried out and launched in 2017 (media story link below). The HPRS is a vital source of information for the country's health workforce, holding details of all registered nurses and midwives in PNG, including new and overseas nurses and midwives.
- Because of the major reform of the PNG NC and updated information available, it is now known that 6,271 practitioners are registered with the Council. A total of 4,566 are registered nurses (including new graduates), 721 are registered midwives and 1,427 are nurse aides [8].
- This work is ongoing and issues with Datac and payment by NDOH have hampered the continued upload of this information into the database.
- Work with the PNG Medical Board to rectify this issues has been held up by instability of the Board and then COVID -19 in 2020.
- This analysis showed that in PNG the registered health workforce is comprised of Medical and Dental 17%, Allied Health 12%, Nursing Board (aides and CHW's) 71%, with Pharmacy on a separate register.
- The WHO SOWN Report analysis by NDOH concurred with data stating nursing and midwifery comprises 72% of the PNG health workforce [35].

Links to relevant evidence

- NDOH link to resources on Webpage https://www.health.gov.pg/subindex.php?health_ministry=7
- https://postcourier.com.pg/new-health-care-registration-system-launched/
- Annual report - significant review of national accreditation audit outlining many findings in this report *http://www.health.gov.pg/nursing_pdf/PNGNCR_2016.pdf*
- PNG Health Practitioners Registration System launched

KRA 3 - GOVERNANCE COMMITTEE RESPONSIBILITIES

KRA 3. Strengthened Nursing Council governance processes, as demonstrated by: clear documentation around **governance committee responsibilities,** evidence of regular meetings, development of effective staff performance management systems

- Provide advice and support to the Registrar to strengthen Council leadership and management capacity, including staff performance management processes and governance structures (including relevant committees);
- Review the existing staffing structure of the Nursing Council and the proposed new staffing structure and make realistic recommendations for short and long term supplementation of current staffing levels to enable registration backlogs to be cleared and to better support the Nursing Council to efficiently fulfill its functions;

Review the purpose and membership of the following Nursing Council Committees and make recommendations aimed at increasing the effectiveness of these committees:

a. Nurse Registration Committee
b. Nurse Education Committee
c. Nurse Disciplinary Committee

Summary of activities:

The PNG NC's role is to register nurses and midwives as well as provide standards and accreditation for educational institutes. Due to an extreme backlog of registrations and some institutes not being audited for 30 years, work was required to update processes, protocols and standards. Review of membership and setting up of a committee structure and enabling Board to run smoothly and effectively was a crucial part of this work. All procedures and Terms of references were included in annual reports and published on the PNG NC website.

Activities also included a communication strategy with roadshows, newsletters and setting opening hours within the PNG NC so other work could be carried out in between registration processing. The registration of up to 6,000 registrants a year is an over whelming task if no administrative support is provided. If the staffing is not adequate other PNG Council activities can easily be postponed hence a review for proposed staffing structure of NC was conducted. This work has led to the strengthening of Nursing Council leadership and management capacity.

Links to relevant evidence

Link to PNG Nursing Council Reports with summary of all above activities carried out:

- *https://www.health.gov.pg/subindex.php?health_ministry=7*
- *http://www.health.gov.pg/nursing_pdf/PNGNCR_2016.pdf*
- *https://www.uts.edu.au/research-and-teaching/our-research/who-collaborating-centre/news/nursing-council-papua-new-guinea-releases-update-2014-registered-nurses-and-midwives*

KRA 4 - STANDARDS

KRA 4: Broader Nursing Council systems and standards are reviewed and recommendations implemented, as demonstrated by: review documentation, documentation of consultations and endorsement, and associated changes to relevant systems and standards
In consultation with stakeholders, building upon existing work in this area, conduct a broad scale review of the Nursing Council standards and practices and make recommendations for their improvement. In particular;

a) Competency standards for registration,
b) Development of competency assessment tools for nursing training provisional licensing requirements
c) Registration requirements for overseas nurses
d) Registration fee schedule for all types of registration

Summary of activities:

- The PNG NC conducted over 25 visits covering every Province and 18 educational Institutes, and met with well over 2,000 stakeholders and associated facilities. Link to youtube of Registration activity including audits, archiving, accreditation visits across PNG https://youtu.be/or5vOc_NQ8k
- Work continues on the PNG NC website newsletters, roadshows, and the PNG NC report that is constantly updated with information and resources available for use by interested parties.
- The PNG NC Annual Report with detailed information was first developed and published at end of 2017 [10], and new annual reports are being prepared for upload to web site.
- Review and publication of all PNG NC procedures and policies for a-e a outcomes were reported in the first annual report *https://www.health.gov.pg/subindex.php?health_ministry=7*
- NDOH link to resources on Webpage https://www.health.gov.pg/subindex.php?health_ministry=7. This provides evidence of the review of PNG NC systems and standards.

PNG Medical Board

- Strengthening Regulation Processes Report was approved by the previous Medical Board, and the new Medical Board was approved by the Health Minister on 11th July 2019. New discussions will be held with Board and are ongoing.
- Development and sharing of the PNG NC Overseas Registrants Policy shows a new approach of working.
- Some of these early discussions have been held up by COVID-19.

Treasury

- Numerous discussions with Treasury included Medical Board colleagues have occurred regarding a Trust Account (post 90/10 legislation).
- Accounting Vote Codes have now been approved so nursing registrants can add codes to payments to enable tracking of registrant's payments to Treasury of around 300,000 Kina.

Minister for Health

- Meetings held have enabled support: for review of PNG NC structures, finances, establishment of a Chief Nursing Officer, HPB priority discussions, and Nursing and CHW curriculum review

support (quality improvements, fast track educators program) that are ongoing and incorporate open dialogue.

Health Practitioners Bill:

- PNG NC has played a significant role in extensive workshop discussions held that have resulted in a briefing documents that includes series of recommendations being made to the Secretary of Health and Health Minister. Stakeholder meetings have been held with the new Legal Adviser, with all briefs and recommendations shared.

Summary of HPB workshop recommendations outlined below

PNG Nursing Council - 2018 Recommendations	Recommendations 2019	Recommendations July 3/2020	Combined and agreed 2020
• Secretary of Health to coordinate a joint meeting with all regulatory authorities, Minister for Health, and relevant advisers; • Bill needs to be coordinated centrally with a legislative Policy developed with all stakeholders to provide rational for components within the legislation; • Agree with set up of an independent overarching authority under legislation with several Boards/ Committees Registrars: • **Medical and Dental 17%** • **Pharmacy** • **Allied Health 12%** • **Nursing Board (aides and CHW's) 71%.** • Each Board / Committee would have a Registrar • Fees to be paid to relevant Boards; • Agreed national funding and budget against Registrar and Committees functions to carry out mandated role; • Shared staff to carry out registration, standards and management; • Legislation needs to strengthen accreditation powers to ensure only quality institutes can be established;	• Legislation needs to outline health professionals competency and continuing professional development (CPD) requirements; • Legislation connected to policy for registration of specialist programs • Legislation to cover specialist practitioners that wish to carry out private practice • • Improve legislative power regarding the public knowledge of complaints; and private practitioner's ability to practise; • Although not being trained any more (14.4) need Nurse Aide and Enrolled Nurses, to be added as still exist on register; • Community Health Workers are situated with the Nursing and Midwifery Board	• Health Board/ Authority to be a standalone agency and not under Health Department • Health Practitioners Board to be change to Health Practitioners Authority • Agree that each board must have a Registrar • Advisory Committee composing of members from different authority to be in place. • Board to have a trust account or separate Bank Account for operation • Community Health workers to be part of the Nursing Council as Nursing is responsible for CHW Curriculum and training • Legislation to all Nurses to conduct private practice. • Legislation to clearly specify the Registration fee for different Registration functions • Penalty fee clearly be outline for any default in both Registration and Practice	Agree with set up of an independent overarching authority under legislation with several Boards/ Committees Registrars: - Medical and Dental 17% - Pharmacy - Allied Health 12% - Nursing Board (aides and CHW's) 71%. **Registrar** Each Board / Committee would have a Registrar **Community Health Workers** Community Health Workers to be situated with Nursing Council **Account and Fees –** Have separate trust account fee to be paid to different account **Accreditation of learning institutions** Legislation needs to strengthen; accreditation powers to ensure only quality institution can be established and must meet the professional and educational standard. Prior to starting any new institution, protocol must be followed. **Specialist practice and CPD** Legislation connected to policy for registration of specialist programs Legislation needs to outline health professionals competency and continuing professional development (CPD) requirements; **Private practice** Legislation to cover specialist practitioners that wish to carry out private practice

KRA 5- ACCREDIATION

KRA 5. Education programs that lead to registration are **monitored, reviewed and accredited,** as demonstrated by: written documentation outlining the theoretical and clinical requirements of curricula and effective communication of these requirements to relevant institutions; development of a schedule for implementation, and commencement of accreditation activities.

- Undertake a review of the Nursing Council of PNG National Framework for the Accreditation, Monitoring and Evaluation of nursing and midwifery programs.

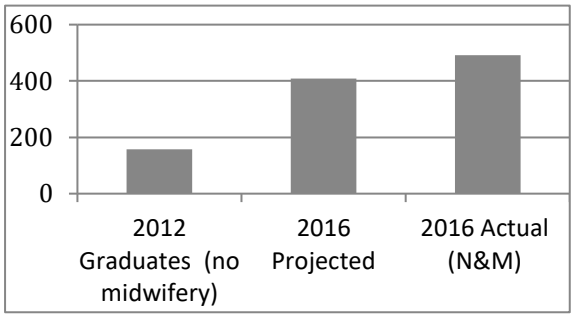
Summary of activities:

- Increase from 7 to 14 educational institutes running Diploma in General Nursing (DGN) and one running a Degree in Nursing and 2 running post registration programs, a further 3 institutes are in under discussion.
- The PNG NC Annual Report with detailed information was developed and published at end of 2017[8] [10], and a new annual report being prepared for upload to web site.

The NDoH Workforce Enhancement Plan

- This Plan led to improvements in regulation and infrastructure that have contributed to a greater than 200% increase to 491 nurses and midwives graduating in 2016 (PNG NC Annual Report 2016), exceeding the DFAT diagnostic audit projections of 2013.

National Registered Nursing and Midwifery Projections [8,23]



Specialist practice

- Apart from midwifery, UPNG continues to be the only institute running post-registration programs, and specialist practice will be reviewed in 2020.
- Ongoing post-registration education masters and educators programs to be explored in the future.
- Scope of practice and above issues to be explored in line with proposed curriculum review.

Midwifery

- Post-registration midwifery degree is now running in 4 to 5 institutes across PNG.
- Following a comprehensive review of the national midwifery framework, the PNG NC approved the 18 month midwifery program in 2019.

10 years of Maternal and Child Health in PNG (MCH) Review Brief (Figure in Annex1)

- Improvements in midwifery have been ongoing since the NDOH Maternal and Child Health Taskforce Report (2009). Over the past 10 years, many areas have been worked on and addressed, however many challenges still exist. Figure 1. Annex 2 (Annex C).

- Following the Maternal and Child Health Initiative (MCHI) program M & E analysis, the Midwifery Curriculum Framework was reviewed and developed in 2014 and was approved by NDOH PNG NC in 2017.
- The review of the Midwifery Skills Log Book is crucial to the 18 month program. The new knowledge and skills added to the National Midwifery Curriculum Framework are not included in the old skills log books.
- The 12 month midwifery program was phased out at the end of 2018. Three midwifery schools have commenced the 18mth program in 2019, with PAU and UPNG following in 2020.
- Another midwifery program is planned for delivery in Lae, in line with ANGAU Hospital redevelopment requirements.

Midwifery Skills Log Book

- Two workshops were funded by Australian Awards and UNICEF and supported by UTS midwifery staff. Attendees included 25 participants from all 5 midwifery schools and clinical areas. A final draft structure of the Log Book was produced and validated by stakeholders and finalised in 2020.

Links to relevant evidence

- Improving Midwifery Skills in PNG
- Integration Health Projects in Papua New Guinea
- Selected publications linked in above resources

KRA 6- PARTNERSHIPS

KRA 6. Strong and productive relationships built with the Registrar, Nursing Council Chair and staff, Medical Board and other NDOH health workforce leadership broader educational institutions and development partners, and other relevant stakeholders as demonstrated by positive feedback.

Collaboration and partnership

- The PNG NC conducted over 25 visits throughout PNG, covering every Province and 18 educational Institutes, and met with well over 2,000 stakeholders and associated facilities to ensure stakeholder engagement. See Annex 6
- Maintained Combined Leaders United in Business (CLUB) providing opportunities for networking and sharing resources, the CLUB is informal and confidential with high level leaders, educators, and clinicians.
- Ongoing stakeholder meetings for the Health Practitioner Bill have enable frank discussions regarding continuing improvements for registration and the need for quality improvement of nursing graduates via curriculum review and specialist practice discussions.
- Attendance at important regional and global events including Medical Regulation SPC, WHO Health's of Health Fiji, World Health Assembly Geneva, WHO SOWN Report Meetings Sydney, South Pacific Chief Nursing Midwifery Officer Alliance (SPCNMOA) meetings held across the Pacific in Cook Islands, New Zealand, Solomon Islands, Tonga.
- Invited by NDOH to speak on health workforce at APEC Meeting held in PNG
- Developed pictorial representation of PNG NC achievements for uptake of information through a short video. https://www.youtube.com/watch?v=or5vOc_NQ8k&t=7s

Links to some of relevant evidence

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10. APEC's 8th High Level Meeting on Health and the Economy
11. State of the World's Nursing Report WHO CC

KRA 7 LESSONS LEARNT

KRA 7.

We have learnt that we need to work closely with the key stakeholders to develop the work plan and timeline, which will outline methods and activities to address the objectives of any work, while fostering common understanding and trust. We have adapted the WHO WPRO White Papers 'grounds up approach'[2] to include principles of partnership[1,3] and which cover; safety, respect, collaboration, beneficence and reciprocity, relationship-based and justice[2]. The grounds up approach[2] adopting the principles of partnership[1,3] ensures that national capacity in terms of governance, accreditation and mutual recognition of qualifications.

Lessons learned and best practices

- Understanding of culturally appropriate working patterns to ensure activities are implemented at an appropriate pace and owned by the partners.
- All programs / project / research to be developed and delivered using the WHO CC UTS adapted 'grounds up approach[2]; adopting the principles of partnership[1,3]
- To create sustainable change, support needs to be provided intermittently in country over a long period. Strong, trusting relationships need to be built up front with an agreed work plan.
- One of the main strengths of the HPB is to enable the regulation authorities to become autonomous. It is envisaged that the upcoming HPB enactment would give greater power for such bodies to execute their legal roles and responsibilities effectively. In particular, this will assist the regulation of the health workforce by ensuring safe and competent workers, delivering a high standard of health services at all levels and all times.
- The success of the Maternal and Child Health reviews carried out by the NDoH through research, extensive monitoring and evaluation over the 10 year period (2009-2019) shows that positive outcomes can be achieved, particularly in relation to the review of the Midwifery Curriculum Framework and its implementation. It is recommended that this model be applied to a Nursing and CHW curricula to further improve outcomes and practices.
- To create sustainable change, support needs to be provided intermittently with short-term inputs over a long period. Strong, trusting relationships need to be built up front with an agreed work plan.

Reporting – contract variations

- Developed a work plan in consultation with counterparts this was reviewed regularly, and a contract variation applied for over the 6 year period.
- The majority of this work from 2014-2020 was carried out remotely with short inputs in-country for important events and meetings.

Cost efficiencies

- An Adviser's model of short-term inputs with regular contact with country counterparts enabled a continuous support model with sustainable relationship building and maintenance while keepings costs low.
- This model has also helped us during COVID-19 as colleagues are used to a series on online meetings and seminars.
- The WHO CC UTS was able to support colleagues from PNG to attend many international and regional events facilitating leadership of counterparts with no extra cost to contract.
- The WHO CC UTS linkage enabled the provision of support from a variety of staff/interns, with in-kind support from UTS, and added value to the contracted work without extra cost.

CHALLENGES

Key challenges and gaps

- Although the number of nurses graduating in PNG has exceed the Diagnostic Audit expectations [7], graduate quality, employment of registered nurses and shortage of educators remains a challenge.
- Financial restraints in NDoH hamper the PNG NC planning, storage, office space and structures. There is an ongoing challenge to ensure staff are employed, meetings and events are held in-line with planned activities.
- Finalisation of the Health Practitioner's Bill (HPB) has been drawn out since 2012 and remains an ongoing process. A new policy developed as a guide for the new Legislation when the HPB is enacted by the Parliament. PNG NC is working with adviser James Cooper, NDoH legal officers and PNG Solicitors Office in this development.
- Work with Medical Board to rectify the issues of Health Practitioners Registration System and HPB have been held up by instability of the Board and then COVID -19.
- A Curriculum Review for Nursing and Community Health Workers (CHWs) is urgently required to address the lack of educators, increase the quality of graduates, scope of practice, specialist practices and bring these curricula into the 21st century. Currently there are very few opportunities for continuing professional development.
- There is a 28% shortage of nursing and midwifery educators in PNG with only 50% holding an education qualification, resulting in low quality graduates. This analysis was carried with the original 8 institutes now increased to 17 and it is possible that now the shortage is significantly higher.
- Although accreditation processes have been improved significantly, the increase in the number of institutes and private entities establishing schools outside of the legal requirements of the NDOH and PNG NC is putting significant pressure on PNG NC and NDOH staff.
- Whilst Australian Awards funds are essential funds, they are not ring fenced and often go to university administration, leaving midwifery units without educators, transport and resources.
- PNG is the only country in the Pacific region not to have a Chief Nursing and Midwifery Officer which has been previously approved – this remains an important aim for 2021.
- The PNG NC has wasted considerable time trying to find storage for archive documents that have been overtaking office space. While a system is in place, this will be an ongoing issue.
- Although significant work has been carried out with Treasury and NDOH, accounting (AIP) financial restraints still remain that hamper the PNG NC planning and structures. There is an ongoing challenge to ensure staffs are employed, meetings and events are held in-line with planned activities
- WHO states that one midwife is needed for every 175 births to cover health outcomes and SDGs, or 4.5 nurses, midwives and doctors per 1,000 population.
- For every 1,000 births as many as 9 mothers and 24 babies die, and WHO and PNG Health Minister 2019 meeting estimates 6,000 more skilled birth attendants are needed to meet the global standard.
- Midwifery is a post-registration program so does not attract DHERST student funding, which challenges viability of this very important program.

Cross-cutting issues (gender, disability and equity)

- Improving regulation of the health workforce provides access to quality care for the entire population.
- Regulating nurses and midwives, 75% of who are women, addresses gender and equity across PNG. The majority of nurses and midwives also work in rural and remote areas.

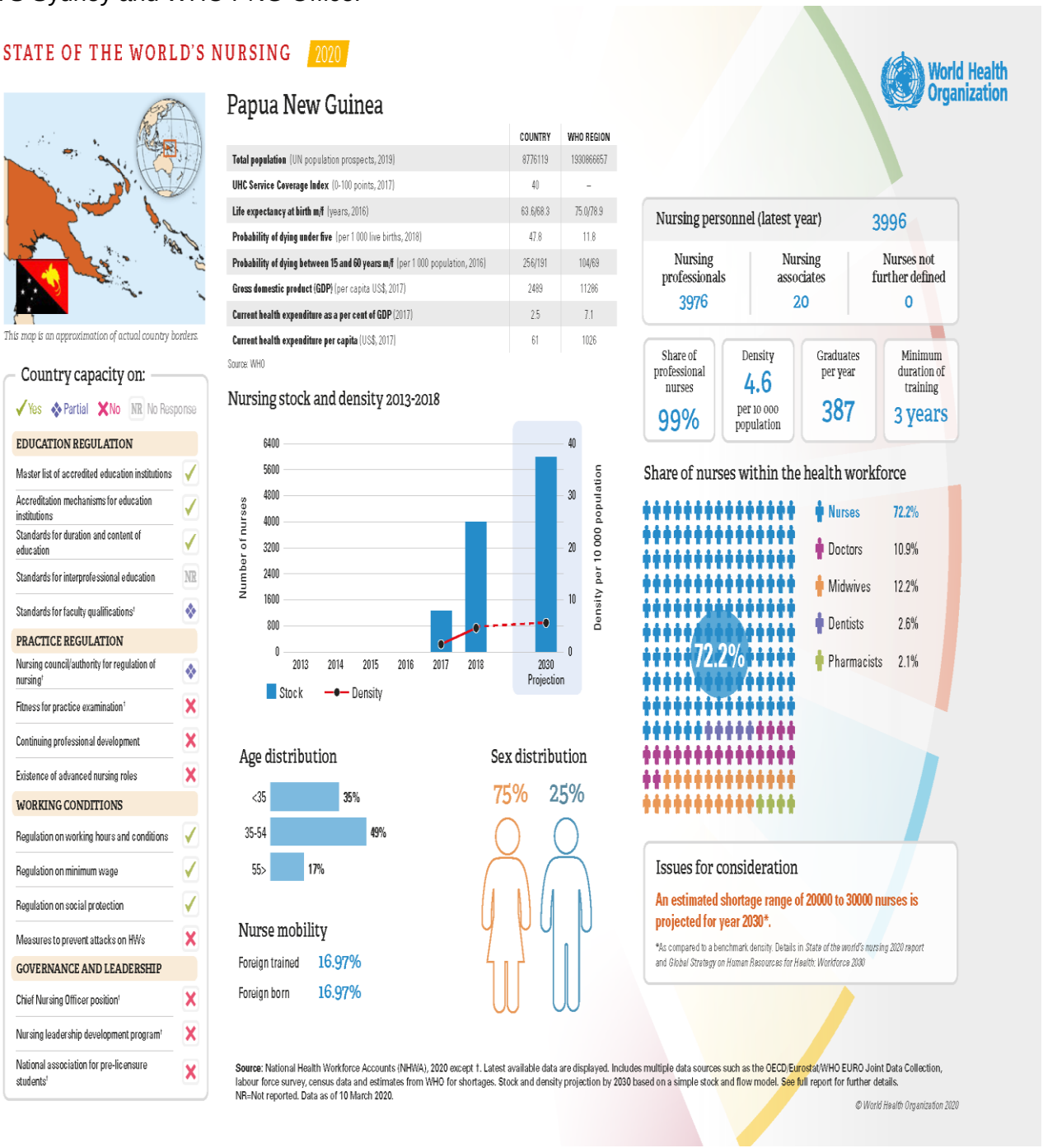
STRAEGIC PRIORITIES

Strategic priorities for regulation in PNG

- Ensure the long awaited NDOH, PNG NC and Health Training Branch review of Nursing and CHW curricula is carried out with previously approved DFAT funding. Program ot start in 2021 with WHO and DFAT funding see previous recommendations Annex 2 (Annex C).
- The Nursing and CHW Curriculum Review – This work is urgent to cover the scope of practice from village health worker and CHW through to general nurse and finally onto nurse practitioner and educator. It will include a professional development pipeline and pathway for these important health workers who work mainly in rural and remote settings and will outline entry requirements and educational level of program in line with national qualifications framework; address the urgent shortage of educators for nursing and CHW institutes; build the educational faculty's capacity in partnership with clinicians to ensure new curriculum can be taught and integrated into institutes – ensuring a quality management process, student attributes, and subjects in line with competencies and appropriate teaching and assessment processes. ***The Gap Analysis due July 31st 2021 will address the main priorities for improvement in the two programs: the Community Health Workers Certificate and the Diploma of General Nursing.***
- Review of all new nursing and midwifery institutes is required in line with the accreditation framework to ensure all graduates can be registered.
- The number of institutes providing DGN programs needs further review to maintain quality of graduates.
- Ensure adequate staff are available for the registration renewal period of March 2018- 2020 and adequate information is given to nurses and midwives to ensure they renew.
- Website, newsletters and road shows should continue to be developed to build upon the Nursing Council's overall communication strategy.
- Enactment of Health Practitioners' Bill - Facilitation of the HPB by Policy and Planning and Legal teams should be completed and passed by Parliament.
- NDOH must approve the PNG NC structure for DPM funding so new technical and clerical positions can be filled whilst awaiting HPB enactment to rectify the acute shortage of manpower.
- Funding allocation needs to be aligned with PNG NC proposed annual AIP.
- Office equipment and space for PNG NC to be expanded and purchased as previously suggested to enable staff productivity is optimum.
- HPRS to be restored for data entry and updating of client data, requiring publication of active registrants as mandated by the MRA 1980.
- A Trust Account in line with Treasury discussions to be considered and established to hold registration fees and provide some funding to cover PNG NC operational costs.

ANNEX 1– WHO STATE OF THE WORLD'S NURSING REPORT – 2020 – PNG COUNTRY PROFILE

Worked on with a team from PNG NDOH and PNG Nursing Council, workshops held At WHO CC UTS Sydney and WHO PNG Office.



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ANNEX 2– PNG NURSING COUNCIL HEALTH WORKFORCE ISSUES PAPER

PAPUA NEW GUINEA NURSING COUNCIL
Office of the Registrar

TELEPHONE: 301 3803/3013799 PRIVATE MAIL BAG
FAX: 3013604/3230753 PORT MORESBY
Email: nina_joseph@health.gov.pg PAPUA NEW GUINEA

PNG NURSING COUNCIL HEALTH WORKFORCE ISSUES PAPER

1. Introduction

1.1 The responsibility of the Papua New Guinea Nursing Council (PNG NC) is to protect and promote the public interest, through registering nurses and midwives and assuring the maintenance of the standards of conduct and competence these professions[1-6]. As part of this purpose, the PNG NC has a statutory mandate to approve and monitor educational programs that lead to registration and keep accurate data on the number of registered nurses and midwives Table 1, 2 and 3.

1.2 The Medical Board currently registers doctors and community health workers (CHWs). This paper provides an overview of the current issues for the nursing and midwifery workforce with limited information on CHWs.

1.3 The PNG NC comes under the outdated Medical Registration Act 1980, the aim is to have this replaced with the **Health Practitioners Bill 2014**. The PNG NC aims to become the Nursing and Midwifery Board, with additional CPD powers for professionals and will then also have the mandated responsibility to register Community Health Workers (CHWs). Which makes logical sense with the health workforce structures of PNG.

2. Background

2.1 Nurses, midwives and CHWs are the main professional component of the health workforce 71% with allied health 12%, dental 1%, medical practitioners 12%, medical specialists 0.5% health extension officers (play a role as health centre mangers) 3.5%[8]. The contribution of nurses and midwives recognized as essential to meeting health development goals (Annex B), and delivering safe and effective care. Accessibility to and coverage of health care services are, to a great extent, dependent on nurses and midwives.

2.2 Papua New Guinea's health sector is facing a workforce crisis[7] The World Health Organization (WHO) has workforce baselines that are required to provide essential care.

These are a health worker- to- population ratio of 23 doctors, nurses and midwives per 10,000 population. Below this critical threshold, coverage of essential health interventions is unlikely. According to the WHO[9], the density of doctors per 10,000 population in PNG 0.6; and the density of nursing and midwifery personnel is 5.7 per 10,000 population. This means an **overall ratio of 6.3 doctors, nurses and midwives per 10,000 which is far short of the critical threshold of 23.** This has led to the conclusion that **PNG needs up to 20,171 doctors, nurses and midwives to reach the critical threshold** for the current population (8,776,109 in 2019[10]).

2.3 According to the World Bank 2011 Report,[7] the health system infrastructure in PNG primarily comprises 19 provincial hospitals, 73 urban clinics, 192 health centres, and 447 health sub-centres[1]. The public sector finances the operation of some 2,746 health facilities, of which 94 are urban and 2,652 are rural[7]. These numbers may have change slightly since 2015 but not significantly.

2.4 The World Bank 2011 Report[7] also outlined that the number of nurses should increase from 4298 in 2009 to almost 5,000 in 2020 and to about 8,500 in 2030—**an increase of about 160%**. This would mean a rapid expansion in the number of nurses by 10.1% per annum between 2015 and 2020, 5.1% between 2020 and 2025 and 7.3% between 2025 and 2030. Midwives were included in these calculations. The 2011 and 2014 State of the World Midwifery Reports (UNFPA, WHO, ICM) estimated that PNG needed to at least triple its midwifery workforce to cater for the needs of the population for essential maternity care.

2.5 Accurate registration renewals for 2014 nurse and midwife registrants were a total of 4,298, matching the World Bank 2011[7] and Health NHCS data from 2009. As of 2019, 4,428 biennial renewal practicing certificates (ATPs) issues, a further 326 full licences, 83 midwives and 611 nurses estimated the nursing and midwifery stock at 5,448 for 2020. This has been achieved by a rapid increase in institutes as discussed later in this paper; see Annex A Table 4 for details of accredited and proposed institutes (updated 2021).

2.6 Data on community health workers (CHWs) is less clear entrance to program is from year 10 of school and is a modular program (see Annex A Table 5). They provide care in the community at health centres and rural and urban clinics to the 80% of the population that live in rural and remote areas of PNG[11,12]. PNG has a long history of training CHWs since 1942. Out of the 7,154 registered with the Medical Board it is unclear how many are active and practising it is estimated between 4000 -5000[11] across PNG. Currently following their registration CHWs can access Nursing Diploma (DGN) acknowledging prior learning, the DGN entrance requirements are completion of grade 12 at secondary school.

2.7 Recent strengthening of the registration process and increase in fees has capture more PNG NC registrants in PNG, but doesn't mean every nurse and midwife has renewed their registration. Data shows that although nursing and midwifery figures have increased the

Department of Personnel Management (DPM) **have not created new posts or filled vacancies** within Provincial Health Authorities (PHA). PNG NC Board has highlighted evidence of new graduates not getting employment for over 6 months and consequential losses to the workforce are unknown.

2.8 The National Health Plan (NHP) 2011–2020[13] sets out the strategic directions for the development of Papua New Guinea's health sector over the next decade. It recognises that the crisis in the health human resources area is a critical factor confronting any viable strategy designed to implement the objectives. Among the factors are[7]:

- An ageing health workforce;
- Limited pre-service training capacity to replenish the health workforce;
- Weaknesses in the curriculum of training programs supplying new entrants to the direct service-delivery health workforce;
- An almost total lack of systematic in-service training, especially for rural health providers.

2.9 However, the lack of trustworthy data obstructs a picture of exactly who makes up the health workforce, making workforce planning, at times, ad-hoc and donor planning difficult. The implementation of Health Workforce Enhancement Plan, has highlighted many health workforce issues, the problems with data collection as well as existing data that is yet to be held centrally, or analysed for accuracy. We are also a long way from the suggested 20,171 health workforce required to meet WHO basic benchmarks. This paper aims to clarify the current situation according to the PNG NC data for nursing and midwifery.

3. Current status of health workforce data

3.1 The NDoH, the government more generally, and the Churches Health Council have a number of databases which contain important information on health sector employees. These systems duplicate some information contained in other systems, and, in some cases, the same information is collected but different codes are used. These data systems include[7]:

- WHO HRH database development WISEN
- the Government Payroll System 2004 (Department of Finance);
- the Churches Health Council Payroll;
- Health Care Practitioner's Registration System (HCPRS) within the Medical Board and Nursing Council;
- Health Human Resource Management System (within NDoH);
- National Headcount Survey (NHCS) 2009 (within NDoH); and
- Health Management Information System (within NDoH).
- Human Resources Information System (HRIS) (within NDoH) – currently under pilot.

3.2 All these systems have significant constraints. There are considerable gaps in the data and accurate information on the size and characteristics of the publicly financed health workforce are inadequate. In addition, data on the workforce in the private sector and church health services are almost non-existent. For example, the data sourced from the national payroll has major constraints and probably overestimated the actual number of nurses by 1,000 due mainly to significant numbers of "ghost workers" on the payroll and inadequate payroll cleansing. Efforts to validate the existing stock of qualified health workers who are actually working within the health system has met with only partial success, and the process of validating the age, qualification, experience and other characteristics of the existing health workforce on the payroll system has all but collapsed, due to complex systems and inter departmental disagreements. .

3.3 In recognition of this problem, the Human Resources Division of NDoH developed new estimates of the current size of the publicly financed health workforce in 2009[7] in order to form a basis for the new National Health Plan 2010–2020. The results for the nursing and midwifery workforce are shown in Table 1.

3.4 The National Headcount Survey 2009 database on the characteristics of the publicly financed health workforce took considerable effort and was a one off survey. If the existing systems were rationalized and better coordinated, the key information should be available on a continuous basis and a national survey of this kind should not be needed.

Table 1: Composition and Growth of the Public Sector Health Workforce 1988–2009

Category	1988	1998	2004	2009	Change 1998–2009 (%)	Change 2004–2009 (%)
Nurses	2,917	2,920	3,980	**3,618**	23.9	–9.1

Source: Data for 1988, 1998 and 2004 as presented in and documented in Chapter 2 of Strategic Directions for Human Development (World Bank, 2007) and 2009 from the NHCS 2009 (NDoH, 2009)[7].

- With respect to nursing officers a majority (1,807 or 55%) were deployed in urban areas while 1,472 (45%) were deployed in rural areas. Midwives, critical to turning around the crisis in maternal mortality, comprised a fraction over 8% (293) of the total nursing stock, and two-thirds (192) of midwives were deployed in rural areas—significantly more than for the nursing group as a whole.

- Of the total number of nursing officers (excluding midwives) of 3,252, over 16% (534) working in direct service delivery were aged 55 years or older and almost one-third more (1,106) were aged 45–54 years of age, and thus scheduled to retire over the next decade. Another 35% (1,122) were aged 35–44 years of age. Some 15% of nurses (489) were aged less than 35 years—about the same proportion of the workforce scheduled to retire imminently. Lastly, Nursing officers, on average, were younger in rural areas, particularly among the younger age group of 25–34 years.

- Midwives were presented as a separate occupation—albeit one that currently requires a nursing qualification prior to training as a midwife. In 2009, there were 284 midwives in service delivery of which 77 (over 27%) were aged 55 years or more and expected to retire shortly. Significantly, 38% of midwives working in hospitals were of retirement age compared to about 22% in rural areas. Another 43% of midwives (123) were aged 45–54 years and expected to retire over the next decade, as well. Only a 3.9% of midwives (11) were aged below 35 years.

4. Inflow of new graduate nurses

4.1 In 2012, 157 nurses graduated in PNG, following World Bank Workforce Crisis Report, DFAT diagnostic audits[7,8,9], NDOH Workforce Enhancement Plan, by 2016 the annual number had tripled to 467. Table 2 shows the numbers increasing due to increase in Schools from 7 – 13, with 4 universities and a further 3 in the pipeline (See Annex A) and an increase in nursing graduates from those schools. Improved PNG NC registration processes provided accreditation (Annex A, B, C), streamline of processes, data input strengthening and tracking. However, ongoing support for updating curriculum, infrastructure, scholarships and educators is needed to scale-up production of quality workforce[7,8,9]. The improved registration process has allowed this significant tracking of nursing and midwifery workforce, however the withdrawal of the DFAT supported data administrators will weaken these system improvements reducing tracking and data capacity of PNG NC.

4.2 As previously highlighted employment of new graduates has been extremely slow, although a health workforce crisis [7], filling vacancies and creating new posts has been hampered by the complex NDOH, DPM and PHA, systems. One approach has been for PNG NC to issue registration certificates at time of graduation, before nurses and or midwives return to the provinces, see Annex 6 for details on registration process. However this is timely and complex as all registration forms need to be received from schools before graduation, checked, approved by PNG NC Board, certificates issued and delivered. This process has been recently hampered with withdrawal of donor funding for administration and data personnel with in the PNG NC.

4.3 These numbers and registration have also increased due to improvements in overseas registration process, (see Table 2) including working with stakeholders, MSF, Red Cross, VSO, missions, Mercy Boats, Department of Immigration Health Secretary. Nursing Council recognises nurses registered in other countries such as Australia, New Zealand, Philippines, Fiji and other South Pacific Islands, but has no reciprocity agreement with any of these countries. All applicants from overseas requiring registration must submit required documentation to the Nursing Council.

Table 2: New Registered graduate nurses and overseas nurses

			YEARS										TOTAL BY INSTITUTION
NO.	INSTITUTION	LOCATION	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	
1	ST. BARNABAS SCHOOL OF NURSING	ALOTAU	**42**		**26**	**52**	**15**	**19**	**8**	**16**	**28**	**0**	**206**
2	ST. MARY'S SCHOOL OF NURSING, VUNAPOPE	KOKOPO (RABAUL)		**37**	**32**	**89**	**27**	**25**	**34**	**18**	**26**	**49**	**337**
3	LUTHERAN SCHOOL OF NURSING, DWU	MADANG		**81**	**40**	**33**	**24**	**48**	**37**	**31**	**33**	**88**	**415**
4	LAE SCHOOL OF NURSING, UNITECH	LAE		**37**	**46**	**36**	**40**	**22**	**24**	**24**	**0**	**61**	**290**
5	NAZARENE COLLEGE OF NURSING, KUDJIP	MT HAGEN	**45**	**34**	**36**	**100**	**21**	**26**	**13**	**20**	**71**	**0**	**366**

6	MENDI SCHOOL OF NURSING	MENDI	**107**	**85**	**81**	**70**	**39**	**61**	**0**	**0**	**0**	**0**	**443**
7	HIGHLANDS REGIONAL COLLEGE OF NURSING	GOROKA		**50**	**89**	**44**	**22**	**40**	**36**	**26**	**51**	**0**	**358**
8	PACIFIC ADVENTIST UNIVERSITY	PORT MORESBY		**41**	**89**	**43**	**32**	**27**	**26**	**22**	**16**	**15**	**311**
	NEW INSTITUTES												
9	ARAWA SCHOOL OF NURSING	ARoB		**22**									**22**
10	ENGA COLLEGEG OF NURSING	WABAG	**30**										**30**
11	ASIA PACIFIC INSTITUTE OF APPLIED SOCIAL, ECONOMIC & TECHNICAL STUDIES	PORT MORESBY											
	TOTAL		**224**	**387**	**439**	**467**	**220**	**268**	**178**	**157**	**225**	**213**	**2778**
9	OVERSEAS	OVERSEAS (All Countries)	**9**	**42**	**66**	**60**	**113**	**111**	**113**	**27**	**29**	**13**	**583**
	GRAND-TOTAL		**233**	**429**	**505**	**527**	**333**	**379**	**291**	**184**	**254**	**226**	**3361**

5. Inflow of new graduate midwives

5.1 There has been a significant push to improve midwifery within PNG since the Ministerial Taskforce on Maternal Health in Papua New Guinea (2009)[14]. Historically, midwives were recorded on the register as specialist nurses and were hard to track. There has been a significant improvement in the number of registered midwives that have graduated since 2009, supported by the Australian aid funded Maternal and Child Health Initiative[15] (MCHI) which was started in 2011.The main aim of the MCHI was to contribute to a decrease in maternal mortality rate in PNG in a sustainable manner through improved quality of essential maternal and newborn health care. The objectives of the Initiative were: to improve the standard of midwifery clinical teaching and practice in the five teaching sites; and to improve the quality of obstetrical care in two regions through the provision of clinical mentoring, supervision and teaching.

5.2 In 2014, an improvement in regulation processes enabled all 5 midwifery curriculums to be approved by the PNG NC which enabled the backlog of midwifery graduates to be registered (Table 3). An MCHI review of the midwifery curriculum and quality of midwifery graduates [16-19], resulted in an upgrade of the midwifery curriculum from 12-18 months. This curriculum has now been through all the NDOH and PNG NC approval processes and being taught in 4 out of the 5 midwifery institutes. A study to determine the locations and experiences of graduates from 2012 and 2013, highlighted that 90% of new bachelor of midwifery graduates returned to clinical areas with the majority returning to remote and rural clinical areas[18,19].

5.3 A ten year review of midwifery in PNG (Annex B) from the NDOH Maternal Health Taskforce 2009 shows that there was an estimated 293[7] midwives in PNG registered as specialist nurses, with an estimated 42% retiring in 5 years. By 2019 significant focus on midwifery there were an estimated 847 midwives in the country (new graduates plus

existing midwives). However, WHO 2019 review stated you need 1 midwife for every 175 births[20,21] or to cover health outcomes and SDGs 4.5 nurses, midwives and doctors per 1,000 population. Currently for every 1,000 births as many as 9 mothers and 24 babies die, WHO and PNG Health Minister 2019 meeting therefore estimated 6,000 more skilled birth attendants are required to meet the global standard [22] and improve maternal outcomes in PNG.

5.4 As Annex B shows the significant focus and donor funding was reduced on maternal and child health half way through the 10 year cycle in 2015.

Table 3: Newly registered midwives

				YEARS								TOTAL BY INSTITUTION
NO.	INSTITUTION	LOCATION	2018	2017	2016	2015	2014	2013	2012	2011	2010	
1	ST. MARY'S SCHOOL OF NURSING & MIDWIFERY	VUNAPOPE	**17**		**20**		**0**	**0**	**0**	**0**	**0**	**37**
2	UPNG _ SCHOOL OF MEDICINE & HEALTH SCIENCE	PORT MORESBY	**20**	**1**	**2**	**18**	**69**	**0**	**0**	**0**	**0**	**110**
3	LUTHERAN SCHOOL OF NURSING, DWU	MADANG	**10**	**10**	**21**	**19**	**74**	**0**	**0**	**102**	**0**	**236**
4	PACIFIC ADVENTIST UNIVERSITY	PORT MORESBY	**1**	**12**	**22**	**17**	**78**	**0**	**0**	**0**	**2**	**132**
5	UNIVERSITY OF GOROKA	GOROKA	**1**	**11**	**11**	**33**	**92**	**0**	**0**	**0**	**0**	**148**
11	OVERSEAS	OVERSEAS (All Countries)				**1**	**2**	**2**	**3**	**0**	**6**	**14**
		TOTAL:	**49**	**34**	**76**	**88**	**315**	**2**	**3**	**102**	**8**	
10	OVERSEAS	OVERSEAS (All Countries)	**0**	**0**	**0**	**1**	**2**	**2**	**3**	**2**	**0**	**10**
	GRAND TOTAL											**687**

6. Workforce distribution and location

6.1 PNG NC Annex E Table 5 and 6, show analysis of registrants by province. The analysis was carried out by comparing the total number of registrants in every province, registered since 1964, against the 2014-2016 renewal period. It shows that there has been an increase in the percentage of nurses and midwives to urban National District Capital (NCD) from 15% to 19%. Half of these nurses and midwives, 409, are practising at Port Moresby General Hospital (PMGH). The analysis in Table 5 was able to further disaggregate the data to the skill set of registrants during that period at PMGH. The other percentages across PNG are reasonable, considering the variables in the data, from the total number of registrants to the renewal period. Increases in percentages of the total nursing and midwifery workforce have occurred in other urban sites Eastern Highlands 6-7%, Morobe

9-9.5%, Southern Highlands 5-6%, Western Highlands 6.5-8.5%, Milne Bay 4.5-7%, however, Madang has decreased its percentage of the workforce from 5% down to 3%.

6.2 It could be surmised that early PHAs have established systems to streamline new posts in the provinces and have been able to attract a higher percentage of the workforce, for example, Western Highlands and Milne Bay.

7. Quality and skill set of workforce

7.1 PNG NC audit review in 2014/2015 highlighted a 28% shortage of nursing educators alone in PNG[12,23-25] with only 50% holding an education qualification, resulting in low quality graduates, and leading to a health workforce under pressure. **In addition there are few opportunities for continuing professional development (CPD), short courses or training[26] .**

7.2 Recently, there has been political influence to have a School of Nursing in each province that has resulted in a mushrooming of both nursing schools and CHW schools, **without an increase** in educators to run them. The number of Nursing Schools has increased from 7-13, with a further 5 proposed schools. Annex A and C highlights in detail the complex role of accreditation and number of institutes requiring ongoing support. PNG NC accreditation is a highly politicalised process with many partners involved: NDOH must agree on the need for an institute under health workforce requirements; PNG NC then carry the regulation, competency standards and facilities audit often in partnership with Department of Higher Education Research Science Teaching (DHERST) who then carry out an educational audit. All partners have to agree and PNG NC must cite MOUs with all health facilities who can providing appropriate skill based clinical and rural placements for students.

7.3 Although an increase in the numbers of nursing students is now being achieved, the PNG Nursing Council accreditation audit review[10] has **significant concerns** about the quality of graduates from outdated and old curricula (late 1990s) with a significant shortage of skilled and qualified educators. With new schools proposed the already stretched educational system for nurses and CHW **will continue to weaken without urgent action**. This is outside of any natural disasters eg. earthquake in Southern Highlands or significant pressure on PNG health system with COVID 19 pandemic.

8. Infection control capacity of nurses and community health workers

8.1 In response to th**e COVID 19 Pandemic** notes were taken at a meeting (19/03/20) in NDOH with representatives from PMGH, education, NDOH (policy and training), regulation and representatives from two provinces outside of NCD. Current national nursing curriculum does cover infection control but information is out dated and does not integrate NDOH National Health Standards (2011-2020). Community health workers modules do also cover epidemics and infection control, but information has not been updated for several years.

Hospitals, health centres, urban and rural clinics **have very limited, if any** supply of **sanitisers, soap, gloves, personnel protective clothing (PPE).** It was stated that even at national referral hospital clinicians could not obtain any of the above essential equipment, except for soap. None of senior representatives knew of any infection control measures or training. They recognised the NDOH was putting together guidance and representative were screen visitors to the PNG.

8.2 .There is limited governance and leadership in NDOH for the 71% nursing, midwifery and CHW workforce. There have been several, briefs, approaches and approvals by NDOH and Health Ministers to appoint a Chief Nursing and Midwifery (CNMO) Leader in the Ministry. PNG is the only country in the Pacific to not have this leadership postion, to provide ministerial guidance and advise[27-29] is crucial at times of natural disaster and pandemics.

8.3 Annex 6 has a letter from the Australian CNMO to all nurses and midwives in Australia she highlights 'that nurses and midwives are the frontline are fundamental in meeting community needs in this evolving and complex challenge', taking leadership and issuing directives is crucial at this time.

8.4 PNG is currently coping with a multitude of health security issues including natural disasters, infectious and emerging diseases, TB, antimicrobial resistance (AMR), and lack of systems to undertake national routine surveillance. However as highlighted, weak health systems are exacerbated by geographical constraints of isolation, lack of quality health workers, limited health resources and limited governmental investment in health. As described above, in the PNG, the main professional groups delivering care and providing access to care, especially in remote and rural areas which constitutes 80% of PNG population are nurses, midwives and community health workers.

8.5 As frontline responders and the largest health workforce in the PNG, nurses, midwives community health workers are vital in three areas:

Early detection - trained nurses and midwives have the capacity for early detection of infectious diseases. Increased knowledge and awareness of surveillance indicators will decrease detection time.

Stop the spread of disease - trained nurses have the capacity to stop the spread of disease. Data from recent infectious disease outbreaks such as Ebola and SARS **have shown the effects of "super spreaders".** This is a term used to describe **the 20/80 rule**, where a small percentage of individuals within any population infect disproportionately others. Unfortunately, as front-line responders, nurses and midwives have the potential to be super spreaders. Fortunately, correct training in detection, and infection prevention and control will protect nurses and decrease nosocomial transmission arresting the impact of super spreading.

Build trust and change behaviour within communities - Trained nurses and midwives are the interface with local communities, they play a vital role in building trust, education and changing behaviour within communities. This has been seen in vector control eg. Malaria nets dispensed through health care centres by nurses; water, sanitation and hygiene practices; immunisation coverage; sexual health and so on.

8.6 Recent studies carried out by the lead organisation WHO Collaborating Centre, University of Technology, in the Pacific have assessed leadership, faculty development, regulation, maternal and child health, health workforce needs during climate related disasters and reviewed Pacific online learning. Findings across this body of research show that health workforce education is weak across the Pacific and in the PNG with limited educators, outdated curricula, education programs that do not match health security needs, and limited continuing professional development opportunities. Other research also shows that health workers' skills, competencies, clinical experience, and expectations are often poorly matched with changing population health needs.

9. Recommendations from this report:

9.1 The following health workforce recommendations have been outlined following this paper:

- Finalisation of the Health Practitioner's Bill (HPB) including CPD guidance, has been drawn out since 2012 and remains an ongoing process.
- PNG is the only country in Pacific to not have Chief Nursing and Midwifery Officer which has been previously approved – aim establishment for 2020.
- Systems set up for fast and effective sharing of guidance across PNG with health centres, clinics and hospitals.
- A Curriculum Review for Nursing and Community Health Workers (CHWs) is urgently required to address the lack of educators, increase the quality of graduates, scope of practice, specialist practices and bring these curricula into the 21st century. Including
- Set up a strategy for post registration training and short courses for ongoing continuing professional development, strengthening a pathway for specialisation and educators.
- There is a 28% shortage of nursing and midwifery educators in PNG with only 50% holding an education qualification, resulting in low quality graduates. This analysis was carried with the original 8 institutes now increased to 13 with further 5 in pipeline the shortage will significantly higher.
- Although accreditation process have been improved significantly increase in number of institutes and private entities establishing schools outside of the legal requirements of the NDOH and PNG NC is putting significant pressure on PNG NC and NDOH staff.
- Whilst Australian Awards funds are essential funds they are not ring fenced and often go to the university administration, leaving midwifery unit without educators, transport and resources.
- Review funding for Midwifery as it is a post registration program so does not attract DHERST student funding.

- Urgent discussion between NDOH, DPM, DHERST, Institutes and PHA to ensure new graduates are employed and are not lost from the workforce.
- Health Workforce Survey 2008 to be carried out again to review conditions of service, location, working hours, rates of pay, retention, remuneration.
- Action the requested submission on inadequate staffing levels and infrastructure improvements for the PNG NC (following several reports and recommendations to NDOH).
- Review and build on current work on registration processes to be upgraded to an online system for safety, accessibility, security and HPB requirements.
- Provide a one page brief for DFAT summarising this paper.

ANNEX A: NURSING, MIDWIFERY AND COMMUNITY HEALTH WORKER INSTITUTES

Table 4: Institutes and accreditation status providing nursing and midwifery updated 2021.

No	Name of Institute & Course/s offered Existing	Institution location	Accredited Indicate with Yes or No
1	Pacific Adventist University Bachelor in Nursing and midwifery	NCD- 17 Mile	Yes
2	DWU- St Mary's School of Nursing - Diploma general nursing & midwifery	ENBP	Yes
3	University of Papua New Guinea – post reg midwifery, child, acute care, mental health		Ongoing
4	University of Goroka – midwifery		Ongoing
5	Lae School of Nursing – Diploma general nursing	Lae	Yes
6	Highlands Regional College of Nursing - Diploma general nursing	EHP	Yes
7	Mendi School of Nursing - Diploma general nursing	SHP	Yes – ongoing governance
8	Enga College of Nursing - Diploma general nursing	EP	Yes
9	Lutheran School of Nursing - Diploma general nursing & midwifery	Madang	Yes
10	St Barnabas School of Nursing - Diploma general nursing	Milne Bay	Yes
11	Nazarene College of Nursing - Diploma general nursing	Jiwaka Province	Yes

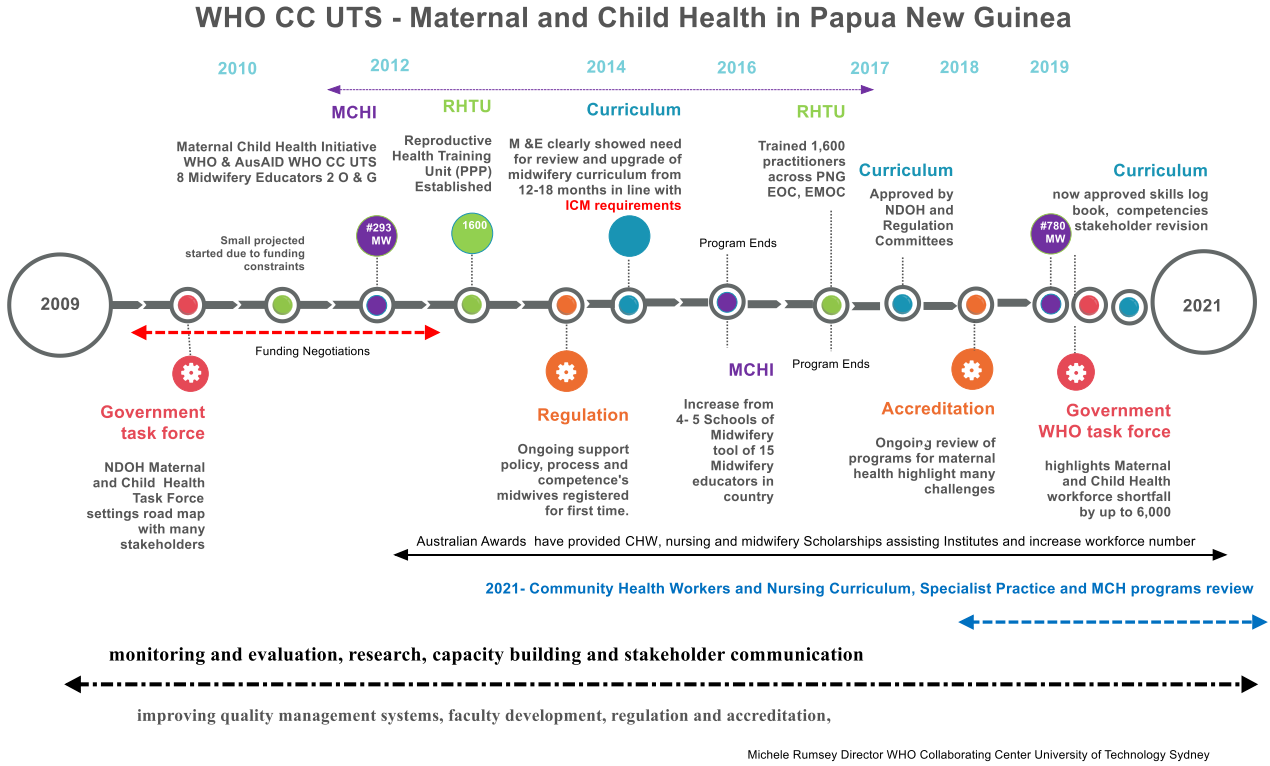
	Name of Institute/ Course/s offered Established since 2014	Institution location	Accredited Indicate with Yes or No
12	Asia Pacific Institute of Applied Social, Economic, and Technical Studies (APIASETS) Private run-training program	NCD	Yes - work in progress to address recommendations per audit report
13	WNB Kimbe School of Nursing Diploma general nursing	WNBP	Yes - work in progress to address recommendations per audit report
14	Arawa School of Nursing Diploma general nursing	AROB	Yes - work in progress to address other recommendations per audit report
15	Sacred Heart Lemakot School of Nursing Diploma general nursing	NIP	Yes - work in progress to address recommendations per audit report
16	East Sepik - Boram School of Nursing Diploma general nursing	ESP	Working on To comply with accreditation process
17	DWU- St Benedicts School of Nursing (Kaindi) Diploma general nursing	ESP	Working on DHERST has approved no PNG NC approval
18	Kundiawa School of Nursing Diploma general nursing	Simbu Province	Work in progress To comply with accreditation processes
19	Tuna Bay School of Nursing	NCD	No
20	Prophet School of Nursing	NCD	No

Table 5: Community Health Worker Institutes

#	CHW Training Schools	Location
1	Apiasets	Hohola, NCD
2	Arawa School of Nursing (CHW)	Buka, Autonomous region of Buka
3	Baun CHWTS	Finschaffen, Lae, Morobe Province
4	GAUBIN CHWTS	Magang, Manang Province
5	KAPUNA CHWTS	Kerema, Culf Pro Province
6	Kugumanda CHWTS	Wabag, Enga Province
7	Kumin CHWTS	Mendi. Sotuher Highlands Province
8	Kundiawa CHWTS	Kundiawa, Simbu Province
9	Ongamuga CHWTS	Goroka
10	Raihu CHWTS	Vanimo. WSP
11	Rummginae CHWTS	Daru, WP
12	Salamo CHWTS	Alotau, MBP
13	St Gerard's veifa'a CHWTS	Centeral Pr Province
14	St Margaret's CHWTS	ORO P Province
15	Telefomin CHWTS	Vanimo, WSP
16	Tinsley CHWTS	Mt. Hagen, WHP
17	Tombil CHWTS	Mt. Hagen, WHP
18	Kuickila CHWTS	Centeral Province
19	Lemakot CHWTS	Kavieng, New Ireland Provenance

ANNEX B: IMPROVING PNG MATERNAL AND CHILD HEALTH EDUCATION – 10 YEARS

Figure 1: Improving PNG maternal and child health education – 10 years



ANNEX C: PNG NURSING COUNCIL'S ROLE IN ACCREDITING EDUCATIONAL INSTITUTES - INCLUDING AUDITS AND RECOMMENDATIONS FROM CHW AND NURSING PRINCIPALS' MEETING

Audits of the Schools of Nursing[30] and Community Health Workers[31] (CHW) training institutes funded by Australian aid DFAT were undertaken in 2012 to provide recommendations on the limited pre-service capacity. The Nursing Diagnostic Audit addressed the workforce crisis by recommending an increase from 215 nursing graduates in 2012 to 456 annual nursing graduates by 2016. To enable this, a variety of recommended measures were outlined: infrastructure improvements in the schools, continuation of the Australian Awards scholarships and an increase in educators. Other areas seen as critical were curriculum review, programs to build faculty capacity and continuing professional development for educators. The audit recommendations were again reviewed and ratified at the SON and CHW Principals Meeting and by the Secretary of Health in February 2015.

PNG NC Accreditation Role

The responsibility of the PNG NC is to protect and promote the public interest through the maintenance of nurses' standards of conduct and competence. To assist in achieving this purpose, the Council has a statutory mandate to approve and monitor educational

programs that lead to registration. The ultimate goal of the PNG NC is to ensure that graduates of nursing and midwifery education programs are competent practitioners who recognize and value the importance of the partnership the profession has with the community[32].

To be able to try and address the outlined service capacity and its mandated role in 2014 the PNG NC set up an annual program to audit schools each year. In year 2014, the schools audited were Enga School of Nursing (re-established School), St Barnabas School of Nursing, St Marys School of Nursing and Midwifery, and Lae School of Nursing. Five midwifery curriculums were also approved. A further four schools have been planned for 2015. Again this program can only be carried out with staffing and financial support from the NDoH.

Accrediting Pre-Registration Programs

The Nursing Council accredits current Diploma and Degree Programs (which are now University Programs under the Higher Education System)[5,33]. The PNG NC National Framework for the accreditation, monitoring and evaluation of Nursing and Midwifery education programs outlines the minimum standards of any institution to be accredited as a nursing institution.

Involvement of regulatory body with curriculum development

The PNG NC Education Committee (NCEC) approves the proposed curriculum along with a stakeholder consultation including Office of Higher Education and NDoH; it then goes to the PNG NC for final review. Once this final review has been completed, the curriculum is placed within the Health Curriculum Advisory Committee for formalised approval[5].

Education program monitoring process

As a component of the quality process, all Tertiary Institutions conducting an accredited Nursing/Midwifery education program should submit an annual monitoring report on the progress of the course to the NCEC[32].

Statement from the Secretary of Health

The expansion of health worker training schools is supported by the Secretary of Health, Mr Kase. As evidence of this, in March 2015 there was a ground-breaking ceremony for a new nurse training school to be introduced in West New Britain. Mr Kase took the opportunity to remind training providers of the importance of undergoing the appropriate accreditation processes before the training programs can commence[34].

> *"We need to maintain the standard of healthcare in PNG. For this reason, health worker training providers must be accredited through the PNG Nursing Council and Medical Board. This is a legal requirement for the graduates to practice in the PNG health sector and ensures that our health workforce continue to be highly competent in their roles and be responsive to the needs of our people."* [34]

New educational institutes are being established across PNG as a response to the health workforce crisis, however as outlined by the Sectary of Health these institutes must be accredited and follow due process. It is recognised that the existing institutes should be strengthen[30,31] in the current situation with a critical shortage of educators, a program to increase educator numbers is required before more schools are established. The experience of the double major program shows the negative impact on individuals and institutes that do not follow the existing mandated accreditation process.

Principals' and PNG NC Board Meeting Recommendations

To ensure health workforce of PNG continues to grow several recommendations have been recognised by the Nursing Council and The Principals' Meeting which were ratified by the Secretary of Health in March 2015 and PNG NC Board recommendations outlined in annual reports 2015 and 2017:

1. Urgent need to review both the nursing and community health worker curriculums in line with the new National Health Plan 2011-2020. (Ongoing implementation of new midwifery curriculum is also required).
2. Ongoing Preceptorship training urgently needed through support from the NDoH.
3. Strengthen partnership with NDoH in terms of communication, continuing professional development, and ensuring consistency in funding including salaries for state and church schools.
4. It is essential that all training institutes and students have access to, and are provided, copies of treatment books and national standards.
5. Training institutes are in urgent need of internet services to enable high quality education provision to students.
6. Continued input for infrastructure improvements following NDoH DFAT Diagnostic Audits carried out in all nursing and CHW institutes.
7. It is essential the Principals of all training institutes of nursing, midwifery and CHWs meet annually.

ANNEX D: PNG NURSING COUNCIL REGISTRATION PROCESSES

Provisional registration for nurses

To register at the PNG Nursing Council for provisional registration, nurses must show evidence of the following to be able to be employed in PNG, whether in the Government, Church, NGOs or private sector. Applicants must have:

- Completed 2000 theory hours
- Completed 1600 hours in clinical practise
- Provide an Institutional Academic Award
- Completed G4 Statement of Competency
- Character references

Nursing graduates from approved curriculum are given provisional registration. This is recorded in the Register Book as graduate nurse with provisional registration, but the graduates' details are not added to the HCPRS database until they receive full registration, and the Nursing Schools do not keep lists to record who has been registered or who has not been registered.

From provisional to full registration

After six months clinical work, the provisionally registered nurse must apply for a full registration to practice as a nurse in PNG. A full registration fee is required. This comes from the hospital or employer and may come individually or in bulk. Most try to apply for full registration, individually. Historically there has been no tracking for those who have been registered provisionally and when they become fully registered, especially as provisional registrants were not uploaded into HCPRS. Data analysis carried out in 2014 showed that since 2009, 1102 graduate nurses were issued provisional registration, very few have continued onto request full registration (see recommendations).

If a nurse has had a provisional registration for more than 6 months, they are required as a matter of urgency to apply for a full registration. Under the Medical Act 1980 health practitioners are required to have a full registration to be registered to practice.

Midwifery registration

Registered nurses undertake a 12 month midwifery program in 5 institutes which is at bachelor level. One completed, the midwifery graduate must meet the PNG NC reporting requirement then they receive full registration as a midwife.

Overseas nurses and midwives

PNG recognises trained nurses and midwives in other countries such as Australia, New Zealand, Philippines, Fiji and other South Pacific Islands but has no agreement with any of these countries. All applicants for registration from overseas must produce the PNG NC required documentation:

Once they meet the requirements set by the PNG NC they are given a provisional registration for six months. Full registration is granted after completion of all the requirements and the payment of a fee by the applicant.

Outstanding registrants

Double Major (12 month midwifery and paediatrics course) graduates have been a registration issue since 2004 around 216 practitioners were not registered as the curriculum was not accredited by the Nursing Council (as outlined below). This situation is now urgent.

Double Major Registration Skills Log Book and Supervisors Guide will be uploaded to the PNG NC website. NDOH who coordinate training are providing skills training for supervisors to provide a process to enable registration of this group of practitioners.

ANNEX E: PNG NC Registered Comparison HCRPS 2012 and 2014-2016 ATP Registration renewals

Table 5. Comparison of current practicing PNG NC registrants against old HCRP data by Province.

PNG NC Registered Comparison HCRPS total of all registrants 2012 and 2014-2016 ATP Registration renewals			
No. Province	**HCRPS prior to 2012**	**# of Renewals 2014-2016**	**% of renewed registrants**
1 Bougainville Province	**553 (3.5%)**	**152 (3.5%)**	**27%**
2 Central Province	**153 (1%)**	**25 (0.5%)**	**16%**
3 East New Britain Province	**1111 (7%)**	**276 (6.5%)**	**25%**
4 East Sepik Province	**718 (4%)**	**156 (4%)**	**22%**
5 Eastern Highlands	**1003 (6%)**	**304 (7%)**	**30%**
6 Enga Province	**412 (2.5%)**	**147 (3.5%)**	**36%**
7 Gulf Province	**250 (1.5%)**	**64 (1.5%)**	**26%**
8 Hela Province	**14**	**2**	**14%**
9 Jikawa Province	**N/A**	**5**	**0**

10 Madang Province	**843 (5%)**	**141 (3%)**	**17%**
11 Manus Province	**239 (1.5%)**	**28 (1%)**	**12%**
12 Milne Bay province	**703 (4.5%)**	**299 (7%)**	**43%**
13 Morobe Province	**1436 (9%)**	**398 (9.5%)**	**28%**
14 National Capital District	**2471 (15%)**	**818 (19%)**	**33%**
15 New Ireland Province	**457 (3%)**	**136 (3%)**	**30%**
16 Oro Province	**326 (2%)**	**95 (2%)**	**29%**
17 Other Country	**172 (1%)**	**6***	**3%**
18 Simbu Province	**402 (2.5%)**	**144 (3%)**	**36%**
19 Southern Highlands Province	**740 (5%)**	**256 (6%)**	**35%**
20 Unknown	**1720 (10%)**	**1**	**0.06%**
21 West New Britain Province	**449 (3%)**	**128 (3%)**	**28%**
22 West Sepik Province	**434 (3%)**	**130 (3%)**	**30%**
23 Western Highlands Province	**1021 (6.5%)**	**364 (8.5%)**	**36%**
24 Western Province	**559 (3.4%)**	**231 (5%)**	**41%**
Totals	**16,186**	**4306**	**27%**

Note: A further 1,000 to be incorporated in to the renewal figure of 4306. Some will be second payment for incomplete payments due to increase in registration fees. * overseas renewls were low in this period compared with actual registration of 224 overseas practitioners.

Table 6. Practising registrants PNG Nursing Council by Province and Hospital

Historical data HCPRS prior to 2012	**Paed**	**Specialist**	**Midwives**	**Nurses**	**Aids**	**Other**	**Total**
National Central District (NCD)			142	1396	404	529	2471
PMGH - level 7main referral hospital							**804**
Renewal of registration for NCD 2014-2016							818
PMGH level 7main referral hospital	4	54	28	102	58	163*	**409**

PNG Nursing Council agreed to following recommendations for its 2014-2015 Annual Report [5].

ANNEX 3: COVID ADVICE COMMONWEALTH CHIEF NURSING AND MIDWIFERY OFFICER INFORMATION

Australian Government

Department of Health

Commonwealth Chief Nursing and Midwifery Officer

Dear Nurses and Midwives,

I'm writing to update you on the COVID-19 outbreak situation in Australia and internationally and to outline the Commonwealth's current and future support for the central role you are playing in our national response.

Nurses and Midwives on the frontline are fundamental in meeting the community needs in this evolving and complex challenge. There is the very real possibility that larger scale community outbreaks will occur across Australia, placing a significant burden on the health and aged care systems, in which you play a critical role.

Communication

There has been a significant amount of advice and information already provided to health professionals. I recognise that the evolving nature of this outbreak has required public health advice to evolve rapidly with the emerging epidemiology. This has made it more challenging for people to keep it up to date causing some confusion and a perception of inconsistency of information and information gaps.

We will be undertaking a broad community education campaign on COVID-19. One of the important messages of the campaign will be the value of basic standard hygiene messages (hand washing, cough etiquette, social distancing) in preventing transmission. Nurses and Midwives are highly trusted professionals in our community, and it is important that you play a role in communicating that message to your patients, family and friends along with general balanced information about this virus.

Situation as at 10 March 2020

As you will be aware, the international situation has changed significantly in the last few weeks. Cases have now been reported in over 105 countries, some with sustained widespread community transmission. Despite our success in containing the initial cases associated with travellers from China, we are now seeing the expected second wave of imported cases from a number of countries (most notably Iran). We have evidence of limited community transmission in Sydney. New imported cases are being seen every day, some from countries not previously identified as high risk. It is no longer realistic that we will prevent further importation of cases, and further local outbreaks seeded from imported cases are likely.

Disease characteristics

I will share with you our current state of knowledge about COVID-19. It is clear that a great majority of people with COVID-19 infection (>80%) have mild disease, not requiring any specific health intervention. This mild disease contributes to the high transmissibility of the virus, as many people with infection will continue working and interacting with the community because their symptoms are so mild. There is very little evidence of significant COVID-19 disease in children. Initially, it was suggested that children were less susceptible to infection but more recent evidence supports the fact that children may be infected, in many cases without being aware of symptoms. The role children play in transmission is unknown.

Current approach to response

At present our response, under the Australian Health Sector Emergency Response Plan for COVID-19 (www.health.gov.au/Covid19-plan),is focused on early identification of cases, isolation, contact tracing and quarantine where indicated - under the supervision and direction of the public health unit in each state or territory.

If more widespread community transmission occurs, the focus will shift to early detection and home isolation of cases to prevent or delay transmission, with less emphasis on identifying contacts who are generally unlikely to be very infectious, unless they themselves also develop symptoms. We will let you know if and when such a shift in the public health response is indicated. Even in a large scale outbreak, isolation of as many cases as possible can play a critical role in flattening the epidemic curve.

Reducing exposure in health care settings

It is clear that, with increasing cases of COVID-19, there is benefit in more sophisticated strategies to prevent the co-mingling of suspect or proven cases with other patients in health care settings. We have previously advised members of the community that, if they believe that they could potentially have or be exposed to COVID-19, they should phone their GP or local health service and seek advice before attending. If followed, this practice has allowed the practice or hospital to make arrangements for isolation and testing.

As case numbers increase, there is a need for new strategies. We will shortly be announcing to the community an expansion of the COVID-19 national hotline (1800 020 080). This hotline will operate 24 hours a day, seven days a week. Expansion of the national hotline is part of our strategy to support general practices to manage the flow of cases.

People who believe that they may have been exposed to, or have, COVID-19 will be encouraged to call the national hotline to seek advice. A standard protocol for the call centre operators will be provided. We will share call centre information and the triage protocol with you shortly, as many GP practices have asked to have the same protocol available for their reception staff to ensure consistent messaging and patient disposition.

Personal Protective Equipment

There have been some mixed messages about what personal protective equipment (PPE) is required in the clinical assessment of potential COVID-19 cases. All of the evidence currently suggests that droplet spread is the main mode of transmission and that surgical masks are adequate (and much easier to fit than P2 masks). For your reference, the current PPE guidelines endorsed by the expert COVID-19 infection control committee is available on the Department of Health website, www.health.gov.au/Covid19-health-professionals. It is important to emphasise that all current evidence suggests that if you follow the infection control and PPE requirements you and your family will be protected. No one can accurately predict how the COVID-19 outbreak will develop in Australia. Our collective response has to be flexible and collaborative. The Australian Government has committed to provide the necessary resources to support the response in whatever form it needs to take.

Yours sincerely

Alison J McMillan Chief Nursing and Midwifery Officer, Commonwealth Department of Health

11th March 2020, GPO Box 9848, Canberra ACT 2601, www.health.gov.au

ANNEX 4: PNG NURSING COUNCIL HEALTH WORKFORCE COVID ISSUES BRIEF

BRIEF – 20TH March 2020 updated 10/11/20

As frontline responders and the largest health workforce 71% in the PNG (WHO 2020 State of Worlds Nursing Report is comparable at 72%), nurses, and midwives community health workers are vital for infection control in three areas:

Early detection - trained nurses and midwives have the capacity for early detection of infectious diseases. Increased knowledge and awareness of surveillance indicators will decrease detection time.
Stop the spread of disease - trained nurses have the capacity to stop the spread of disease. Data from recent infectious disease outbreaks such as Ebola and SARS **have shown the effects of "super spreaders".** This is a term used to describe **the 20/80 rule**, where a small percentage of individuals within any population infect disproportionately others. Unfortunately, as front-line responders, nurses and midwives have the potential to be super spreaders. Fortunately, correct training in detection, and infection prevention and control will protect nurses and decrease nosocomial transmission arresting the impact of super spreading.
Build trust and change behaviour within communities - Trained nurses and midwives are the interface with local communities, they play a vital role in building trust, education and changing behaviour within communities. This has been seen in vector control eg. Malaria nets dispensed through health care centres by nurses; water, sanitation and hygiene practices; immunisation coverage; sexual health and so on.

Following summary and recommendations have been developed from the attached PNG NC health workforce issues paper and meeting held in NDOH 19.3.20 and meetings throughout the year. Section # related to paper.

Summary points:

- Nurses, midwives and CHWs are the main professional component of the health workforce 71% registered, with allied health 12%, dental 1%, medical practitioners 12%, medical specialists 0.5%, health extension officers 3.5% (#2.1);
- In PNG 80% of population live try to access health in rural and remote areas;
- Nurses currently have no access to PPE, soap, sanitisers, gloves across PNG (#8.1);
- No infection control training, short courses or continuing professional development opportunities (#6,7,8);
- PNG Nursing Council registration indicated annual nursing student graduates exceeded projections tripling from 157 to 467 (Table 2);
- An increase from 8-17 nursing institutes, with a further 3 in the pipeline yet to be accredited (Annex 1), current graduates not being employed;
- Curriculums do not follow National Health Standards 2011-2020
- Nurses and midwives stock around 5,500, CHWs around 4,500, this is well below WHO baseline benchmark of 23 per 10,000 population which would equate at = 20,171 health workforce (#2.2);
- No information currently available on retired practitioners, very few came up in an age search of registration data.
- Registration systems currently weak with only one administrator, assistant will be required should large numbers of overseas practitioners need to be registered under Medical Registration Act 1980.
- Lack of CNMO strategic governance and leadership for 71% of workforce in NDOH (#8.2)

Recommendations

DFATs support and advice to health sector around these issues would be very helpful:

- Urgently required previously approved ministerial Chief Nursing and Midwifery Officer for coordination, advice and ministerial guidance.
- **Urgent discussion between NDOH, DPM, DHERST, health workforce Institutes and PHA required to ensure new graduates are employed and are not lost from the workforce.**
- Strengthen regulatory capacity in case there is a influx of overseas practitioner who will require urgent registration.
- Urgent provision of PPE, soap, sanitisers, gloves across health facilities in PNG, starting with provincial hospitals.
- Set up a communication strategy text system for advise
- Assist NDOH WHO in provision of guidance on infection control
- Provide infection control training
- Central coordination of many short course provided through out PNG often outside of NDOH training.

Ongoing

- Urgent work on CHW and Nursing old curriculums and faculty development to 21st century practice
- Review of post registration specialist practice programs mental health, critical care, child care, others required

Not considered in this brief - medications or higher levels of isolation, intensive care provision for serious cases across PNG. Some health centres still operate with TB patients in medical wards and many health facilities do not follow NDOH National Health Standards (2011-2020) that set out infection control standards (space between beds etc) and guidance.

Note several other projects have been carried out over 2021 including:

- Support of JID DFAT CoHELP
- Working with ANGAU staff
- Setting up a COVID resources WhatsApp and communising to try and advice on misinformation
- WHO CC UTS Face book links and posts
- Development of Basic Psychosocial Skills: Training for COVID-19 Responders see Annex 5

ANNEX 5: BASIC PSYCHOSOCIAL SKILLS ONLINE TRAINING

The **Basic Psychosocial Skills online Training** is a FREE program for those affected by the pandemic designed to build resilience and mental health wellbeing for first responders and frontline health staff.

The FREE online course:

- Focuses on personal well-being
- Explores supportive communication in everyday interactions
- Provides a practical framework to enable first responders to support others to problem-solve and make healthy decisions
- Examines how to recognise emotional patterns and provide support to individuals
- Provides a certificate on completion

View a detailed video on how to sign up: https://youtu.be/-Cguw2SCHOQ
Enrol for this FREE online course: http://open.uts.edu.au/COVID-19-responders-en.aspx
Read instructions on how to sign up: https://bit.ly/3bEJGkx
Read more about the basic psychosocial skills course: https://bit.ly/3sgZpf7
You will need an email account to register and log in for the online course.

For more information and full Power Point https://bit.ly/3cZCGy2 with facilitation notes, please contact michele.rumsey@uts.edu.au

FAQs
Which Brower is better to use for this course?
It is recommended to use Google Chrome for this online course.

How many resources are provided in the Basic Psychosocial Skills training program?
The program provides 3 resources. Guidance report, short online course and presentation with facilitation notes.

How many languages is the guidance offered in?
While the online course is only in English, the guidance report is provided in 28 languages.

Is the online course time-bound?
No. The online course is self-paced and takes an average of 3 hours to complete with a short quiz and a certificate awarded.

ANNEX 6 – COORDINATION AND COLLABORATION

A list/overview of stakeholders collaborated with have been include however over the 6year period 1, 000s of nurses and midwives have been met emailed and collaborated with. A variety of social media tools have been used, WhatsApp, LinkedIn, Facebook, Twitter, Zoom, Go meet, Webex, text and phone calls.

Several database have been developed with all committees and contact information.

Name	Position	Organisation
Dr. Nina Pangiau	Registrar, PNG Nursing Council	PNG NC
Peter Pindan	Chair, PNG Nursing Council	NDoH
	PNG Nursing Council Registration Committee	PNG NC
	PNG Nursing Council, Council Board	PNG NC
Dr. Paison Dakulala	Deputy Secretary for Health	NDoH
Sr. Eunice Laim	Surgeon - Operating Theatre	Port Moresby General Hospital (PMGH)
Mr. Bernard Rutmat	Deputy CEO	Christian Medical Council
Mr. Frederick Kebai	PNGNA	Laloki Psychiatric Hospital
Thelma Ali	Medical Standards	NDoH
Mary Therese Apini	Technical Advisor- Allied Standards and Accreditation	NDoH
Pamela Kari	Technical Officer- Professional Nursing Standards and Accreditation	NDoH
Mary Kililo	TA – Training HR	NDoH
Dr. Philip Golpak	Deputy Director Medical Services	Pathology Dept, PMGH
Sr. Jeanette Maris	NCD Health Services	Gordons, NCD
Sr. Romana Kumsombi	NCDHS	Gordons
Mr David Weeden		Oil Search
Annie Rose So-onguku	Midwife	PAU
Mr Wallace - White Kintak	Principle, plus staff	Nazarene School of Nursing
Mary Panohai	Dean of Nursing, plus staff	St Marys Vunapope School of Nursing (East New Britain)
Mr. Manase Moya	Principle and staff	Lae SON
Mr. Virtus Amugar	Principle and staff	Madang SON/M
Mr Sadi	A/Principle and staff	Highlands SON
Mr Joseph lupi	HR Manager	NDoH
Mr John Mondo	IT Manager	NDoH
Dr Lochetto	MCH Advisor	WHO-PNG
Dianne Dagam	Asst. Program Manager, Health	DFAT, PNG
Daisy Raburabu	Australian Aid, PNG	DFAT, PNG
Susan Nalu	Family Health Services Coordinator	NCD Health Office
Dr Nancy Buasi	Midwifery Coordinator UPNG	Midwifery Society
Sr. Carol Hosea	Director, Nursing Clinical (DDNC)	POM GEN - 248106
Sr. Jennifer Pyakalia	Unit Coordinator, Obstetric & Gynae	POM GEN
Sr Daniels	Assistant Director Nursing Services	PII
Sr Leisa Stallard	Drector of Nursing Services	PII
Samuel N J David	HR Director	PII
Francis Hualupmomi	A/Assistant Director OHE	The office of Higher Education
Charles Mabia	Acting Director OHE	The office of Higher Education
Sulphain Passingnan	Education Officer, In Service Training	NDoH
Julie Dopsie	Education Officer Pre Service Training	NDoH
Julian Aihi	Overseas Training Officer, Staff Development	NDoH
Aketa Tiaon-Ientake	Senior Lecturer	Pacific Adventist University (PAU)

Catherine Cooper	Dean of Health Sciences	PAU
Mr Saidi Lani	Care Taker Principal	Highlands Regional School of Nursing
Ms Lucy Langer	Principal	Mendi School of Nursing
Ms Noreen Tabua	Principal	St. Barnabas School of Nursing
Mr Manase Moya	Principal	Lae School of Nursing
Mrs Mary Ponahai	Principal	St. Mary's Vunapope School of Nursing
Mr Vitus Amuga	Principal	Lutheran School of Nursing
Mr. Wallace Kintak	Principal	Nazarene School of Nursing
Ms Noelyn Koatalo	Principal	Enga College of Nursing
Prof. Nakapi Tefuarani	Dean	UPNG - School of Medicine & Health Science
Sr. Dianne Kono	Lecturer	PAU
Sr. Rosemary Akaina	Surgical Unit	PMGH
Sr. Edna John	Surgical Unit	PMGH
Sr. Oseah	Surgical Unit	PMGH
Sr. Antonia Robinson	EPI Program Officer	NCD Health Services
Dr. Niko Wuatai	Director - Public Health	NCD Health Services
Ms. Pamela Kairi	Technical Officer - (Nursing Prof. Standards)	Medical Standards - NDoH
Dr. Laka Varage	Manager - Workforce Standards & Accreditation	Medical Standards - NDOH
Mary Sitaing	Specialist Midwife Labour Ward	PMGH
Sr. Roselyn Kali	Nurse	Nazarene College of Nursing
Sr. Pauline Kalate	Acting Principal	Lae School of Nursing
Sr. Elizabeth Natera	Midwifery Coordinator	Lutheran School of Nursing
Sr. Mary Akis	Nurse	St. Mary's School of Nursing
Mr. David Kundam	Human Resource Trainer	Mendi School of Nursing
Mr. Pius Kalambe	Analyst Programmer, Information Comm.Tech. (ICT)	NDoH
Rosemary Jogo	Technical Officer - Nursing Clinical Standards	Medical Standards
Sulpain Passingan	Coordinator - (Inservice Training), HR Health Training	NDoH
Sr. Sheila Sete	Coordinator - Nursing Standards	NCD Health Services
Miriam Lovai	Coordinator - Family Health Services	NDoH
Elizabeth Piskupe	SMHS	NCD, PNG
Sr. Eimi Kaptigau	Paediatric Nurse / Manager	PMGH
Hannah Peart		Youth with a Mission
Mr. Billy Naide	CEO	Milne Bay PHA
Sr. Sinepi Kila	Senior Nurse Manager	Milne Bay PHA
Sr. Agnes Davis	Deputy Senior Nurse Manager	Milne Bay PHA
Sr. Maureen Haharieu	Acting Training Coordinator	Milne Bay PHA
Dr. Perista Mamadi	Deputy Director Curative Health Services (DCHS)	Milne Bay PHA
Dr. Guapo Kiage	A/DCHS	Mt. Hagen Provincial Hospital
Sr. Roselyn Kali	Deputy Director Nursing Services	Mt. Hagen Provincial Hospital
Mr. Wallace White Kintak	Principal	Mt. Hagen Provincial Hospital
Mr. Michael Kawega	Manager	Mt. Hagen Provincial Hospital
Sr. Joanne Okk	Manager Nursing, Clinical	Mt. Hagen Provincial Hospital
Dr. Michael Dokup	A/CEO	Mt. Hagen Provincial Hospital
Ms Patricia Kiromat	Project Officer	Mt. Hagen Provincial Hospital
Sr. Christine Dirye	Sr. In-Charge, Paediatric Ward	Mt. Hagen Provincial Hospital
Mr. Joe Yekuma	Unit Manager, OPD & Emer Dept.	Mt. Hagen Provincial Hospital
Mr. Nang Bomai	Health Educator, Public Policy	UPNG
Dr. Paul Passingnan	Vice President	Divine Word University
Mr. Nicholas Larme	Provincial Health Advisor	East New Britain Province
Dr. Felix Draku	Medical Superintendent	St. Mary's Hospital
Sr. Lucie Turupia	Director Nursing Services	St. Mary's Hospital
Sr. Placidia Norman	Deputy Matron	St. Mary's Hospital
Mary Ponohai	Principal	St. Mary's Hospital
Sr. Wesi Kerak	Director Nursing Services	Mendi Hospital
Mr. Joseph Turian	CEO	Mendi Hospital
Mr. Paul Mabon	Deputy Director, Policy & Admin	Madang Provincial Health Division

Mr. Arthur Wagun	**Deputy Director, Technical Health Programs**	**Madang Provincial Health Division**
Dr. Paschol Michon	**Dean, Health Sciences**	**Divine Word University**
Ms Noreen Tabua	**A/Principal,**	**St. Barnabas School of Nursing**
Mr. Oscar Karatu	**Lecturer**	**St. Barnabas School of Nursing**
Ms Greta Dimiyasi	**Senior Tutor**	**St. Barnabas School of Nursing**
Ms Florence Bagoia	**Senior Tutor**	**St. Barnabas School of Nursing**
Ms Philipa Bateman	**Senior Tutor**	**St. Barnabas School of Nursing**
Mr. Martin Jonathon	**Tutor**	**St. Barnabas School of Nursing**
Ms Anna Ilaisa	**Tutor**	**St. Barnabas School of Nursing**
Mr. Wallace White Kintak	**Principal**	**Nazarene College of Nursing**
Ms Liah Kamboa	**Deputy Principal**	**Nazarene College of Nursing**
Ms Maria Gomara	**Clinical Coordinator**	**Nazarene College of Nursing**
Ms Dare Collin	**Lecturer**	**Nazarene College of Nursing**
Mrs Grace Aua Dyrie	**Senior Tutor**	**Nazarene College of Nursing**
Mr. Ali Mun	**Senior Tutor**	**Nazarene College of Nursing**
Mr. Peter Moses	**Senior Tutor**	**Nazarene College of Nursing**
Mr. Jason Jambui	**Senior Tutor**	**Nazarene College of Nursing**
Mrs Jacquline Opa	**Clinical tutor**	**Nazarene College of Nursing**
Sr. Christine Dirye	**Sr. In-Charge, Paediatric Ward**	**Kudjip Nazarene Hospital**
Mr. Joe Yekuma	**Unit Manager, OPD & Emer Dept.**	**Kudjip Nazarene Hospital**
Mr. David Pia	**In Service Instructor**	**Kudjip Nazarene Hospital**
Ms Margaret Miringoi	**CHW Operating Theatre**	**Kudjip Nazarene Hospital**
Sr. Georgina Layabi	**Supervisor, Medical Ward**	**Kudjip Nazarene Hospital**
Sr. Elizabeth Ou	**Director Nursing Services**	**Kudjip Nazarene Hospital**
Dr. Scott Dooley, MD	**Hospital Administrator**	**Kudjip Nazarene Hospital**
Sr. Regina Kintak	**Deputy DNS**	**Kudjip Nazarene Hospital**
Mr. Baru Dirye	**NHM Secretary**	**Kudjip Nazarene Hospital**
Sr Rose Tinuli	**Sr. In Charge**	**St. Marys Vunapope SON**
Sr Julie Fonateiba	**Midwife**	**St. Marys Vunapope SON**
Bernadeth Ray	**RCHW**	**St. Marys Vunapope SON**
Rose Damag	**RND**	**St. Marys Vunapope SON**
Sr Relida Peril	**Nursing Officer**	**St. Marys Vunapope SON**
Mary Akis	**Deputy Principal**	**St. Marys Vunapope SON**
Gemma Meermans	**Lecturer**	**St. Marys Vunapope SON**
Margaret Kulilan	**Senior Lecturer**	**St. Marys Vunapope SON**
Nola Maika	**Lecturer**	**St. Marys Vunapope SON**
Bernadette Wageg	**Clinical Coordinator**	**St. Marys Vunapope SON**
Franscisca Bevi	**Senior Tutor**	**St. Marys Vunapope SON**
Caroline Tomado	**Tutor**	**St. Marys Vunapope SON**
Joanne Kiapitai	**Senior Tutor**	**St. Marys Vunapope SON**
Mr. Peter Tirang	**Hospital Administrator**	**St. Marys Hospital**
Sr. Lucy Laupu	**Outgoing Hospital Administrator**	**St. Marys Hospital**
Sr. Lucie Turupia	**Hospital Matron, St. Marys, Hospital**	**St. Marys Hospital**
Sr. Placidia Norman	**Deputy Matron, St. Marys Hospital**	**St. Marys Hospital**
Sr. Rosemary Pilakvue	**RN, Midwife**	**St. Marys Hospital**
Sr. Caroline Kambual	**General Nurse**	**St. Marys Hospital**
Sr. Queen Turlua	**Acute Care Nurse**	**St. Marys Hospital**
Sr.Clara Puttu	**Sr. In Charge**	**St. Marys Hospital**
Sr. Georgina Kiulel	**Deputy Sr. In Charge**	**St. Marys Hospital**
Mr. Essau Hurris	**Officer In Charge**	**St. Marys Hospital**
Mr. Kelly Mangoa	**D/Principal**	**Lae School of Nursing**
Mr. McNel Elia	**Senior Lecturer**	**Lae School of Nursing**
Ms Antonia Karis	**Registrar**	**Lae School of Nursing**
Ms Veronic Waffi	**District Health Administrator**	**Mutzing Health Centre**
Lautuo Ambrias	**District Nursing Officer**	**Mutzing Health Centre**
Sr. May Bartsaka	**Nursing Officer**	**Malahang Lae Urban Clinic**
Sr. Diana Samai	**Specialist Nurse – Critical Care, Clinical Supervisor Unit 5**	**Angau Memorial Hospital**

Sr. Alberta Lulu	**Nurse Midwife, Clinical Supervisor, Unit 3**	**Angau Memorial Hospital**
Sr. Pessie Kereng	**Special Nurse Midwife , Clinical Supervisor of O & G & Oncology**	**Angau Memorial Hospital**
Sr. Bing Titus	**In Service CoOrdinator, Angau Hospital**	**Angau Memorial Hospital**
Mr. Ian Payau	**Nursing Research Coordinator**	**Angau Memorial Hospital**
Mr. Jack Aita	**Provincial Officer**	**Morobe Provincial Health Office**
Sr. Lina Kusak	**Lae District Nursing Officer, Training & Clinical Nursing**	**Morobe Provincial Health Office**
Mr. Ulch Tapia	**National Health Secretary Lutheran Health Services**	**Morobe Provincial Health Office**
Sr. Grace L. Tewang	**Lecturer**	**Lae School of Nursing**
Sr. Kolish Palanga	**Lecturer**	**Lae School of Nursing**
Sr. Dorcas Dion	**Senior Tutor**	**Lae School of Nursing**
Sr. Aine Tongamp	**Senior Tutor**	**Lae School of Nursing**
Mr. Lucas Muka	**Senior tutor**	**Lae School of Nursing**
Aimu T. Samandingke	**Senior Tutor**	**Lae School of Nursing**
Ms Anastasia Loubai	**Librarian**	**Lae School of Nursing**
Mr. Michael Stanley	**Assistant Librarian**	**Lae School of Nursing**
Mr. Kumbai Pariwe	**Administrative Assisstant**	**Lae School of Nursing**
Mr. Amon Tani	**Mess Supervisor**	**Lae School of Nursing**
Mr. Conrad Tawila	**D/Principal**	**Mendi School of Nursing**
Sr. Elizabeth Seto	**Lecturer**	**Mendi School of Nursing**
Mr. Thomas Wamea	**Senior Tutor**	**Mendi School of Nursing**
Sr. Sandie Magie	**Tutor**	**Mendi School of Nursing**
Mr. Jack Tolo	**Tutor**	**Mendi School of Nursing**
Mr. Navao Mankuo	**Provincial Architect**	**Mendi School of Nursing**
Mr. Warren Temokang	**School Board Member**	**Mendi School of Nursing**
Sr. Josepha Rex	**HR Manager**	**Mendi School of Nursing**
Sr. Winnie Gaso	**Nursing Officer**	**Mendi Town Urban Clinic Staff**
Sr. Judy Longo	**Nursing Officer**	**Mendi Town Urban Clinic Staff**
Sr. Dorothy Pisimi	**Nursing Officer**	**Mendi Town Urban Clinic Staff**
Jacinta Eket	**Nursing Officer**	**Mendi Town Urban Clinic Staff**
Mr. David Binowi	**Nursing Officer**	**Mendi Town Urban Clinic Staff**
Michaela Koha	**CHW**	**Mendi Town Urban Clinic Staff**
Leota Kumbiye	**CHW**	**Mendi Town Urban Clinic Staff**
Mr Eddie Yehreawame	**HEO**	**Kaupena Health Centre**
Mr. Mek Pure	**PNG Bible Church Health Secretary**	**Kaupena Health Centre**
Sr. Josephine Pure	**OIC Health Centre, Nursing Officer**	**Kaupena Health Centre**
Sr. Isralyn Lux	**Nursing Officer**	**Kaupena Health Centre**
Sr. Neolah Nol	**Nursing Officer**	**Kaupena Health Centre**
Sr. Dusi Andauo	**Nursing Officer**	**Kaupena Health Centre**
Mr. Simon Kundip	**CHW**	**Kaupena Health Centre**
Nancy Kepelea	**CHW**	**Kaupena Health Centre**
Kola Pure	**CHW**	**Kaupena Health Centre**
Ruth Nol	**CHW**	**Kaupena Health Centre**
Sr. Linda Wapu	**Matron**	**Lalibu Health Centre**
Sr. Helen Kambaiye	**District Nursing Supervisor**	**Lalibu Health Centre**
Mr. Jim Nimbo	**Hospital Secretary**	**Lalibu Health Centre**
Sr. Juliana Gehala	**SIC OPD**	**Lalibu Health Centre**
Mr. Virtus Amugar	**Principal**	**Madang Lutheran SON**
Mr. Jimmy Boromio	**D/Principal**	**Madang Lutheran SON**
Sr. Monica Tauna	**Tutor Nursing Practice 1 & 2**	**Madang Lutheran SON**
Sr. J. Angasa	**Clinical Supervisor**	**Madang Lutheran SON**
Sr. K. Tarabi	**Tutor Obstetrics**	**Madang Lutheran SON**
Sr. Elizabeth Hambuhau	**Tutor Paediatrics**	**Madang Lutheran SON**
Esther Suambau	**Registrar**	**Madang Lutheran SON**
Sr. Francesca Mabong	**Nursing Officer**	**Jomba Urban Clinic**
Sr. Agnes Baning	**Nursing Officer**	**Jomba Urban Clinic**

Mr. Kasu Eddie	**Nursing Officer (M)**	**Dan Ben Urban Clinic**
Sr. Valsie	**OIC Health Centre** **Midwife**	**Alexishaffen Health Centre**
Sr. Norah Alung	**2nd OIC** **Midwife**	**Alexishaffen Health Centre**
Sr. Mana Christina	**Midwife**	**Alexishaffen Health Centre**
Mr. Paul Mabon	**Deputy Director, Policy & Admin**	**Madang Provincial Health Division**
Mr. Arthur Wagun	**Deputy Director, Technical Health Programs**	**Madang Provincial Health Division**
Mr. Sonny Atna	**Environmental Health Officer PHO**	**Madang Provincial Health Division**
Mr. Lawrence Gigi	**Health projects PHO**	**Madang Provincial Health Division**
Bernadette Imbosi	**Provincial Health Promotion**	**Madang Provincial Health Division**
Mr. Wilfred Peter	**Provincial Malaria Supervisor**	**Madang Provincial Health Division**
Sr. Jennifer Simon	**Provincial Family Health Supervisor**	**Madang Provincial Health Division**
Ms Christine Gawi	**Chief Executive Officer**	**Modilon Hospital**
Sr. Galug Sual	**Director of Nursing**	**Modilon Hospital**
Sr. Sipora Gwaidong	**Obstetric Ward**	**Modilon Hospital**
Sr. Theresa Davur	**Medical Ward**	**Modilon Hospital**
Sr. Josephine Mai	**Num Ward 3**	**Modilon Hospital**
Sr. Anna Salili	**Ward 1**	**Modilon Hospital**
Sr. Margaret Bamasi	**Training Coordinator**	**Modilon Hospital**
Sr. Leah Isegi	**Ward 4**	**Modilon Hospital**
Sr. Hellen Krasimbie	**ICU**	**Modilon Hospital**
Sr. Diamba Kesa	**Nursing Officer**	**Modilon Hospital**
Mr. Terry Alois	**Nursery**	**Modilon Hospital**
Sr. Stella Agat	**Lecturer DGN**	**Madang Lutheran SON**
Mr. Tobias Tamb	**Tutor - DGN**	**Madang Lutheran SON**
Mr. John Tumun	**Tutor - DGN**	**Madang Lutheran SON**
Sr. Elizabeth Hambuhau	**Tutor - DGN**	**Madang Lutheran SON**
Sr. Monica Tauna	**Tutor - DGN**	**Madang Lutheran SON**
Sr. Koe Tarabi	**Tutor - DGN**	**Madang Lutheran SON**
Sr. Judith Angasa	**Clinical Supervisor DGN**	**Madang Lutheran SON**
Sr. Rhoda Sony Likia	**Tutor**	**Madang Lutheran SON**
Sr. Rachel Tombe	**Senior Lecturer**	**School of Health Science - PAU**
Sr. Diane Kono	**Associate Lecturer**	**School of Health Science - PAU**
Mr. Lester Asugeni	**Lecturer**	**School of Health Science - PAU**
Sr. Hettie Asugeni	**Associate Lecturer**	**School of Health Science - PAU**
Sr. Jocabett Geita	**Associate Lecturer**	**School of Health Science - PAU**
Sr. Martha Madagi	**Lecturer Midwifery**	**School of Health Science - PAU**
Sr. Ruth Galang	**Senior Lecturer**	**School of Health Science - PAU**
Mr. Mackenzie	**Lecturer**	**School of Health Science - PAU**
Sr. Kepu Taelabu	**OIC, 6 Mile**	**School of Health Science - PAU**
Sr. Wendy Bonny	**RN HIV/STI**	**School of Health Science - PAU**
Sr. Antonia Guba	**Paediatric Specialist Nurse**	**School of Health Science - PAU**
Sr. Casmei Malchus	**Nursing Officer**	**School of Health Science - PAU**
Sr. Dora Renagi	**OIC Nursing Officer**	**School of Health Science - PAU**
Sr. Idau Renagi	**Nursing Officer**	**School of Health Science - PAU**
Mr. Koivi Kave	**CHW**	**School of Health Science - PAU**
Ms Kila Wapuli	**CHW**	**School of Health Science - PAU**
Ms Helen Fred	**CHW**	**School of Health Science - PAU**
Ms Loani Vanua	**CHW**	**School of Health Science - PAU**
Sr. Molly Marava	**Principal**	**Highlands College of Nursing**
Mr. Saidi Lani	**Deputy Principal**	**Highlands College of Nursing**
Sr. Lesley Ririka	**Senior Lecturer**	**Highlands College of Nursing**
Mr. Gabriel Wau	**District Health Officer, HEO**	**Highlands College of Nursing**
Sr. Kaviri Tsivane	**OIC Nupuru Health Centre**	**Highlands College of Nursing**
Sr. Julie Morinakave	**District Nursing Officer, Goroka**	**Highlands College of Nursing**

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References for grounds up approach following partnership principles

Full details will be provide in methodology of monitoring and evaluation plan

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