Nursing and Primary Health Care

Towards the realization of Universal Health Coverage

A discussion paper

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ICN
International Council of Nurses
The global voice of nursing

AUTHORS

David Stewart, RN, BN, MHN
Associate Director (consultant), Nursing and Health Policy
International Council of Nurses

Madrean Schober, PhD, MSN, ANP, FAANP, FAAN
President, Schober Global Healthcare Consulting
International Healthcare Consultants, New York, NY, USA

Howard Catton, RN, MA, BS (Econ) (Hons)
Chief Executive Officer
International Council of Nurses

Disclaimer:
Primary health care (PHC) is a comprehensive, principle-driven framework that guides the delivery of services across the lifespan and in all care settings. This approach prioritizes creating conditions that enhance health and well-being, with a core focus on placing individuals at the centre of all health service delivery. The International Council of Nurses (ICN) fully supports this approach, but also recognizes that the practical application of PHC varies across organisations and countries. This discussion paper summarizes key positions, statements, and documents produced by ICN and other nursing and international health organizations. As PHC is integral to achieving Universal Health Coverage (UHC), it remains a priority for ICN and the global community. ICN welcomes further feedback and discussion to advance this critical work as part of its ongoing strategic priorities.

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DECLARATION OF ASTANA

"PHC will be implemented in accordance with national legislation, contexts and priorities. We will strengthen health systems by investing in PHC. We will enhance capacity and infrastructure for primary care – the first contact with health services – prioritizing essential public health functions. We will prioritize disease prevention and health promotion and will aim to meet all people's health needs across the life course through comprehensive preventive, promotive, curative, rehabilitative services and palliative care. PHC will provide a comprehensive range of services and care, including but not limited to vaccination; screenings; prevention, control and management of noncommunicable and communicable diseases; care and services that promote, maintain and improve maternal, newborn, child and adolescent health; and mental health and sexual and reproductive health. PHC will also be accessible, equitable, safe, of high quality, comprehensive, efficient, acceptable, available and affordable, and will deliver continuous, integrated services that are people-centred and gender-sensitive. We will strive to avoid fragmentation and ensure a functional referral system between primary and other levels of care. We will benefit from sustainable PHC that enhances health systems' resilience to prevent, detect and respond to infectious diseases and outbreaks." (WHO, 2019b)

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“A renaissance in primary health care is *essential* to provide health for all, including the most vulnerable.”

The Lancet (2018)

EXECUTIVE SUMMARY

The International Council of Nurses (ICN) presents this comprehensive report to set forth a transformative vision for primary health care (PHC), pivotal to the realization of universal health coverage (UHC). Nurses, with their rich history of providing care within communities and homes, stand at the frontline of this vision. The roles and responsibilities of nurses has only grown since the watershed Alma-Ata Declaration in 1978, with ICN actively endorsing and fostering their participation in numerous public health initiatives. Today, amidst renewed global acknowledgment from the World Health Organization (WHO) and the broader health community, the attainment of UHC is intrinsically tied to the efforts of the nursing profession.

This report underscores PHC as a holistic approach, aiming for the health and wellbeing of individuals and communities, ensuring that even the most vulnerable, receive health care that is safe, affordable and accessible. The emphasis is on proactive engagement with individuals' health needs, spanning the entire continuum from health promotion to palliative care, delivered as closely as possible to where people live and work. Notably, scaling PHC interventions in low and middle-income nations could dramatically shift global health metrics, potentially saving 60 million lives and extending average life expectancy by 3.7 years by 2030 (WHO, 2023a).

However, several challenges loom large, including resource constraints, an underutilized workforce, gaps in health care needs versus professional preparation, concerns about patient safety, and often fragmented care continuity. If these challenges can be overcome, PHC stands as a beacon for improving population health, combatting public health emergencies, and addressing preventable diseases through vaccinations.

Investing in nursing is a strategy of paramount importance, capable of optimizing PHC while ensuring its resilience during health crises and maintaining continuity of care for populations. This investment involves reimagining the role of nurses in PHC, a venture that this report explores with depth and foresight.

Recommendations span several critical areas:

- **Care coordination:** Endorse nurse-led care coordination as a standard in PHC, enhancing awareness, empowering patients and considering workforce capacity and professional standards in care coordination.
- **Integrated and team-based PHC:** Transition to person-centred, multi-disciplinary team care, emphasizing health promotion, illness prevention and shared decision-making. Further, it is imperative to promote interprofessional education and team-based care models.
- **Advanced Practice Nurses (APNs):** Advocate for the development and support of APNs through strategic planning, resource allocation and educational investment, ensuring they work to their full potential, especially in underserved areas.
- **Investing in the PHC nursing workforce:** Commit to expanding the PHC nursing workforce, establishing educational standards, promoting investment in PHC, implementing workforce plans, improving data collection and increasing PHC nurses' involvement in policy and decision-making.
- **Digital health and technology integration:** Encourage the integration of digital health technologies to support nurses in delivering PHC. This includes telehealth services, electronic health records, and mobile health applications to improve access, efficiency and quality of care.
- **Community engagement and empowerment:** Strengthen community engagement strategies to empower individuals and communities to take an active role in their health. This involves training nurses in community health education and outreach.

- **Sustainable funding models:** Advocate for sustainable funding models that support long-term investment in PHC and nursing workforce development.
- **Research and evidence-based practice:** Promote ongoing research and the use of evidence-based practices in PHC to continually improve care quality and outcomes. Encourage nurses to engage in research activities and apply findings to clinical practice.
- **Global collaboration and knowledge sharing:** Foster global collaboration and knowledge sharing among nursing and health care organizations to disseminate best practices, innovations, and lessons learned in PHC.

By adopting these recommendations, the global health community can revolutionize the role of nursing in PHC, making substantial strides towards the goal of universal health coverage. The time to act is now, leveraging the untapped potential of nurses to lead this critical journey forward.

PRIMARY HEALTH CARE VS PRIMARY CARE

"Primary care is a key process in a health system that provides promotive, protective, preventive, curative, rehabilitative, and palliative services throughout the life course. Primary health care (PHC) is a broader whole-of-society approach with three components: (a) primary care and essential public health functions as a core of integrated health services; (b) multisectoral policy and action; and (c) empowered people and communities."

(WHO, n.d.)

INTRODUCTION

Primary health care (PHC) "is a whole-of-society approach to health that aims at ensuring the highest possible level of health and wellbeing and their equitable distribution by focusing on people's needs and preferences (as individuals, families and communities) as early as possible along the continuum from health promotion and disease prevention to treatment, rehabilitation and palliative care, and as close as feasible to people's everyday environment" (WHO & UNICEF, 2018).

The World Health Organization (WHO) (WHO, 2023b) states that PHC encompasses three elements:

- integrated health services to meet people's health needs throughout their lives;
- addressing the broader determinants of health through multisectoral policy and action;
- empowering individuals, families and communities to take charge of their own health.

PHC is rooted in a commitment to human rights. It is based on the recognition that the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction (WHO, 2023b).

Since 1978, there has been global commitment to PHC as a driver to delivering better health for all. This was reaffirmed in 2018 with the Astana Declaration. Despite the initial enthusiasm, PHC is in crisis with many services either inaccessible or of poor quality, as a result of undervaluing, under-resourcing and severe workforce shortages (The Lancet, 2018).

In 2000, ICN published a position statement (ICN, 2007) which was revised in 2007. It emphasized that equity and access to PHC services, particularly nursing services, are key to improving the health and wellbeing of all people. It endorsed the Alma-Ata Declaration and envisioned the following:

- Health services are made equally accessible to all, encouraging to the maximum: individual and community participation in services planning and operation; a focus on illness prevention and health promotion; appropriate, affordable technologies; and a multi-sectorial approach necessary for wellbeing in a society.
- The focus of health care is the individual, family or group in need of services, whether for health promotion, protection from illness and disability, cure and rehabilitation, or care for peaceful, dignified death.
- Health provider education is both scientific and ethical and recognizes the primacy of social determinants of health.
- Health care providers respect the rights of the individual, family and community to make an informed decision about care and related treatment.
- Research findings and evaluation of technologies are of direct benefit to patients and the public.

In support of PHC, ICN views it as critical that PHC concepts be integrated into all levels of nursing education and that the nurse's role in PHC leadership be strengthened and articulated at all levels nationally and internationally.

However, the weakness in PHC was clearly exposed during the SARS-CoV-2 (COVID-19) pandemic in 2020-2022. While much attention was devoted to responding to the pandemic, the disaster affected many non-COVID-19 patients who were unable to access needed care. For example, people living with chronic diseases, who were particularly

vulnerable to the virus, were unable to access continuous and accessible routine care offered through PHC. The indirect health impacts included people with delayed diagnosis, cancelled or delayed care (OECD, 2021). Primary health care needs to be resilient enough to cater for unexpected surge capacity whilst also maintaining continuity of care.

A different approach is required to unleash the potential of PHC. This requires changes to policies and funding models that encourage coordinated and integrated multidisciplinary health care teams focused on serving people. It also includes a paradigm shift in its focus on treatment to one that envisages health promotion and illness prevention, whilst ensuring safe, quality care when and where people need it.

This report describes the opportunities afforded by investing in nursing to optimize PHC and support its response to health emergencies, while ensuring continuity of care for communities and populations.

Switzerland: The ability of APNs to provide health care traditionally undertaken by physicians, not only alleviates the strain on overburdened health systems but also increases access to quality care, especially in underserved or rural areas.

CHAPTER 1

THE CASE FOR CHANGE

In 1978, the WHO Alma Ata declaration recognized that PHC has the potential to improve health outcomes across socio-economic levels, the ability to enhance people-centred care, address the social determinants of health, and build a more efficient health system. However, progress has been slow as the "focus has been on individual diseases with variable results" (The Lancet, 2018). If this can change, PHC has the potential to make health systems more efficient, effective and equitable.

The 2008 International Nurses Day (IND) theme, *Nurses Leading Primary Health Care: Delivering Quality, Serving Communities*, commemorated the 30th anniversary of the Alma-Ata Declaration on PHC and health care for all (ICN 2008a). The IND report and resources emphasized that nurses are always nearest to the people and understand community needs, and that PHC has always been at the top of the nursing agenda, nationally and globally.

The report said: "Nursing practice is the very essence of PHC. Nurses deliver services wherever people are found, in homes, schools, workplaces, prisons, health and wellness clinics, and other community settings, as well as in hospitals and research centres. In virtually all countries, nurses constitute the largest health care provider group. Nurses are also critical to the training and supervision of other personnel, and to the planning, organization, monitoring and evaluation of PHC services. ICN's 2008 International Nurses Day celebrated and illuminated nursing's role in PHC, providing a vision of how nurses can shape the future of PHC."

In 2008, ICN also published *Nursing Perspectives and Contribution to Primary Health Care* (ICN, 2008b), which reviewed how PHC nursing has contributed to the aims of the Declaration of Alma-Ata. It concluded that nursing had shaped PHC and the achievement of Health for All through its adherence to the major principles and values that underpin PHC. PHC nurses have developed practice with the principles of accessibility to health services, the use of appropriate technology, individual and community participation, increased health promotion and disease prevention, and intersectoral co-operation and collaboration at the heart of their care.

"If there's one lesson to be gleaned from Canada's experience of COVID-19, it's that our much-vaunted universal health care system is shockingly threadbare…But Canadian health care has long been plagued by a much more obvious problem: Millions of Canadians have trouble accessing universal health care because they don't have a primary care physician and probably never will."

Tristan Hopper (2022)

In 2018, ICN attended the Global Conference on *Primary Health Care* in Astana, Kazakhstan, celebrating the 40th Anniversary of the Declaration of Alma-Ata. As a member of the International Advisory Group on Primary Health Care for UHC, ICN made a submission to the WHO public consultation on the draft declaration and released a joint statement that called for an addition to the text emphasizing the critical role of nurses and midwives in the delivery of PHC.

ICN and Nursing Now released a joint statement (ICN & Nursing Now, 2019) responding to WHO's draft declaration on PHC. The statement declared ICN's support for a declaration that will deliver change and achieve UHC through PHC.

INSUFFICIENT RESOURCES TO MEET GROWING DEMAND

The ability to achieve universal health coverage will be dependent on appropriate and effective high performing PHC. This will require a motivated, equitably distributed PHC workforce that is aligned with population and community health needs. Sustaining this will require building capacity to meet the growing demand which is driven by rapid demographic, epidemiological, economic, social and political changes. Four key factors related to growing the workforce will need to be considered: availability, accessibility, acceptability and quality.

TABLE 1
Four key factors to increasing the PHC workforce

Availability

The sufficient supply of appropriate and competent health care professionals.

23%
of all physicians in OECD countries work as general practitioners (OECD, 2021). This is a significant decrease since 2000.

57
countries report having fewer than 23 physicians, nurses and midwives per 10,000 people (Dussault et al., 2018).

230k
estimated physician shortages in the European Region (WHO & UNICEF, 2018).

15M
global shortfall of health care professionals by 2030 (WHO, 2016a).

Accessibility

The equitable distribution of health care workers (e.g. geographical locations such as urban, rural and remote).

80%
of basic maternal and child health services cannot be provided in 57 countries (WHO & UNICEF, 2018).

58M
people in high-income countries live in areas with shortages in PHC staffing (WHO & UNICEF, 2018).

37%
reduction of health services across 20 countries due to the pandemic. This included a 31% reduction in diagnostics. In many countries, PHC visits significantly increased to meet growing demand. Much of this was through digital health consultations (OECD, 2021).

1M
premature deaths across EU countries could have been avoided through better prevention and health care interventions in 2017 (OECD, 2021).

26%
of patients suffering from chronic conditions in OECD and European countries did not receive any of the recommended tests in 2018 (OECD, 2020).

Acceptability

Health care professionals are able to provide care that is aligned to the social, linguistic and ethnic diversity of patients and populations.

80%
of consumers in numerous European countries reported being involved in care and treatment decisions. In some countries this was as low as 61% involvement in treatment decisions (OECD/EU, 2020).

36%
of nurses work in rural areas, where 49% of the population lives (WHO, 2020).

86%
of countries have a body responsible for the regulation of nursing (WHO, 2020).

Quality

The behaviours, skills, knowledge and attributes of health care professionals according to professional norms.

75%
of doctors and nurses reported being over-skilled for the roles and responsibilities that they have in their daily life (OECD, 2020).

77%
of preventative care and 47% of chronic care could be provided by health care professionals other than physicians such as nurses and pharmacists (OECD, 2020).

51%
of physicians and 43% of nurses report being under skilled for some of the responsibilities that they have been asked to undertake (OECD, 2020).

The PHC workforce is under pressure

The OECD reports that reductions in the share of general practitioners and increased demand for services are putting a strain on the PHC system. Between 2000 and 2017, the share of generalist medical practitioners decreased by more than 20% in Australia, the United Kingdom, Denmark, Israel, Estonia and Ireland (OECD, 2020). This trend is similar in most countries across Europe and the OECD countries. This has resulted in general practitioners having high workloads that are 'unreasonable' and 'unsustainable'. This has the potential to negatively impact the care provided to individuals and the community.

WHO (Dussault, 2018) sums the situation up like this: the current supply of health professionals at the global, regional, national and sub-national levels does not meet needs and demand in the primary health care sector.

TABLE 2
General practice has not increased in line with demand

AUSTRALIA		Demand for general practitioner (GP) services is projected to increase by 38% by 2032 (and by 47% in cities). Despite this significant increase, supply of GPs will decrease by 15% in cities and by 4% overall. This will result in a shortfall of 11,392 GPs by 2032, or almost 1 in 3 (28%) of the GP workforce (Deloitte Access Economics, 2022).
CANADA		Statistics Canada reported in 2019 that approximately 4.6 million Canadians did not have regular access to a primary care provider. There is also a concerning supply and demand gap developing: in December 2021, 2,400 family physician positions were advertised on government recruitment websites across Canada (Canadian Medical Association, 2022).
		The percentage of medical graduates choosing family medicine fell from 38.5% (2015) to 31.8% (2021) (Canadian Medical Association, 2022).
ENGLAND		There is currently an estimated shortage of around 4,200 full-time equivalents (FTE) employed GPs in England, with around 27,000 FTE GPs in post in 2021/22. By 2030, the Health Foundation estimates that there will be 1 in 4 vacant general practitioner posts (The Health Foundation, 2022a).
		The number of FTE nurses in general practice is expected to decline by 0.4% per annum. This equates to a shortfall of 6,400 FTE nurses by 2030 (The Health Foundation, 2022b).
		If investment is not made into roles such as Advanced Practice Nurses (APNs), it is estimated that 1 in 2 GP posts will be vacant (The Health Foundation, 2022b).
FRANCE		8% of the population (2.5 million people) live in areas where there is a shortage of GPs, a figure that is projected to rise to 12% over the next few years (Conseil National de l'Ordre des Médecins, 2019).
		The number of GPs has been declining in France; since 2010 the total number has fallen by 7%, from 94,261 to 87,801, and is projected to decrease to 81,804 by 2025 (Conseil National de l'Ordre des Médecins, 2019).
		44% of GPs stated that they were unwilling to take on new patients (Conseil National de l'Ordre des Médecins, 2019).
ITALY		Over the last 20 years, Italy has seen a continual decline of approximately 10% in the numbers of GPs (Genova & Lombardini, 2022).

NEW ZEALAND		50% of general practitioners will retire by 2032. The number of GPs per 100,000 people is projected to fall from 74 in 2021 to just 70 in 2031 (The Royal New Zealand College of General Practitioners, 2021).
		Adding more GPs will have a measurable impact on the health of New Zealanders: 10 extra GPs per 100,000 people means about 30 people a year wouldn't die from cancer, respiratory and cardiovascular issues. More GPs would save the economy $139.6 million in health savings a year ($150m per year in savings minus the cost of $10.4m to train more GPs) (The Royal New Zealand College of General Practitioners, 2021).
USA		There is an estimated shortfall of between 17,800 and 48,000 general practitioners by 2034 (Association of American Medical Colleges, 2021).
		A large portion of the physician workforce is nearing traditional retirement age, and supply projections are sensitive to workforce decisions of older physicians. More than two of five currently active physicians will be 65 or older within the next decade (Association of American Medical Colleges, 2021).
		If underserved populations had health care use patterns like populations with fewer access barriers, demand would rise such that the nation would be short by about 102,400 (13%) to 180,400 (22%) physicians relative to the current supply (Association of American Medical Colleges, 2021).

ADVANCING UNIVERSAL HEALTH COVERAGE THROUGH NURSING IN INDIA

The Indian Nursing Council has established strategies to support the achievement of UHC by 2030, a high-priority goal set by the Indian government. A major step has been the transformation of 150,000 subcentres into health and wellness centres, each serving populations of 5,000-10,000, with a significant emphasis on nursing. These centres are staffed by graduate nurses designated as community health officers. To support this initiative, the BSc nursing curriculum in India is being revised to integrate community health officer training into a competency-based programme, enhancing the quality of nursing education. Additionally, a state-of-the-art simulation centre has been established to train Master's level faculty members in delivering this new curriculum. In collaboration with the Ministry of Health, the nurse practitioner programme has been approved, aiming to train approximately 84,000 nurse practitioners. Leadership development is another critical area, with the Indian Nursing Council hosting the ICN Leadership for Changee programme to train 40 Indian nurses. The formation of the new Nursing and Midwifery Commission is set to make pivotal decisions regarding the scope of practice for nurses in India, further strengthening their role in achieving UHC.

(Case study submitted by the Indian Nursing Council at the ICN webinar on the role of nurses in PHC, November 2023.)

75% of physicians and nurses report being over-skilled for many of their responsibilities that they do daily.

(OECD 2021a)

The workforce is not being used to the full potential of their education and scope of practice

In 1998, ICN stated that scope of practice should be considered as "dynamic and responsive to health needs, development of knowledge, and technological advances." (ICN, 2010). This means that regular review is required to ensure that it continues to be consistent with current health needs and supports improved health outcomes.

The OECD (2021) recently examined scope of practice of physicians and nurses working in PHC. They estimated that more than three-quarters of physicians and nurses are over-skilled for some of their responsibilities in their daily work. This appears to indicate that there is a mismatch between the knowledge and skills of health professionals and the work that they perform. This mismatch and misalignment in human resources is a wasted opportunity.

To achieve value in PHC requires coordinated teamwork, with appropriate skill mix and with health professionals working to their optimal scope of practice. Currently, the roles and responsibilities of health professionals does not align with the health needs of the populations they serve and the knowledge and skills that they have obtained.

The High-Level Commission on Health Employment and Economic Growth called for the optimization of health care workers to work to their full potential. Their first key message states: "Transforming and expanding the health and public health workforce, including reform of the skills and mix of that workforce, has the potential to accelerate inclusive economic growth and progress towards health equity."

(WHO, 2016b)

REVOLUTIONIZING PHC IN ROMANIA

The Romanian Order of Nurses and Midwives has developed transformative strategies for reforming its PHC system. The focus has been on prioritizing screening and prevention at the primary level, incentivizing primary care practitioners, including nurses, to actively engage in prevention programmes. Another significant strategy involves upgrading the infrastructure and capabilities of PHC facilities, with investments in modern equipment for 3,000 health practices and improved remuneration mechanisms for health care providers. Emphasizing a shift in health care professional roles, the strategy encourages a proactive and holistic approach to health care, expanding roles and prescription rights. In collaboration with the Ministry of Health, the focus is on enhancing the role of nurses and midwives in community-based care, often the first point of contact for patients. Efforts include revised payment mechanisms for nurses and doctors in rural areas and leveraging digital health innovations with an integrated database for evidence-based health workforce policies. These comprehensive reforms, supported by a regional WHO conference, culminate in a political resolution framework, marking a significant step in strengthening the health care workforce in the WHO European Region.

(Case study submitted by the Romanian Order of Nurses and Midwives at the ICN webinar on the role of nurses in PHC, November 2023.)

The widening gap between the needs of health care and educational systems producing health professional workforce

In 2010, a Lancet Commission (Horton, 2010) called for "A new epoch for health professionals' education." This call was in response to a mismatch in competencies to patient and population needs; poor teamwork between and within professions; persistent stratification of professional status; episodic encounters rather than continuous care; predominant hospital orientation at the expense of PHC; quantitative and qualitative imbalances in the professional labour market; and weak leadership to improve health system performance. The resulting vision was to evolve health professional education stating "'all health professionals in all countries should be educated to mobilize knowledge and to engage in critical reasoning and ethical conduct so that they are competent to participate in patient and population centred health systems as members of locally responsive and globally connected teams." (Frenk, et al., 2010).

General Practice is not traditionally recognized as an independent academic position in Japan. Primary care is generally provided by other specialists such as internists and pediatricians. Most physicians are trained in a hospital setting as a hospital-based specialist. Many physicians in primary care have moved there as a second career without education as a generalist. The transition from a specialist to a generalist is facilitated by absence of a formal training system to produce family physicians in Japan. General Practice remains unpopular in Japan. The number of JPCA-certified general practitioners is only 672 (0.2%) of the 311,205 physicians in 2018.

(Yoshida, et al., 2019)

A decade later, the World Bank commented that insufficient progress has been made in health professional education to achieve comprehensive PHC. They stated that, as a result, many health professionals are "ill-prepared to deal with situations they had not encountered during their training … PHC providers require training that prepares them for their broad scopes of practice." (Strasser & Strasser, 2020).

The OECD reports a similar finding: whilst being over-skilled for some tasks, physicians and nurses also reported being under-skilled for others. Across OECD countries, 51% of physicians and 43% of nurses reported being under-skilled for some of their responsibilities. They further stated that, on average, clinicians have one question about patient care for every two patients (regarding drug treatment, symptoms or diagnostic results), and nearly half of these questions are not pursued. As a result, the OECD concluded that "Primary health care teams seem ill-prepared to meet growing and complex health care needs given technological progress, new ways of delivering services and the rapid pace of medical knowledge development (OECD, 2020)." It is clear, therefore, that there is a need to change the education preparation of PHC professionals.

QUALITY AND AFFORDABLE CARE: AN ESSENTIAL ELEMENT OF ENSURING HEALTHY LIVES AND IMPROVED WELLBEING

The goal of PHC is to ensure that people receive quality comprehensive care ranging from health promotion and illness prevention to treatment, rehabilitation and palliative care. This is optimally provided as close as possible to where people live. When PHC is unsafe and ineffective, there is the potential for an increase in morbidity, preventable mortality and unnecessary use of hospital and specialist resources. Safe PHC is at the heart of the United Nations Sustainable Development Goals and key to healthy communities.

Many of the benefits of PHC are not being realized around the world due to inaccessible, unaffordable, unsafe and unreliable care. When this occurs, it leads to poor uptake and low levels of trust in community level care.

ADVANCING HEALTH CARE IN MAURITIUS THROUGH NURSING LEADERSHIP

Nurses and midwives constitute 40% of the health care workforce in Mauritius. Public health services in Mauritius, encompassing a range of health care centres and community hospitals, are designed to meet the goal of UHC. Despite remarkable achievements, Mauritius faces challenges like the increasing burden of noncommunicable diseases, ageing population health needs, and rising patient expectations for quality care. The Mauritius Nursing Association has significantly influenced policy and collaborated with the government in developing the Health Sector Strategic Plan, which plan outlines strategies to improve health care quality across the lifespan, focusing on customer care, primary care enhancement, health promotion, preventive medicine and specialized services. Nurses are crucial in executing strategic actions such as promoting early cancer detection, expanding HPV vaccination, establishing menopause clinics, and enhancing user-friendly health care services. The plan also addresses challenges like staff shortages, the need for specialized post-registration education, and the integration of digital health solutions. The future of nursing in Mauritius hinges on effectively using population data for workforce planning and tackling these critical issues.

(Case study submitted by the Mauritius Nursing Association at the ICN webinar on the role of nurses in PHC, November 2023.)

Patient safety: a growing concern

The provision of safe PHC is an essential component of UHC. Despite significant emphasis on patient safety, there has been little progress in the monitoring of incidents. Historically, around the world, the majority of focus for patient safety has been on specialist and hospital settings. One of the reasons for this is that PHC is often perceived as less risky than secondary care. This is faulty reasoning that does not take into consideration relative and absolute measures of risk. The majority of health care takes place in PHC and it is therefore essential to measure and mitigate possible patient harm (Cooper, et al., 2018).

There are numerous types of patient safety incidents in PHC. All of these have an enormous impact on the health and wellbeing of individuals as well as a country's economy. Whilst there are 'human errors' such as variations of standards, misjudgements or misdiagnoses, there are also issues with counterfeit and substandard drugs, unsafe vaccinations and unreliable practices performed in ill-equipped settings, and poor infection prevention and control practices (Donaldson, 2021).

TABLE 3
Monitoring patient harm

Extent of the problem

4 in 10

patients are harmed in primary and outpatient health care (Kuriakose, et al., 2020; Michel et al., 2017; WHO, 2024)

15%

of the hospital's expenditure goes towards the additional tests and interventions needed to treat the direct effects of harm (Auraaen, Slawomirski & Klazinga, 2019)

5M

deaths per year in low-middle income countries (LMIC) are attributed to poor quality of care. Poor quality is a major driver of deaths amenable to health care across all conditions in LMICs, including 84% of cardiovascular deaths, 81% of vaccine preventable diseases, 61% of neonatal conditions and half of maternal, road injury, tuberculosis, HIV and other infectious disease deaths (Kruk, et al., 2018).

12%

of preventable patient harm causes permanent disability or patient death and is mostly related to drug incidents, therapeutic management, and invasive clinical procedures (Panagioti, et al., 2019).

Medication management

77%
error rate in outpatient recommendations is attributed to general practitioners (WHO, 2016c)

43%-60%
discrepancies in discharge medication following hospitalization indicating discrepancies during transitions of care (WHO, 2016c).

6-7%
of hospital admissions appear to be medication related with over two-thirds considered avoidable (WHO, 2016c)(World Health Organization, 2016c).

9%
of all prescribing events in LTC settings were subject to error, with 70% of home care residents affected by medication error (WHO, 2016c).

1 in 10
medical products in LMICs are substandard or falsified (WHO, 2018a)

5%
of adults in a high-income country experience diagnostic errors in PHC. Over half of these errors had the potential for severe harm (WHO, 2016d).

½
of missed diagnoses have the potential for moderate to severe harm. Frequently missed diagnoses include pneumonia, heart failure, acute renal failure, cancer and urinary tract infections (WHO, 2016d).

7%
of diagnostic tests are not communicated to patients (WHO, 2016d).

Optimizing the use of health care resources

Quality PHC reduces hospitalizations, avoids unnecessary procedures and reduces emergency room presentations which all lead to improved health care efficiency. Through early interventions, PHC can reduce the risk of complications and prevent more severe diseases from developing or progressing (WHO & UNICEF, 2018).

A good example are the avoidable or non-urgent presentations in Emergency Departments. While these should generally be treated in PHC, a significant proportion end up being treated in the emergency room. Estimates for "avoidable", "inappropriate" or "non-urgent" visits to emergency departments account for nearly:

- 9% of emergency department activity in Australia;
- 12% in the United States;
- between 11.7% and 15% in England;
- 20% in Italy;
- 25% in Canada;
- 31% in Portugal;
- 56% in Belgium (OECD, 2020).

"Transitions of care refers to the various points where a patient moves to, or returns from, a particular physical location or makes contact with a health care professional for the purposes of receiving health care. This includes transitions between home, hospital, residential care settings and consultations with different health care providers in out-patient facilities."

(WHO, 2016e)

Continuity of care is often fragmented between health care professionals and health care sectors

The transition of care between acute care and PHC is often recognized as a significant health system challenge. Inadequate continuity leads to poorer patient outcomes as often vital information and time is lost. Many adverse events are preventable and have significant consequences such as increased emergency department visits, hospital readmission, increased costs, disability or death. An example of this type of issue is medication management. Figure 1 demonstrates the number of discrepancies at various transitions of care and frequency of medication related harm.

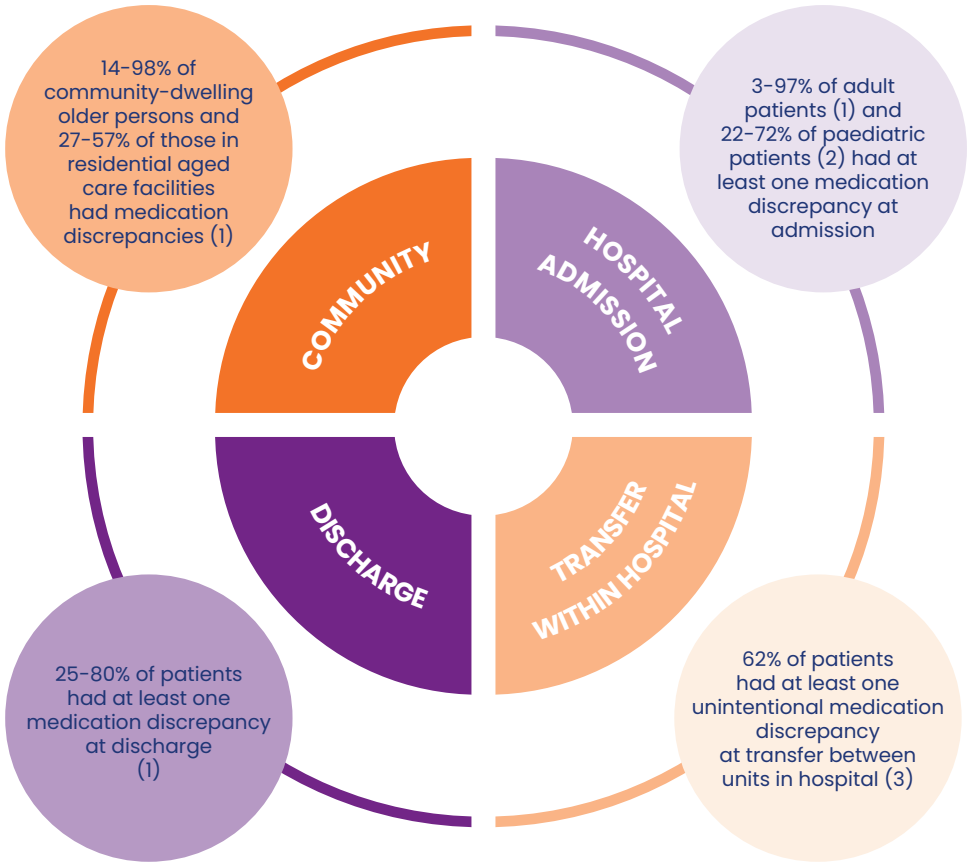
There are frequent patient transitions between the acute and PHC sectors, which are generally accompanied by a new diagnosis, new treatments and/or medicines. The more complex the health issues, the more often this leads to an increase in transitions between the health sectors. This is most pronounced in older people. WHO (2016e) states that key areas for improvement include "an increased focus on the needs of patients and their families and carers, improved communication with patients and between health care providers across settings, the need for recognition of care transition as an integral component of care coordination."

Improvements to patients' health and wellbeing can be made by addressing key issues in the transition of care. Any reform to PHC must include this element.

"Across 11 OECD countries, between 29% and 51% of people surveyed experienced problems of care coordination. These co-ordination problems refer to: medical tests not being available at the time of appointment or that duplicate tests were made; specialist did not have basic information from Primary Care; or Primary Care Provider not informed about specialist care; or received conflicting information from different providers."

(OECD 2020b)

FIGURE 1
Medication discrepancies at various transitions of care and frequency of medication related harm
(WHO, 2019a)



Sources:
(1) Lehnborn, et al., 2014
(2) Huynh, et al., 2013
(3) Lee, et al., 2010

ENHANCING PHC IN HONG KONG

The College of Nursing in Hong Kong has supported numerous strategies aimed at strengthening PHC since 2018. The Hong Kong Department of Health's "Towards 2025" strategy emphasized public education and healthy living. A pivotal development was the 2019 launch of the first district health centre, a model aimed at reducing hospital visits by promoting community-based health care. This initiative led to the creation of a PHC office and a comprehensive PHC blueprint in 2022. The College of Nursing in Hong Kong advocates for including nurses alongside family doctors in PHC. The "Healthy Hong Kong" initiative focuses on delivering health services to various population segments, highlighting the need to revise the nursing curriculum to better prepare nurses for PHC roles. Despite facing challenges like nursing shortages and adapting to technological advancements, recent legislative changes facilitate the integration of overseas nurses. The College of Nursing in Hong Kong sees these developments as opportunities for learning and collaboration, inviting international nurses to engage with and contribute to Hong Kong's evolving PHC system.

(Case study submitted by the College of Nursing in Hong Kong at the ICN webinar on the role of nurses in PHC, November 2023.)

PHC IMPROVES POPULATION HEALTH OUTCOMES AND HEALTH SYSTEM RESPONSIVENESS

There is a strong correlation between high functioning PHC and lower mortality rates. This relationship has also been validated in LMICs. In addition to reduced mortality rates, there is also improved quality of life, prevention of disease, and improved patient experience (OECD, 2020).

Scaling up PHC interventions in LMICs could save 60 million lives and increase average life expectancy by 3.7 years by 2030 (WHO, 2023c).

PHC is key to fighting public health emergencies

From the beginning of 2020, there was a significant focus on scaling up hospital capacities to cope with the COVID-19 pandemic. However, most of the COVID-19 battle was fought in PHC settings: from vaccination, to contact tracing, early detection and contact with patients, home care, education and improving the health literacy of individuals and the public, through to improving access for continuous and routine health care services. Strong PHC is essential in addressing public health emergencies both in terms of managing unexpected surge capacity and the ability to maintain care for all (OECD, 2021).

Where there has been strong PHC that is organized around multi-disciplinary care with innovative roles for health professionals and sufficient resourcing, there has been an improved health system response. A study of European Union countries found a trend between the quality of PHC and COVID-19 mortality rates. Countries with improved access to primary care, a subset of PHC, had a lower rate in COVID-19 mortality (Genova & Lombardini, 2022). This example demonstrates that the role of PHC in responding to public health emergencies is crucial and requires further strengthening to respond to current and future health crises.

Mexico: Nurses have a rich history of providing care within communities and homes.

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TABLE 4
Increase in non-COVID deaths

The COVID-19 pandemic affected not only those who contracted the virus, but also those who were unable to access care for their health needs. This is particularly the case for those with chronic conditions who require continuous and accessible routine-care. For many countries, there was a significant increase in non-COVID deaths and this points to a "historic, yet largely unacknowledged, health emergency." (Mulligan & Arnott, 2022)

CHINA	ENGLAND AND WALES	MEXICO
14.5% increase in deaths due to hypertension and 8.6% increase in deaths from myocardial infarction (Li et al., 2021)	**1,500** excess deaths every week with more than 80% not related to COVID (Craig, 2022)	**34%** of excess deaths are not directly related to COVID. The largest increase in mortality occurred as a result of diabetes, respiratory infections, ischaemic heart diseases and hypertensive disorders (Palacio-Mejia et al., 2022)

USA		
26% increase in non-COVID excess deaths for ages 18-44 (Mulligan & Arnott, 2022)	**$1Tr** the cost of non-COVID excess deaths (Mulligan & Arnott, 2022)	**507k** excess deaths in 2020 (Cronin & Evans, 2021)

PHC IN NEW ZEALAND

In the wake of Cyclone Gabriel's unprecedented impact on New Zealand in 2023, the New Zealand Nurses Organization (NZNO) launched the 'Maranga Mai!' strategic plan to revolutionize primary and universal health care. This initiative aimed to empower nurses to lead in political and policy decision-making, ensuring their active participation across health sectors including primary care, community health, and hospitals. A significant focus was placed on indigenous health and wellbeing, integrating a cultural perspective into policy development to address the disparities faced by Māori and Pacifica communities. 'Maranga Mai!' represents a proactive shift in health care strategy, emphasizing nurse leadership, community involvement, and equitable health care practices, especially in response to the challenges posed by natural disasters like Cyclone Gabriel.

(Case study submitted by the New Zealand Nurses Organization at the ICN webinar on the role of nurses in PHC, November 2023.)

PHC is key to addressing vaccine preventable diseases

WHO (2022a) reported in July 2022 that childhood vaccinations had experienced the greatest decline in 30 years. Coverage of the vaccine for diphtheria, tetanus and pertussis (DTP3), the marker for immunization coverage, reduced by 5% points between 2019 and 2021 (81% of children were vaccinated). This means that 25 million children missed out on one or more doses of DTP. It was also found that over a quarter of the coverage of human papillomavirus (HPV) vaccines that was achieved in 2019 has been lost. Only 15% of women and girls have received the first dose of the HPV vaccine and this will have an enormous impact on their future health and wellbeing.

This historic reduction in immunization rates occurred to some degree because of the pandemic. It was expected that in 2021, strained immunization programmes would be rebuilt and that rates would return to pre-COVID-19 levels. This has not been the case and the rates continue to decline. There are numerous reasons for this including:

- immunization staff and resources have been redeployed to COVID-19 responses;
- COVID-19 control measures have disrupted supplies and service delivery;
- people have reduced ability to access services;
- primary focus on COVID-19;
- mistrust and vaccine hesitancy (Immunization Agenda 2030, 2022).

Vaccines have an essential role in the prevention of many infectious diseases that have had an enormous impact throughout history. The stagnation of vaccine coverage may see the resurgence of many vaccine-preventable infectious diseases leading to the loss of hundreds of thousands of lives. Vaccines reduce mortality and morbidity and are highly cost effective. But their true impact can only be realized if everyone everywhere is able to access them within appropriate timeframes.

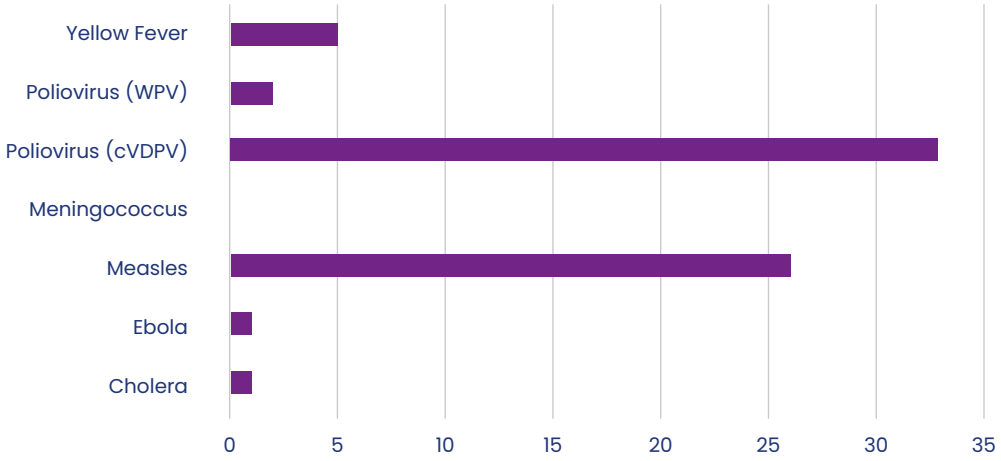


FIGURE 2
Number of large or disruptive Vaccine Preventable Disease outbreaks 2020

(Immunization Agenda 2030, 2022)

CHAPTER 2.0

REIMAGINING THE POSSIBILITIES OF NURSES IN PRIMARY HEALTH CARE

In the evolving landscape of PHC, the critical role of nurses cannot be overemphasized. The traditional view of nurses needs to be expanded beyond the adjunct support role in which they are often placed, to recognize them as central, vital players in health promotion, disease prevention and person-centred care. This section of the report focuses on the transformative potential of nursing interventions in PHC, highlighting their capability to not just participate, but to lead the charge, in delivering effective, comprehensive care.

An exploration into the realm of nursing care coordination presents a compelling case for integrated and team-based PHC. Nurses, with their holistic approach to patient care, are naturally positioned to lead multidisciplinary teams, coordinating care pathways that are both patient-centric and efficient. This approach transcends the traditional boundaries of health care delivery, ensuring a continuity of care that is particularly beneficial for patients with chronic conditions or complex health care needs.

Furthermore, consideration needs to be given about addressing the growing challenge of general practitioner shortfalls. In this context, advanced practice nurses (APNs), with their high level of education and expanded scope of practice, emerge as a promising workforce solution. The ability of APNs to provide health care traditionally undertaken by physicians, not only alleviates the strain on overburdened health systems but also increases access to quality care, especially in underserved or rural areas. To harness the potential of APNs, there is a need for financial, structural and regulatory frameworks that support the full utilization of their skills. It is essential for health care systems to adopt policies that recognize and compensate the advanced responsibilities taken on by these professionals, thus optimizing the PHC nursing workforce.

Building the PHC nursing workforce entails strategic planning and investment in nursing education, life-long learning and leadership development. This is crucial to prepare a nursing workforce capable of leading innovative models of care, grounded in scientific evidence and geared towards improving health outcomes.

Various nurse-led models of care have shown efficacy and cost-effectiveness. These models, which range from nurse-managed health clinics to transitional care models, demonstrate the significant impact that nurses have when empowered to practice to the full extent of their education and abilities. By reimagining the role of nurses in primary health care, countries have an unprecedented opportunity to improve the accessibility, quality and affordability of health care services.

NURSE-LED INTERVENTIONS

Nursing care coordination – the key to improving integrated care

As outlined earlier, the integration of care is a major concern for health care systems. The complexity of care, ageing populations, comorbid chronic disease, escalating costs and a workforce under strain demonstrate the importance of moving away from fragmented and discontinued care towards a more integrated health care system. Integrated care improves the continuity, accessibility, quality and safety of care as well as improving its cost efficiency. Care coordinators are an evidence-based approach in which a patient experiences PHC delivered by an integrated, multidisciplinary team that appears coordinated and seamless (Karam, et al., 2021).

Care coordination in PHC involves the organization of patient care activities and the sharing of information among all health care professionals who are actively involved in the individual's care. The patient's needs and preferences are known and communicated to the right people at the right time in a way that is easily understood and accessible to ensure that the care is safe, appropriate and effective (further activities are described in Table 5).

Nurses are well positioned to play a central role in care coordination. The history and practice of nursing demonstrates that part of the role is connecting people, doing the right thing for patients and acting as their advocates. Combined with a comprehensive understanding of the health care system and scientific easoning, many benefits can be obtained such as improved patient outcomes, facilitation of effective inter-professional collaboration and decreased costs across patient populations and health care settings (American Nurses Association, 2012) (examples of improved outcomes from nursing care coordination can be found in Table 5).

Varying types of care coordination roles, including nurse navigators, care coordinators, case managers and care planners, are often used to provide continuous care across many different specialties and health care sectors. The responsibilities of these roles often extend outside of the health care system and include elements such as close working relationships with social services and long-term care. Due to their complexity, these roles require people who are highly educated, experienced and skilful. As such, the positions are often best suited to APNs, such as nurse practitioners (NPs), who are able to provide the necessary range of services required to lead in patient planning, care coordination, education, health promotion, preventing and managing disease. When appropriately implemented, patients can swiftly move through the health care system and receive care at the right time and in the right place. As a result, these roles lead to improved health outcomes, increased patient satisfaction, improved quality of care, improved efficiencies and reduced costs (McMurray & Cooper, 2017).

> *"Poorly managed transitions can diminish health and increase costs. Researchers have estimated that inadequate care coordination, including inadequate management of care transitions, was responsible for $25 to $45 billion in wasteful spending."*
>
> (Burton, 2016)

JAPAN'S HEALTH CARE EVOLUTION AND THE ROLE OF NURSING

The Japanese Nurses Association (JNA) has highlighted Japan's unique health care challenges, particularly in dealing with an ageing population and declining birth rates. Japan, known for early achievement in UHC, faces significant issues in both the quantity and quality of health services due to demographic shifts. In response, the JNA's "Vision for the Future of Nursing for 2025" was developed to address these challenges from both medical and life perspectives. This vision includes enhancing education, practice and leadership in nursing, as well as expanding nursing roles in local communities. Looking towards 2040, when elderly population peaks are expected, the JNA is preparing for more complex challenges, emphasizing the need for a shift from disease response to health promotion and disease prevention. The JNA asserts the critical role of nursing in PHC, arguing that efficient use of health care resources and the success of UHC heavily rely on nurses' involvement.

(Case study submitted by the Japanese Nursing Association at the ICN webinar on the role of nurses in PHC, November 2023.)

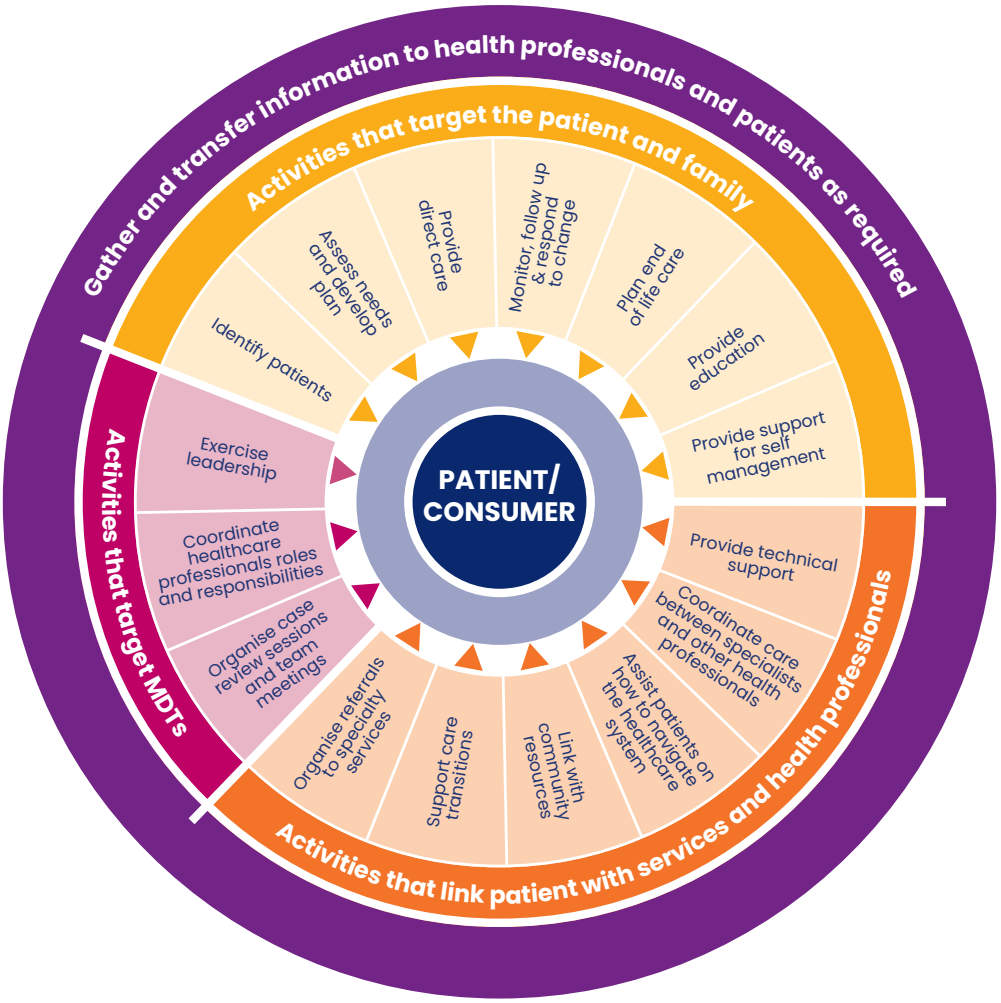
Recommendations:

- Implement care coordination In PHC led by nurses as an effective and evidence-based solution.
- Explore options for developing or enhancing nurse-led care coordination models by health care providers and leaders of health care systems.
- Improve individuals' and communities' awareness and understanding of care coordination and how it might affect their treatment and participation in health care.
- Utilize care coordinators to support the empowerment of individuals to participate in the planning of their care.
- Undertake workforce planning to consider workforce capacity and the skill mix required for care coordination.
- Consider professional standards and competencies related to care coordination.
- Promote inter-professional clinical and didactic learning experiences to facilitate team-based PHC in clinical settings.

TABLE 5
Examples of nursing care coordination interventions and their related outcomes

LOCATION	INTERVENTION	PATIENT RELATED OUTCOME	HEALTH SYSTEM RELATED OUTCOME
Singapore (WHO, 2023d)	Ministry of Health funding for nurse counsellors and care coordinators to provide team-based care for chronic diseases	High levels of trust and increased knowledge and adherence to treatments	
Korea, Canada & USA (Budde et al., 2021)	Nurse navigators for cancer patients receiving care in ambulatory setting. Interventions included facilitating communication with providers, outreach, assistance with appointments and scheduling, education, follow-up, counselling	Improved patient satisfaction	
USA (Budde et al., 2021)	Nurse navigators for cancer patients living in underserved, rural, regional or urban areas. The population includes non-English speaking persons. The service assists patients with appointments, follow-ups, health literacy and language barriers	Improved adherence to follow-up	Earlier treatment and treatment initiation Significant improvements in diagnostic resolution
USA & Australia (Budde et al., 2021)	Nurse navigators focusing on diagnosis and treatment for various cancers. Services include emotional support, education, liaison, scheduling and many more.	Increased diagnostic resolution Improved adherence to follow-up appointments	Improved time to diagnosis
Australia, Canada & USA Austria, Belgium, Switzerland, China, Germany, Denmark, Spain, Finland, Iran, Italy, Japan, Netherlands, New Zealand, Sweden, Slovenia, United Kingdom (Budde et al., 2021)	APN patient navigators support transitions in care, coordination of care, phone support, home visits and health education	Improved self-management Improved quality of life Reduced mortality	Lower readmissions Reduced hospitalization costs Reduced emergency department visits
USA (Conway, O'Donnell & Yates, 2019)	Nursing care coordinators working in a care transitions programme focusing on geriatric patients with an impaired ability of managing medications	Improved adherence to medications	Reduced hospitalizations Lower health care costs - Incremental Cost-Effectiveness Ratio (ICER) was more than US $60,000
USA (Consensus Health, 2021)	Nursing care coordinators provide a centralized service for several primary care providers. Each nurse works with the health care provider and patient to ensure the transfer of appropriate patient information.	Improved patient satisfaction Improved quality of life	Reduced health system costs of approximately 17% Reduced 30-day hospital readmissions by 12% Reduced inpatient admissions by 18.8%

FIGURE 3
Care Coordination activities
(Adapted from Karam et al., 2021



Integrated and team based PHC to deliver effective and comprehensive care

In 2008, WHO (2008) reported that poor quality PHC is often characterized by:

- individualized units operating with sole physician providers;
- health systems that focus disproportionately on a narrow offer of specialized curative care;
- health systems where a command-and-control approach to disease control, focused on short-term results, is fragmenting service delivery;
- inequitable and inadequate access to PHC.

Over a decade later, the OECD (2020) found that this traditional approach still occurs in most parts of the world. This model is outdated and obsolete. Change must occur if PHC is to reach its full potential. People-centred PHC requires a multidisciplinary team and network-based approach if it is to be effective and efficient. Through this approach, the Astana Declaration of 2018 can be achieved by providing PHC through: a) providing primary care services throughout the life span, (b) ensuring equity for health care, (c) addressing the social determinants of health, and (d) empowering citizens and communities.

At the WHO Independent High-Level Commission on Non-Communicable Diseases (NCDs) in 2019, ICN President Annette Kennedy, the only member of the nursing community on the Commission, made sure that the voice of nursing was heard in its meetings and visible in the Commission's second and final report (Nishtar, et al., 2018). The report (Nishtar, et al., 2018) highlighted the vital role of nurses in the provision of NCD and mental health services in primary care, and said they will need to be empowered to take on new roles and responsibilities through 'enabling legislation, effective policies, accessible, affordable and high-quality education, commitment from employers, supportive funding models, leadership and the collection and analysis of data and information'.

COSTA RICA – COMMUNITY ORIENTATED PHC

Costa Rica's health care system is centred around community orientated PHC. Each PHC has multi-disciplinary team (MDT) comprising of physicians, nurses, community health workers and administration assistants. Additional networks of nutritionists, psychiatrists and pharmacists support this MDT.

In the reform's first decade of implementation, there was an 8% reduction in infant mortality and a 2% reduction in overall adult mortality. (VanderZanden, et al., 2021)

"Nurses act as a communication bridge in the process. Nurses are required to communicate information to patients and their family members in an easy-to-understand manner after discussion with the physicians. In particular, the communication skills of nurses are most crucial when shared decision making must be implemented within a short time and when family members are under extreme pressure to discuss and make decisions in that limited amount of time, especially when the patient is critically ill."

(Chung et al, 2021)

A model of PHC that can achieve these desired aims is characterized by the following:

1. A multidisciplinary team with a mix of PHC professionals such as general practitioners, APNs, nurses, pharmacists, psychologists, social workers, nutritionists and non-clinical support staff.
2. Comprehensive health services in the community ranging from health promotion, treatment services, rehabilitation through to the ongoing management of chronic diseases. Care coordination is an essential element to ensure the efficiency and effectiveness of services.
3. Shared decision making is a co-operative process that involves information exchange and communication between health care professionals and patients for making treatment decisions. Clinicians and patients share the best available evidence so that patients are able to make informed decisions when considering their options.

These elements are acutely dependent on each other, and nurses have a core role in their interconnectedness. Nurses assist in framing activities in care plans and integrating health care processes in collaboration between health care professionals and patients and their families.

In 2022, ICN welcomed WHO's *World Mental Health: transforming mental health for all report* (WHO, 2022b) and called in addition for a scaling-up of community-based mental health care, strengthening primary care, de-institutionalizing mental health care facilities, improving the integration between health services and offering the full spectrum of mental health services. With such changes, the work of mental health nurses is optimized and the greatest return on investment can be made.

CANADA – TEAM-BASED PHC

Ontario's Family Health Team (FHT), the largest team-based practice model in Canada, was introduced to improve access to and effectiveness of PHC services. Nurses, APNs or mental health nurses provide care to the less complex patients in order for the physicians to focus on more complex cases. As a result:

- team-based primary care increases the production of physician's services;
- the teams productivity is 26% higher than non-FHTs;
- patient enrolment by physicians increases in an interdisciplinary team;
- by participating in FHT, patients require less visits to primary care

(Somé, et al., 2020)

Recommendations

- Adopt a patient-centred approach to planning and delivering team-based care.
- Transition from a siloed approach focused on treatment to multi-disciplinary team care with a focus on health promotion and illness prevention, while ensuring safe, quality care is provided when people need it.
- Provide nurses with the professional development to support shared decision making.
- Implement into health professional education programmes the competencies required to engage patients as partners in care and the process of shared decision making.
- Promote team-based care models to the public.
- Build coherence among health care providers working in teams.
- Promote interprofessional education and learning.

USA – TEAM-BASED PHC: LEARNING FROM EFFECTIVE AMBULATORY PRACTICES

Robert Wood Johnson Foundation created The Primary Care Team: Learning from Effective Ambulatory Practices (PCT-LEAP), a national programme devoted to helping primary care practices develop more effective primary care teams using insights and examples gleaned from the study of innovative, high-performing practices. They researched the differences in team-based models of care and traditional models. They found team-based models:

- optimized use of knowledge, skills and abilities;
- improved patient skills for self-management;
- improved chronic disease management according to the guidelines;
- reduced medication errors;
- improved support for mental health and wellbeing; and
- improved engagement with the community.

(Wagner, et al., 2017)

Advanced Practice Nurses – a workforce solution to General Practitioner shortfall

In many countries, particularly high-income countries, PHC has been traditionally provided by physicians, generally referred to as General Practitioners (GPs), who deliver a broad range of services and often serve as the first point of contact of the health care system, commonly referred to as Primary Care. This model is becoming increasingly challenging due to a number of factors, primarily caused by increased demand and workforce shortages. Workforce shortages are a particular problem due to shortages in the number of physicians, as well as a smaller proportion of new physicians selecting primary care as a career option (OCED, 2020).

There are only a few options for countries to consider when solving this problem: increasing the domestic supply of physicians; recruiting general practice physicians from overseas; reducing the amount of primary care services available; increasing the role of specialists in primary care; or enabling and authorizing other health professionals to deliver primary care services (Carter, Moore & Sublette, 2018). Countries have attempted a variation of these options with varying degrees of success. In the United States and United Kingdom, the one with broadest range of acceptance by the community was the authorization of other health professionals to provide primary care.

There are a number of reasons why this is the most reasonable and practical solution to the problem. When measured in terms of feasibility, costs, ethics and scope of the care delivered, enabling health care professionals, particularly Advanced Practice Nurses, is the best option. Developing and building APN roles means increasing the domestic supply of PHC professionals who are likely to be able to provide culturally competent care in the context of the local community. It also reduces reliance on overseas recruitment of health professionals which often occurs in breach of the World Health Assembly's agreed code of practice regarding international recruitment of health personnel (WHO, 2010).

In 2012, the Ministry of Health in Singapore set up a National Nursing Taskforce to review and recommend the career development, autonomy, recognition and education of nurses. Senior nurses were granted the autonomy to make protocol-based diagnoses, undertake investigations for certain disease profiles and order treatments. They were given the authority to prescribe, review and discontinue medications. The National Nursing Academy was established to support the education and career development of nurses with a vision of building this workforce.

(Phua, 2023)

TABLE 6
Options to increase the number of physicians providing primary care

	OPTIONS	OUTCOME	RATIONALE
	Increase the number of primary care physicians through more education places for students	Unsuccessful/ partial success	Increasing physician graduations may not lead to an increase in physicians practicing primary care. In many OECD countries, there is a reduced number of graduating physicians selecting primary care as a career (OECD, 2021).
	Increase overseas recruitment of GPs	Unsuccessful/ partial success	Due to physician shortages working in primary care across the world, this often breaches the WHA agreed code of practice regarding international recruitment (WHO, 2010).
	Rationalize primary care services	Unsuccessful	Rationalizing services generally occurs through increasing public payments for services. This leads to many patients being unable to pay for services which ultimately leads to a two-tiered system with many poor people unable to afford care (Barber, Lorenzoni & Ong, 2019).
	Shifting primary care to specialists	Unsuccessful	There does not appear to be examples where increasing specialization improves access to comprehensive services. Few specialists would be prepared to provide comprehensive care for conditions outside of their specialty (Friedberg, Hussey & Schneider, 2010).
	Increase number of health professionals who can deliver comprehensive PHC	Successful	Numerous studies indicate that APNs such as NPs can safely improve access to health care (Caret, Moore & Sublette, 2018; Buerhaus et al., 2015; ICN, 2020; Laurant, et al., 2018). There are other health care professionals such as pharmacists who also contribute to expanding access to safe primary care.

USA – NURSE PRACTITIONERS IMPROVING ACCESS TO PRIMARY CARE

The United States has more than 50 years of experience with NPs in primary care. These nurses have demonstrated that they can provide full-scope primary care and are well accepted by patients. It is estimated that 36,000 NPs graduate each year with almost 90% prepared and certified in primary care and 70% (~200,000) of all NPs deliver PHC (Fang, Htut & Bednash, 2008; American Association of Nurse Practitioners, 2022). This workforce is expected to double within the next 15 years.

The current ratio of physicians to APRNs (Advanced Practice Registered Nurses) and PAs (Physician Assistants) is 2:1. This is expected to change to 1:1 by 2032. The American Medical Colleges state that if this ratio is not achieved, the shortfall could be as high as 48,000 GPs. In their workforce modelling, they suggest that 50%-77% of physician time to provide preventive care and 25%-47% of physician time to provide chronic care could be provided by APRNs and PAs. This modelling assumes that physicians would focus on complex cases (Association of American Medical College, 2021).

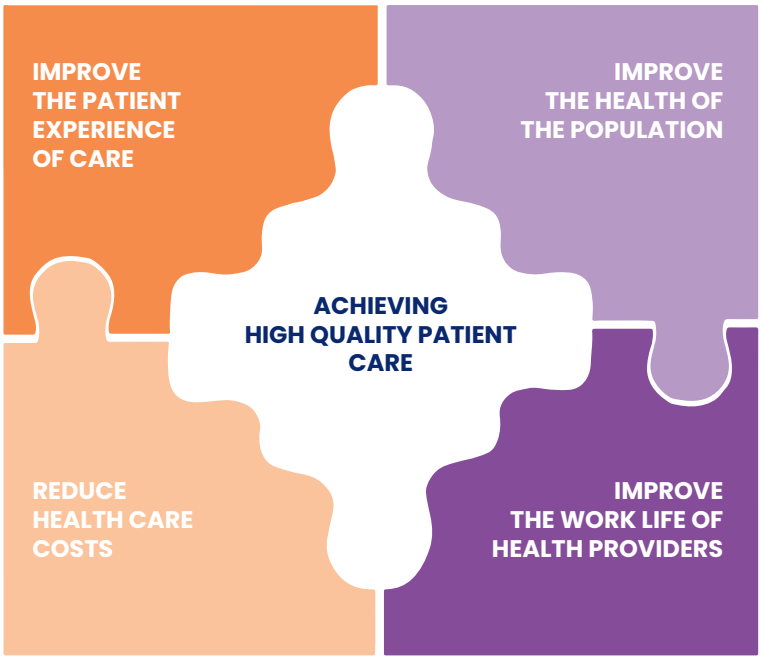


FIGURE 4
The Quadruple Aim

Harness the potential of APNs to achieve the Quadruple Aim in health care

The Quadruple Aim (Bodenheimer & Sinsky, 2014) is a well-regarded framework for optimizing health systems performance and achieving high quality patient care. These elements will be used to demonstrate that APNs are a good investment.

Element 1: Improve people's experience of care

Element 1 aims to enhance the quality of care that patients receive, having a greater focus on individuals and families. The Institute of Medicine (Baker, 2001) has outlined six domains of health care quality that can be used as measures. These include safety, effectiveness, patient-centredness, timeliness, efficiency, and equity.

APNs have been shown to be an effective solution to improving the patient experience of care. Research has found that there is no difference regarding the safety and effectiveness of PHC outcomes carried out by physicians and APNs. In some instances, the performance of nurses was considered to be of higher quality and led to higher rates of patient satisfaction (Laurant, et al., 2018; Scanlon, et al., 2022; Htay & Whitehead, 2021; Stanik-Hutt, et al., 2021). In almost all studies, including random controlled trials, findings demonstrate that care from APNs led to positive effects on patient care and service outcomes including symptom severity, physical function, satisfaction, waiting times and costs. One of the reasons for this success is that APNs demonstrate greater adherence to recommended targets and practical guidelines, as well as spending more time with patients with an increased focus on education and emotional support (Htay & Whitehead, 2021; Stanik-Hutt, et al., 2013; Wilson, 2017; Seale, Anderson & Kinnersley, 2003).

APNs, particularly NPs, began as a response to improving access to care for vulnerable and underserved populations. This continues to be a key area in which APNs work. The role has been essential in caring for the health needs of various people including in areas such as women's health, pediatrics, rural populations, the poor, uninsured and underinsured, homeless, Indigenous, aged care and incarcerated populations (Xue & Intrator, 2016). Governments seeking to implement policies to address issues with inequity must consider leveraging and expanding the work of APNs in caring for vulnerable populations.

TABLE 7
Measures of quality

MEASURES OF QUALITY			RESEARCH
	Safety		• The patient experience was found to be similar between NP-led care (i.e. where NPs work collaboratively with an interprofessional team that includes a consulting physician) and physician-led care (Laurant, et al., 2018; Horrocks, Anderson & Salisbury, 2002; Housden, et al., 2017; Hunter, et al., 2016). • Patient satisfaction was equal to or marginally higher for nurse-led primary care (Hunter, et al., 2006; Martin-Misener, 2010). • Care led by APNs was found to be more patient centred (Laurant, et al., 2018; Htay & Whitehead, 2021; Caraccio, et al., 2002). • Communication between patients and NPs was stronger than physician-patient communication (Laurant, et al., 2018). • Patient-provider relationships were stronger with NPs (Laurant, et al., 2018). • APNs spent more time with patients than physicians did (Laurant, et al., 2018). • Patients utilized the same number of referrals, specialty visits and hospital admissions in nurse-led and physician-led care (Laurant, et al., 2018). • APNs are more likely than physicians to care for more vulnerable patient groups (DesRoches, et al., 2013; Barnes, et al., 2018; Kaplan, et al., 2009).
	Effectiveness		
	Patient-centredness		
	Timeliness		
	Efficiency		
	Equity		

APNS IN USA

NPs are capable of managing 80-90% of the care provided by primary care physicians without referral or consultation (National Nurse-Led Consortium, 2017).

NETHERLANDS – A GOOD INVESTMENT FOR DIABETES CARE

Researchers found that APNs providing type 2 diabetes mellitus care were provided at a lower cost than other comparable health professionals (Abraham, et al., 2019).

USA

A worksite clinic run by a single NP resulted in direct medical care cost savings of nearly $2.18 million over a two-year period, without including indirect savings related to lost productivity and absences (Chenoweth, et al., 2008).

Element 2: Improve cost efficiency of the health system

Many countries have developed policies to shift work from physicians to APNs in PHC in order to meet the demand for patient care (Maier & Aiken, 2016). This shift in part has come as a result of the success of APNs improving the patient experience of care. Despite this success, arguments continue to occur regarding the level of autonomy an APN should practice. One of the core components of this debate is whether or not APNs are more expensive to the health care system compared to physicians. As such, it is crucial to determine the cost efficiency of the APNs in PHC.

There are a number of studies that have examined the cost effectiveness of APNs. Whilst there are mixed results, the majority of findings indicate that APNs are cost-effective, particularly in the areas of consultations, patient care visits and medication management. One area where the costs were equivalent or more expensive with APNs compared to physicians was laboratory testing and diagnostic procedures (Abraham, et al., 2019).

APNS IN SWITZERLAND

APNs working in PHC is relatively new in Switzerland with only a handful of pilot projects. Prior to these projects, the majority of patients were unfamiliar with the role, yet they were happy to be seen by an APN. Research (Schönenberger, et al., 2020) was undertaken using the PEPPA Plus Framework and found the following results:

"All patients attributed characteristics like empathetic, pleasant, competent and trustworthy to the APN role.

Patients emphasized that the APN really cared about their feelings and the impact of the disease on their daily lives.

They felt that the APN empowered them in their self-management process by giving advice and applying individualized interventions and strategies.

Patients stressed that the knowledge of the APNs enabled them to assess the urgency of the health problem and thus determine whether an appointment with the GP or even hospitalization were indicated.

Many patients reported situations in which the APN referred them to other professional groups, like psychiatrists, or to the notary's office to draw up a will.

Patients described the APN as a reference person with whom they felt a close relationship and whom they dared to ask questions they would not have asked the GP. They particularly experienced the added value from the holistic care provided by the APN.

Patients appreciated being treated by the APN and GP at the same time. In their view, both had different perspectives but still pursued the same treatment goals."

Overall, the study demonstrated that patients value the APN role.

UNITED KINGDOM – COST-EFFECTIVE CONSULTATIONS

A randomized controlled trial involving 181 patients with rheumatoid arthritis, found that the average cost per patient for clinic consultations in the United Kingdom was $62.20 less in the APN group compared to the physician group (Abraham, et al., 2019).

PAN AMERICAN HEALTH ORGANIZATION – IMPROVING ACCESS TO CARE

In 2014, the Executive Committee of the Pan American Health Organization (PAHO) agreed on a strategic plan to achieve UHC. At this time they considered APN an important resource as an enabler of improving access to care. As part of achieving this, PAHO recommended educational reforms to increase PHC positions such as GPs and APNs (de Miranda Neto, et al., 2018).

Studies (Abraham, et al., 2019; Laurant, et al., 2018; Donald, et al., 2014; Martin-Misener, et al., 2015) demonstrate that there are difficulties in comparing the direct costs between health care professionals. Part of the challenge is that globally it is difficult to determine the cost effectiveness of APNs accurately because there is limited APN-specific billing and payment mechanisms.

Despite the difficulty in assessing the direct cost-benefits between health care professionals, there is a much bigger return on investment when these positions are adequately resourced with improved health care cost effectiveness. These include illness prevention, health promotion and outcomes such are reduced mortality, reduced emergency department admissions, and reduced inpatient readmissions. As such, APNs provide a significant return on investment working in PHC.

Element 3: Improve the health of populations

Access to medical care requires an adequate number and proper distribution of physicians. If there are shortages of physicians in a particular geographical region, this can mean that patients experience longer wait times or are required to travel further for treatment, or forgo it altogether. The OECD (2019b) found that there are a greater number of physicians per capita in urban areas in comparison to regional and rural areas (e.g. Slovakia and Hungary have more than twice the density in urban areas compared to regional areas). In some countries, there are historically more nurses and NPs living in regional and rural areas. According to research from the USA, simply adding more physicians will not improve access to PHC for underserved populations. According to UnitedHealth Group Center for Health Reform & Modernization (2014), "primary care physicians are most likely to practice in urban areas, communities with higher income, and people with insurance." In comparison, NPs are more likely to work in rural areas and care for poorer patients than physicians. Access to the poor and rural population in the USA are best served by NPs (Carter, Moore & Sublette, 2018). It is estimated that this model is also likely to be true for other countries.

Element 4: Improve the work life of health care providers

The triple aim of health care (simultaneously improving population health and the patient experience of care, and reducing per capita cost) has been a widely accepted approach to improve the health care system. Yet issues with health care professional burnout, dissatisfaction and other key workforce challenges are found to be a major impediment to successful attainment of this triple aim. As a result, the 'Triple Aim' was expanded to the 'Quadruple Aim' which incorporated the goal of improving the work life of health care providers.

NEW ZEALAND – TEAM-BASED CARE

New Zealand is facing a shortage of general practitioners. NPs offer a viable solution to improving access to PHC. Despite the benefits, many primary care practices have been slow to employ NPs. Part of the reason for this is the limited physician knowledge NPs in these areas: there is little agreement that NPs could improve quality of care or as a viable health care solution to workforce shortages. When there are NPs working in primary care practices, staff surveyed believe that (~90%) NPs enhance continuity of care, (~60%) enhance access to services and medications, (~70%) added value to health care. This demonstrates that when there is good understanding between professions working in a team environment, improvements can be made to health care (Mustafa, et al., 2021).

The OECD (2020) reports that there is a mismatch between knowledge and skills of health care professionals within PHC and their roles and responsibilities in caring for population and patient needs. They state that more than three quarters of physicians and nurses reported being over-skilled for the activities undertaken in their daily work. In addition to this, nurses who have completed a master's degree are twice as likely to report being over-skilled compared to those who have qualified up to a bachelor's degree level. They conclude that this mismatch represents a dramatic waste in human capital.

However, it is not just a waste in terms of resourcing, it is also a significant contributor to job dissatisfaction and intention to leave the profession. Recruitment and retention of nurses is a challenge across the world and job dissatisfaction is cited as a critical factor in the turnover of staff (Halcomb, Smyth & McInnes, 2018). Whilst there are a number of important strategies to address this critical issue, a strategically vital one is to provide opportunities for career development and increasing the autonomy of nursing practice. Advanced Practice Nursing provides nurses with both the opportunity to progress clinically in a career as well as expanded autonomy of practice.

APNs have an essential role to play as team members in PHC to meet the increased demand for timely, high-quality, patient-centred care. A team-based approach to care promotes effectiveness and value of PHC and increases its capacity. It is recognized that teams comprised of members with diverse characteristics, skills and competencies can be efficient, creative and productive (Poghosyan, et al., 2020). However, this potential is often not realized due to miscommunication and conflict which can reduce job satisfaction. When trust is built between health care professionals, with clear understanding of each other's roles and responsibilities, NPs and physicians report experiencing improved teamwork leading to higher job satisfaction, less intent to leave and better quality of care (Poghosyan, et al., 2020).

NPs are not physicians and are educated in a different model of care. Both groups diagnose and treat patients, including prescribing medications; however, these two professions are based on a very different epistemology. Both possess strengths and weaknesses, yet they are different. In an obvious manner, some differences in the care they provide is present based on a different focus of their educational programmes.

(Adapted from Carter, Moore & Sublette, 2018)

FRANCE – INVESTING IN PHC CLINICAL PLACEMENTS

In France, the Ministry of Health and Ministry of Education created a policy initiative where medical, nursing, pharmacy and physiotherapist students would have to perform a public health rotation. This means that these students would undertake clinical placements in public spaces such as universities and schools to undertake prevention activities. The core focus was on physical activity, addictions, diet and sexual health. Approximately 50,000 students per year will undertake this public health rotation (OECD, 2020b).

Recommendations

- Establish a coalition of nursing leaders and national nursing associations to support the advancement and development of APNs in PHC.
- Strategically plan for the development and implementation of innovative models of care known to improve access to high quality health care and health outcomes.
- Support and resource APNs, particularly NPs, in PHC to improve access to quality safe and affordable PHC care. APNs can improve overall patient care and service outcomes delivery, improved patient satisfaction and improved health literacy.
- Improve resourcing in underserved areas such as rural and remote, correctional facilities, maternal, child and adolescent services, and ageing.
- Provide necessary support systems and resources required to provide optimal performance.
- Invest in post-graduate education and continuing professional development, with a particular emphasis on preparing APNs for working in PHC.
- Build a supportive environment that enable APNs to work to their full scope of practice. Factors to consider include regulatory, credentialing and cultural environment; funding models; and clinical governance.
- Plan for the sustainability of APN roles.

Optimizing the PHC nursing workforce

The effectiveness and efficiency of PHC is reliant on a workforce with a wide range of skills, knowledge and attributes across both the health care system and other sectors that affect community life. In addition to this, PHC requires a PHC team with the ability to interprofessionally collaborate and support each other's strengths and weaknesses. The number and type of health professionals is dependent on the health needs of the local community and the availability of resources. As a result, the skill mix of the PHC team members is more important than their cadre designation. As such, it will be important to optimize the scope of practice of each professional in addition to considering the roles of the broader health community such as health care assistants.

Fit-for-purpose PHC nursing workforce

The World Bank states that a "fit-for-purpose health workforce has the right skills, providing the right care, in the right place, at the right time, and with skillsets that include leadership skills, communication expertise, and the ability to work within teams. The underlying assumption is that the provision of health care should be designed and delivered to provide optimal care that addresses the health needs of the population being served." (Strasser & Strasser, 2020).

One of the best ways in which this can be achieved is through investing in nursing education, both at the undergraduate and post-graduate levels of study. High quality comprehensive PHC requires health professionals to have a broad range of knowledge and skills to provide care to the health needs of the population they serve. To achieve this level of abilities requires investment not only in scientific and technical knowledge and skills, but also in a wide array of interpersonal and leadership skills. This is essential element for person- and community-centred care as health professionals are often put into uncertain, complex and novel situations with limited resources to those of large acute hospitals.

There are a number of challenges in the undergraduate preparation of nurses working in PHC. In many countries, there are nursing workforce shortages with an urgent need to fill the gap. Education is at the core of building the domestic supply of nurses, but due to the shortage focus, there is often a tendency for didactic theoretical learning and clinical placements to be focused on the acute care sector (Strasser & Strasser, 2020). This has the potential to leave graduates underprepared for working in PHC settings, particularly when it relates to rural or underserved populations. To better prepare students to work in a wide array of PHC settings may require adjustments to curricula. As such, it is important that governments continue to review their nursing education programmes to meet the health care needs of communities being served.

As part of the investing in PHC education, other key areas to consider are Integrated Clinical Learning (ICL), post-graduate learning, continuing professional development, and education pathways.

Integrated Clinical Learning

To increase the number of students that are adequately prepared for PHC on completion of their studies, consideration should be given to ICL, which involves a team of clinical supervisors from a range of health professions teaching students from different fields together in PHC settings. The goal is to build team-based competencies based on improving the quality of care (Strasser & Berry, 2021). In addition, working with individuals in the community and PHC settings promotes person centred care.

Post-graduate education

Health knowledge continues to change and advance rapidly. In response, nursing continues to evolve as a profession to address the changing health needs of the population. Part of this evolution requires nurses to maintain their currency of knowledge and practice to optimize patient outcomes. Post-graduate education has been found to improve knowledge and skills and build higher order skills such as problem solving and critical thinking (Abu-Qamar, et al., 2020).

Continuing Professional Development

The purpose of Continuing Professional Development (CPD) is to constantly update and renew scientific, health and nursing knowledge and skills in order to provide evidence informed practice that will ultimately ensure better patient outcomes. There are clear benefits for nurses to access CPD and it is recommended that:

- Nurses can easily access quality, appropriate and acceptable CPD relevant to their context of practice.
- A minimum standard of hours is set for CPD per annum.
- There is reflection on how the CPD has improved professional performance.

Education pathways

WHO has sponsored research to develop a rural pathways checklist with the aim to guide the practical implementation of rural workforce education, development and support strategies in LMICs. This approach seeks to build the workforce in rural areas by identifying students from rural communities. Through implementation of the framework, it was found that the rural health workforce can be 'scaled-up' through a process of 'grow your own strategy' (O'Sullivan, et al., 2020). This is an important strategy and would work well in building the PHC workforce, particularly in regional and rural communities.

Recommendations

- Commit to increasing the domestic supply of PHC nurses.
- Establish accreditation standards and core competencies to ensure that the essential elements of PHC are covered and learning outcomes are achieved in nursing education.
- Strengthen undergraduate and post-graduate education competencies in PHC for nurses. Competencies should consider empowering and supporting patients; patient advocacy and education; interprofessional and health communication; team-work and leadership; people-centred care and clinical practice; continuous learning and research.
- Establish and implement minimum standard for clinical practice hours in PHC.

Uganda:
PHC services are essential to care for the health needs of various people including in areas such as women's health, pediatrics, rural populations, etc.

Building the PHC nursing workforce

A recent Lancet study (Haakenstad, et al., 2022) estimated the workforce shortages of nurses to meet minimum requirements for UHC around the world (80 out of 100 on the UHC service coverage index). They found that the global shortage was approximately 30.6 million nurses and midwives globally. This is an extremely daunting prospect: to achieve minimum services for UHC requires a doubling of the nursing workforce.

Whilst these estimated shortages are enormous, it is difficult to narrow this down to how large the shortages are in PHC. Shortages in PHC are difficult to estimate because of the lack of national disaggregated data. WHO has recognized this as a barrier to PHC and at the 2016 World Health Assembly (WHA69.19) mandated the progressive implementation of national health workforce accounts to collect and report on national health workforce in PHC. Over the next few years, this information will become instrumental in the planning of the PHC workforce.

Understanding the PHC workforce is important because it is a complex area of work. It requires the health professional to understand fundamental health care needs in the context of the individuals and communities' social determinants of health. Health professionals will need to be educated to respond to changing needs and different local realities. Therefore, there is an added level of complexity for building and growing the PHC nursing workforce.

Much of the world's PHC workforce is geographically maldistributed to urban areas. WHO estimates that less than 55% of the world's population live outside of urban areas. Despite this, over 60% of the PHC nursing workforce live in urban areas.

(Strasser & Strasser, 2020)

	KEY ISSUES AFFECTING PHC WORKFORCE SUPPLY	POSSIBLE SOLUTIONS
	Lack of a sustainable PHC nursing workforce caused by decades of poor workforce planning.	Support the creation of appropriate data sets to analyse and monitor the PHC workforce. Develop workforce plans tailored to PHC.
	Poorly constructed payment incentives (e.g. many health promotion and disease prevention activities are not funded).	Consider funding models that focus on patient care activities and outcomes regardless of the provider.
	Geographical maldistribution exacerbating shortages in rural and disadvantaged urban areas.	Consider incentives to work in rural areas. Focus on improving access to education opportunities for rural individuals. Improve opportunities for clinical placements in rural areas and vulnerable population groups.
	Increased local drain through international nurse migration.	Adhere to the WHO Compact on ethical migration. Increase opportunities for growing the domestic supply of nurses.
	Key challenges with recruitment and retention including: – poor remuneration; – long working hours and heavy workloads; – ageing workforce; – fatigue and burnout; – insufficient resources including personal protective equipment.	Mitigating the risk of severe nursing workforce shortages requires a comprehensive and multifaceted approach to workforce retention. This includes strategies that address remuneration, reward, recognition and respect. Financial incentives are important, but are not sufficient to attract and retain nurses in PHC. Other important considerations include professional incentive (e.g. career development, support networks, mentorship, etc.) and personal and family support (e.g. housing and transport, etc.) are needed.
	Outdated perceptions of what PHC can and cannot do limits their ability to be fully utilized in PHC settings.	Campaign to educate the public and health professionals on the roles and responsibilities of PHC nurses.
	Education systems often focus on the acute care sector with the majority of clinical placements occurring in hospital settings. This means that students are not exposed to opportunities in PHC. It also reduces the ability of graduates to be adequately prepared to work in PHC settings.	Provide high-quality nursing placements for undergraduate and postgraduate students in PHC including aged care, primary care, schools and other community health settings. This will support and promote the transition of services from the acute sector to PHC. It also supports graduates seeing PHC as an attractive career option.

TABLE 8
PHC workforce supply: issues and solutions

Quality PHC relies on growing the nursing workforce. Planning must be undertaken to analyse the current situation, a clear vision of future service needs and an understanding of how to stimulate growth in the PHC nursing workforce. This will require strong and continuous support and collaboration from governments, health systems, regulators, educators, professional associations and nurse leaders.

ICN's advocacy for a stronger nursing workforce

ICN's 2023 "Recover to Rebuild" report (Buchan & Catton, 2023) delved into the challenges faced by the global nursing workforce following the COVID-19 pandemic, an unprecedented health crisis that claimed millions of lives and imposed extraordinary pressures on nurses, their teams, and health care systems worldwide. The report underscored

the disruption in primary care services as nursing professionals were redeployed from their fundamental roles in community settings to acute care environments, often feeling underprepared for the complex scenarios they encountered.

The report's conclusions were emphatic: "There is an immediate necessity for a unified policy response both nationally and internationally to fulfill the objectives set forth in the 2023 Action Agenda. This includes the formulation of a sustainable long-term strategy aimed at safeguarding the nursing workforce and facilitating the reconstruction of health systems."

In the discussions at the 76th World Health Assembly, the ICN delegation actively participated in the agenda item: "Universal Health Coverage: Reorienting Health Systems Towards Primary Health Care for a Robust Foundation." ICN CEO Howard Catton emphasized ICN's engagement in several WHA side events addressing crucial topics like NCDs, UHC, and workforce challenges, all of which have been magnified by the pandemic.

Following the United Nations General Assembly High-Level Meeting on Universal Health Coverage, ICN President Pamela Cipriano lauded the Declaration, noting: "It presents governments with a golden opportunity to initiate insightful and lasting reforms that will significantly impact by ensuring equitable health care access for all. It is imperative that governments not only pledge their commitment but also actualize these pledges through substantial investments to bring about transformative changes that will serve the countless individuals presently underserved by basic health care services."

At the same meeting, WHO Director-General Dr Tedros Adhanom Ghebreyesus acknowledged that signing the Declaration represented a commitment to UHC by countries. However, he stressed that this commitment must be backed by decisive budgetary and policy actions focused on investing in primary health care: "...the cornerstone for achieving inclusivity, equity, and efficiency on the path to universal health coverage."

Echoing this sentiment, ICN Chief Executive Officer Howard Catton observed a notable shift in the United Nations' stance, emphasizing the pivotal role of nursing in PHC and its intrinsic link to UHC. He elaborated: "While nursing care encompasses more than just PHC, it's undeniable that PHC revolves around nursing care. Nurses are instrumental in realizing UHC, as evidenced by our policy initiatives at ICN, supported by tangible instances illustrating nurses' central role in UHC, spanning the entire continuum of care from prevention to rehabilitation, and from cradle to grave."

Recommendations

- Promote the value and prioritize investments in PHC as a means to address people's health needs.
- Develop, resource and implement a workforce plan for PHC nurses to provide a clear and concise strategic workforce direction for the country. The workforce plan must include the analysis, forecasting and planning of the PHC nursing workforce supply and demand.
- Improve the collection and reporting of high quality and reliable workforce data to support workforce planning and resource investment.
- International organizations to undertake PHC nursing workforce projections.
- Invest and increase the number of nurses working in primary health care and in the community.
- Address organizational culture and barriers to professional practice.
- Support nurses to work to their full potential.
- Support opportunities for continued professional development and career progression.
- Consider and adopt strategies pivotal to retention including increased remuneration; improved staff to patient ratios and better and safer working conditions; recognition and appreciation.
- Increase the voice of PHC nurses in policy development and high-level decision making.
- Implement ICN's Charter for Change (ICN, 2023)

GERMANY – NURSE-LED MODELS OF CARE IN RESIDENTIAL LONG-TERM CARE

There are approximately 818,000 people in full time residential care in Germany. This number is expected to rise at a rapid pace. The Ministry of Health in Germany has proposed innovative nurse led models of care to meet the increasing health demands. In these models there is increased independent practice, increased autonomous decision making. APNs are undertaking the assessment, planning, management and coordination of residents' care (Schmüdderich, et al., 2023).

Nurse-led models of care

With health care systems facing major challenges such as workforce shortages, increasing demand, and changes to patient preferences, countries have been driven by the need for service development and innovation. Nurses have been at the forefront of this transformation due to their high numbers, broad scope of practice and their proximity to the patient. In part, this is clearly demonstrated in the increasing proliferation of nurse-led services that are improving the patient experience, addressing gaps in health services, and improving value for money.

There is some confusion about what constitutes nurse-led models of care. This is due in part to the broad continuum. At times, these models may replace traditional models of care that are historically delivered by the medical profession through to comprehensive APN models of care. However, at the core of nurse-led service delivery models, there is an increased level of professional autonomy and leadership exercised by the nurse.

An example of a nurse-led model of care are nurse-led clinics, which include a nurse who is the primary provider of care and has a specifically designated patient caseload. This may occur independently, as with APNs, or in collaboration with other health professionals. Often within these clinics, the nurse will provide screening and detection of early disease or indicators of management of chronic disease or healthy ageing in areas of population and patient need (Howe, 2016). A common characteristic of nurse-led clinics is provision of health care that includes chronic and complex conditions; maternal and child health; and vulnerable and disadvantaged populations.

TRANSFORMING PHC IN FRANCE THROUGH NURSING INNOVATION

Historically, French health care, influenced by the Hospital, Patient, Health, and Territory Law of 2009, was physician centric. However, the COVID-19 pandemic catalysed a significant shift in perspective, highlighting the crucial role of nurses. This realization has led to legal reforms and a growing recognition of nurses' potential in community care. ANFIIDE, the French national nursing association, has been instrumental in developing new care models that allow nurses to contribute more significantly across the country. This includes adapting to new protocols and funding laws, emphasizing nurses' roles in community care, prevention, chronic disease management, and specialized areas like cancer care. The organization collaborates closely with the Ministry of Health, focusing on enhancing nursing competencies, promoting best practices, and aligning with citizen needs. Additionally, ANFIIDE plays a vital role in primary prevention efforts, including inoculations in partnership with WHO, and actively defends patients' rights, fostering a true partnership with French patient organizations. This proactive approach aims to expand the scope and impact of nursing in French health care.

(Case study submitted by ANFIIDE at the ICN webinar on the role of nurses in PHC, November 2023.)

AUSTRALIA – IMPROVING ACCESS TO HEALTH CARE

In Queensland, a scoping review of 257 nurse-led services showed that these nurses provide quality safe services that have low wait times, providing accessible services to patients with complex health needs, particularly for those who have historically poor access to health care (Douglas, et al., 2018).

Nurse-led vaccination programmes are also an example of a nurse-led model of care. Whilst these occur in a number of countries, there are still many which have yet to establish these models of care. The pandemic has shown the fragility of current immunization programmes. WHO estimates that there has been a 5% drop in the number of children being vaccinated, meaning an estimated 25 million children under the age of 1 year who not receiving vaccines to prevent life-threatening diseases helping them to live longer and healthier lives (WHO, 2022c).

Marginalized communities often struggle with basic needs and the pandemic added additional burden. Bringing immunization programmes closer to the community in innovative ways can improve access to safe and affordable programmes.

Nurse-led vaccination programmes involve a number of core components including scheduling of appointments; screening and assessing individuals; providing a safe and suitable environment; education and guidance; immunization administration; recording; and monitoring for potential reactions or side effects (Murphy, Serowoky & Grant, 2021).

These are just two examples of nurse-led models of care in PHC. They demonstrate the enormous benefits that can be obtained for the community through their adoption. However, provision of quality nurse-led service models depends on the availability of a highly skilled workforce; appropriate and adequate funding models; a supportive regulatory environment; a positive and supportive health professional culture with a shared vision for the service; and the removal of unnecessary and artificial barriers.

Governments, health care systems, the nursing profession and the public must seize the opportunity to redesign health care systems to meet the challenges of the future. Nurse-led models of care in PHC is one such innovation that has the potential to transform systems and provide increased access to safe, affordable and accessible care in the community.

TABLE 9
Expected benefits of nurse-led models in PHC

For patients	Shorter wait times; improved access to and continuity of care; high levels of patient satisfaction.
For nurses	Increased job satisfaction.
For physicians	Work can be prioritized for those who most need it.
For the health system	Improved integration, coordination and efficiency of care. Decreased fragmentation of care.
For governments	Increased value for money.

	Nurses have a long history of being involved in all aspects of vaccination management including administration and education.
	Nurses are accepted by patients as competent immunization providers.
	Nurses often work in areas of high contact with children, ageing populations, and vulnerable community groups.
	These models of care have been shown to improve access to immunizations.

TABLE 10
Nurse-led vaccination models

Recommendations

- Support post-graduate education for PHC nurses. Post-graduate education is linked to improved critical thinking, knowledge and understanding, increased application of knowledge, thus leading to improved patient outcomes.
- Strengthen models of care that utilize digital technologies to support PHC. Digital technologies can be used to support the continuing professional development of nurses as well as improving access to care for consumers. An example of improving access to care is the use of telehealth. This has a particular impact on consumers who can contact PHC nurses remotely.
- Support nurses working to their full scope of practice as part of an interdisciplinary team. This can promote more integrated, efficient and accessible health care.

FRANCE – NURSE LED VACCINATION PROGRAMME

In Paris, a nurse-led vaccination programme was established to improve pneumococcal vaccination coverage among patients with chronic inflammatory rheumatic diseases. Patients with chronic inflammatory rheumatic diseases receiving immunosuppressive therapy are at high risk for invasive pneumococcal disease. Despite national recommendations regarding pneumococcal vaccination, vaccination rate had remained low in this population. As a result of implementing this programme, there was a dramatic increase in pneumococcal vaccination coverage (Serre, et al., 2017).

Digital health and technology integration for PHC

Digital health technologies are rapidly transforming PHC by enhancing access, efficiency and quality of care. The integration of telehealth services, electronic health records (EHRs) or electronic medical records (EMRs), mobile health applications, and remote monitoring devices supports nurses in delivering patient-centred care. Nurses, collectively representing the largest health workforce, play a crucial role in the collection, entry and use of clinical information, making them integral to the success of digital health initiatives.

Digital health encompasses the general use of information and communication technologies (ICT) for health, as well as advanced technologies for managing data and information, such as artificial intelligence (AI) and genomics (WHO, 2018b). These technologies are critical components of any modern health care system and their adoption is essential for improving patient care outcomes, enhancing clinical utility, and increasing the sustainability of health care systems.

The evolution of technology in health care also necessitates a specialized workforce that understands and appreciates the socio-technical dimensions of digital health implementations. This workforce must be adept at integrating digital health tools into clinical practice, ensuring they are used effectively and efficiently to benefit both patients and health care providers.

This section explores two areas of digital health technologies: telehealth and EMRs

Telehealth

Between 2019 and 2023, there were noticeable global efforts in utilizing telehealth services (Ndwabe, Basu & Mohammed, 2024). The COVID-19 pandemic caused significant disruptions in essential health care delivery. To mitigate these disruptions, governments quickly promoted remote care by introducing new legislation and revising existing laws. All OECD countries that previously mandated in-person consultations removed this restriction. Additionally, many countries adjusted payment systems to cover teleconferencing consultations (OECD, 2023a). Since then, telehealth has significantly increased access for vulnerable population groups. Patients have shown overwhelming satisfaction with telehealth services, with evidence suggesting that telehealth saves both time and money. About two in five patients who used remote care during the pandemic preferred it to in-person appointments. Despite the enormous growth in the use of telehealth, many regulatory and financial changes promoting telehealth are temporary and subject to review, potentially limiting future access despite significant patient demand. Telehealth can reduce subsequent costly health care utilization and missed appointments but may also lead to duplicative in-person care and higher spending without added value under certain payment schemes. To ensure telehealth's continued benefit and integration into health care systems, policies should focus on:

1. **Integrated care delivery:** Develop models that fully coordinate remote and in-person care as part of a seamless care pathway. Current fragmentation and provider disagreements on telemedicine's merits are suboptimal for patient care.
2. **Economic incentives:** Incentivise telehealth service models delivered by nurses through appropriate funding models.
3. **Understand patient use:** Collect and analyze data on who uses telehealth services, why they use them, and their subsequent health care needs to inform its impact on health system performance (OECD, 2023b).

CHINA: DIGITAL TRANSFORMATION IN CHINESE NURSING THROUGH WECHAT

The Chinese Nurses Association (CNA) illustrates the innovative integration of WeChat, a popular social media platform with over 1.3 billion users in China, into nursing and patient care. Recognizing WeChat's popularity in daily Chinese life, nurses and researchers have used its features for health management and patient care. Thousands of papers have been published on the use of WeChat in nursing, showcasing its significant contribution to UHC in China. One notable application enables patients with noncommunicable diseases to remotely monitor their conditions, report symptoms and receive appropriate interventions, leading to reduced emergency visits, hospitalizations and mortality rates. The CNA is also spearheading efforts in artificial intelligence-enhanced digital nursing, aiming to expedite the realization of UHC through technological advancement in health care.

(Case study presented by the Chinese Nurses Association at the ICN webinar on the role of nurses in PHC, November 2023.)

Enhancing EMR usability in PHC

Digital health tools provide nurses with access to real-time patient data and advanced decision support systems. EHRs offer comprehensive patient histories, lab results, and diagnostic information, enabling nurses to make informed clinical decisions. EHR platforms often include clinical guidelines and protocols that assist nurses in providing accurate and timely care. These resources enhance the clinical decision-making process, leading to better patient outcomes (Lloyd et al., 2023).

Poor usability of EMRs and EHRs contributes to clinician fatigue, errors and burnout. Despite these challenges, EMR systems can enhance the quality, safety and efficiency of health services. Understanding the usability experiences of clinicians is critical, especially in a post-pandemic world where work pressures have increased, leading to decreased wellbeing and staff retention. Effective EMR systems must support clinicians without adding to their burden. Key challenges include addressing inefficient user interfaces, inadequate health information exchange, and excessive data entry requirements. A strong foundation in quality data collection, error prevention and clinician support will advance digital health transformation and patient-centred care (Lloyd et al., 2023). To support this requires:

1. **Improving user interface design:** Develop EMR systems with intuitive and user-friendly interfaces to reduce clinician fatigue and errors. Prioritize user-centred design principles to ensure that systems align with clinical workflows.
2. **Enhancing health information exchange:** Facilitate seamless data sharing between PHC providers and external organizations to improve continuity of care and reduce redundant data entry.
3. **Streamlining data entry requirements:** Simplify data entry processes to minimize administrative burden on nurses, allowing them to focus more on patient care.
4. **Incorporating nurse feedback:** Actively involve nurses in the design and implementation of EMR systems to ensure that their specific needs and challenges are addressed.
5. **Integrating ICNP into clinical records:** Incorporate the International Classification for Nursing Practice (ICNP) into EMR systems to standardize nursing terminology, improve communication among health care providers, and enhance the accuracy and consistency of clinical records.

Nursing and digital health solutions

The integration of digital health technologies into PHC not only improves access to care but also significantly empowers the nursing workforce. By leveraging telehealth services, EHRs, mobile health applications, and remote monitoring devices, nurses can deliver more efficient, effective and patient-centred care. The benefits derived from these include enhanced clinical decision-making; improved care coordination; increased autonomy and scope of practice; professional development and education; and consumer empowerment through education and engagement (Silva et al., 2022). As such it is recommended that to fully realize the potential of digital health integration in PHC and empower the nursing workforce requires:

1. **Investment in digital infrastructure:** Allocate funding to build and maintain robust digital infrastructure, ensuring reliable internet connectivity and access to digital health tools in all health care settings, including rural and underserved areas.
2. **Support of digital literacy training:** Implement comprehensive training programmes to improve digital literacy among nurses. This includes integrating digital health competencies into nursing curricula and providing ongoing professional development opportunities.
3. **Promotion of interprofessional collaboration:** Encourage interprofessional education and collaboration through digital platforms. Policymakers should support initiatives that foster teamwork and communication among health care providers, enhancing care coordination and patient outcomes.

4. **Development of regulatory frameworks:** Establish clear regulatory guidelines for the use of digital health technologies in nursing practice. These frameworks should address issues such as data privacy, security, reimbursement and the scope of practice for nurses using digital tools.
5. **Incentivizing the use of digital health tools:** Provide financial incentives and reimbursement models that encourage the adoption of digital health technologies by nurses and health care organizations. This can include funding for telehealth services, remote monitoring devices, and EHR implementation.
6. **Fostering innovation in digital health:** Support research and innovation in digital health technologies that enhance nursing practice. Policymakers should fund pilot projects, grants and collaborations between health care providers, technology developers, and academic institutions (WHO, 2018b).

Hong Kong: Nurses provide PHC services to meet people's health needs across the life course.

CONCLUSION – SEIZE THE OPPORTUNITY

Countries throughout the world have committed to strengthening PHC as part of the Astana Declaration. However, in many countries, PHC is still undervalued, evidenced by poor policies, inadequate planning, and under-investment. PHC should be at the highest priority for governments because it is the cornerstone of a sustainable health system.

The COVID-19 pandemic has exposed numerous weaknesses in PHC and exacerbated many of its challenges. Despite PHC being the frontline of defence against the pandemic, a large amount of focus has been on hospitals and containment strategies. As a result, many people requiring routine and continuous care with underlying health conditions did not receive adequate attention (OECD, 2021). This has resulted in delayed diagnosis, delayed care and or missed care. There is a need to learn from the lessons of the pandemic and this should accelerate investment and valuing PHC.

We can no longer have the same approach to PHC as we had prior to the pandemic. In order for the world to achieve safer, more accessible and affordable PHC, there needs to be innovation and transformation. This means strengthening PHC that is organized around multidisciplinary and coordinated care, with a focus on health and wellness. Not only should PHC offer treatment, but its primary focus must be on health promotion and illness prevention, whilst ensuring safe, quality care when people need it.

This report has provided an effective argument for the need for change. In addition, it clearly demonstrates recommendations that are actionable to ensure high-quality PHC that is available and accessible to all. The quality and effectiveness of PHC is dependent on having the right workforce, in the right place, with the right skills, in right numbers equipped with the right resources. This can be achieved through valuing and investing in the nursing workforce.

APPENDIX 1: OVERVIEW OF ICN'S RECENT WORK IN PHC

AREA	DETAIL	LINK
Partnership with the media	Produced for ICN by BBC StoryWorks Commercial Productions, the films and articles in Caring with Courage reveal the power of care and dedication in the inspiring work of nurses. Caring with Courage features numerous inspiring stories from around the globe.	https://www.bbc.com/storyworks/specials/caring-with-courage/
International Nurses Day publications	Each year, ICN prepares and distributes the International Nurses Day resources and evidence, providing a toolkit which can include public information materials, research findings, case studies, and detailed policy papers to inform and support the nursing community. These publications revolve around a specific theme pertinent to the nursing world, selected to highlight and address current issues, challenges and innovations in nursing. Themes from past years have included Our Nurses. Our Future. The economic power of care, and Invest in nursing, respect rights to secure global health.	https://www.icn.ch/how-we-do-it/campaigns/international-nurses-day
Partnering with the private sector, non-government organizations and civil societies	ICN has collaborated with UHC2030 which is a platform where the private sector, civil society, international organizations, academia and governmental organizations can collaborate to create a movement for accelerating equitable and sustainable progress towards universal health coverage (UHC) and health systems strengthening at global and country levels. ICN's role in this is sharing the global voice of nursing on how nurses play a vital role in achieving UHC.	https://www.uhc2030.org/news-and-events/news/partner-insights/international-council-of-nurses-why-nurses-are-so-important-for-uhc-555297/
Official relations with the World Health Organization	As a non-State actor, every year ICN actively participates in the WHO Executive Board meetings and the World Health Assembly to represent the voice of nurses and nursing to advance global health and promote public health. ICN has made numerous interventions on PHC at these events over a number of years.	https://www.icn.ch/how-we-do-it/world-health-organization/world-health-assemblies
	ICN has worked with WHO on a number of technical products over the years aimed at strengthening PHC. This ranges from technical documents on patient safety, through to the Global Strategic Directions for Nursing and Midwifery, and the Global Competency and Outcomes Framework for Universal Health Coverage.	https://www.who.int/teams/integrated-health-services/patient-safety/research/safer-primary-care https://www.who.int/publications/i/item/9789240033863 https://www.who.int/publications/i/item/9789240034662
Statements	ICN and the Nursing Now campaign developed joint statements advocating for the work of nurses in PHC prior to the Global Conference on Primary Health Care in Astana, Kazakhstan, 25-26 October 2018, celebrating the 40th Anniversary of the Declaration of Alma-Ata. The declaration called for the world to recognize and optimize the work of nurses in PHC.	https://www.icn.ch/sites/default/files/2023-04/PHC%20statement%20ICN-NN.pdf

AREA	DETAIL	LINK
High level commission representation	ICN played a pivotal role on the WHO Independent High-level Commission on NCDs. ICN led the development of key strategies approved within the report tackling NCDs.	https://www.who.int/groups/high-level-commission-on-ncds/synergies-for-beating-ncds
Publications related to health workforce	ICN has developed numerous reports on the nursing and key strategies to grow and sustain the workforce. *Recover to Rebuild: Investing in the nursing workforce for health system effectiveness*, the ICN Charter for Change and the International Nurses Day report, *Our Nurses. Our Future. The economic power of care* are the most recent examples.	https://www.icn.ch/sites/default/files/2023-07/ICN_Recover-to-Rebuild_report_EN.pdf https://www.icn.ch/sites/default/files/2024-05/ICN_IND2024_report_EN_A4_6.1_0.pdf

APPENDIX 2: SUMMARY OF RECOMMENDATIONS

CARE COORDINATION
Implement care coordination led by nurses as an effective and evidence-based solution in PHC.
Health care providers and leaders of health care systems to explore options for developing or enhancing nurse-led care coordination models.
Improve individuals' and communities' awareness and understanding of care coordination and how it might affect their treatment and participation in health care.
Utilize care coordinators to support the empowerment of individuals to participate in the planning of their care.
Undertake workforce planning to consider workforce capacity and the skill mix required for care coordination.
Professional nursing organizations to consider professional standards and competencies related to care coordination.
Promote inter-professional clinical and didactic learning experiences to facilitate team-based PHC in clinical settings.
INTEGRATED AND TEAM-BASED PHC
Adopt a patient-centred approach to planning and delivering team-based care.
Transition from a siloed approach focused on treatment to multi-disciplinary team care with a focus on health promotion and illness prevention, while ensuring safe, quality care is provided when people need it
Provide nurses with the professional development to support shared decision making.
Implement into health professional education programmes the competencies required to engage patients as partners in care and the process of shared decision making.
Promote team-based care models to the public.
Build coherence among health care providers working in teams.
Promote interprofessional education and learning.
ADVANCED PRACTICE NURSES
Establish coalition of nursing leaders and national nursing associations to support the advancement and development of APNs in PHC.
Strategically plan for the development and implementation of innovative models of care known to improve access to high quality health care and health outcomes.
Support and resource APNs, particularly NPs, in PHC to improve access to quality safe and affordable PHC care. APNs can improve overall patient care and service outcomes delivery; improved patient satisfaction and improved health literacy.
Improve resourcing in underserved areas such as rural and remote, correctional facilities, maternal, child and adolescent services, and ageing.
Provide necessary support systems and resources required to provide optimal performance.
Invest in post-graduate education and continuing professional development, with a particular emphasis on preparing APNs for working in PHC.
Build a supportive environment that enables APNs to work to their full scope of practice. Factors to consider include regulatory, credentialing and cultural environment; funding models; and clinical governance.
Plan for the sustainability of APN roles.

PHC NURSING WORKFORCE
Commit to increasing the domestic supply of PHC nurses.
Establish accreditation standards and core competencies to ensure that the essential elements of PHC are covered and learning outcomes are achieved in nursing education.
Strengthen undergraduate and post-graduate education competencies in PHC for nurses. Competencies should consider: – empowering and supporting patients; – patient advocacy and education; – interprofessional and health communication; – team-work and leadership; – people-centred care and clinical practice; – continuous learning and research.
Establish and implement minimum standard for clinical practice hours in PHC.
Promote the value and prioritize investments in PHC as a means to address people's health needs.
Develop, resource and implement a workforce plan for PHC nurses to provide a clear and concise strategic workforce direction for the country. The workforce plan must include the analysis, forecasting and planning of the PHC nursing workforce supply and demand.
Improve the collection and reporting of high quality and reliable workforce data to support workforce planning and resource investment.
International organizations to undertake PHC nursing workforce projections.
Invest and increase the number of nurses working in PHC and in the community.
Address organizational culture and barriers to professional practice. Support nurses to work to their full potential.
Support opportunities for continued professional development and career progression.
Consider and adopt strategies pivotal to retention including: – increased remuneration; – improved staff to patient ratios and better and safer working conditions; – recognition and appreciation.
Increase the voice of PHC nurses in policy development and high-level decision making.
Support post-graduate education for PHC nurses. Post-graduate education is linked to improved critical thinking, knowledge and understanding, increased application of knowledge thus leading to improved patient outcomes.
Strengthen models of care that utilize digital technologies to support PHC. Digital technologies can be used to support the continuing professional development of nurses as well as improving access to care for consumers. An example of improving access to care is the use of telehealth. This has a particular impact on consumers who can contact PHC nurses remotely.
Support nurses working to their full scope of practice as part of an interdisciplinary team. This can promote more integrated, efficient and accessible health care.

REFERENCES

Abraham, C.M., et al. (2019). 'Cost-Effectiveness of Advanced Practice Nurses Compared to Physician-Led Care for Chronic Diseases: A Systematic Review'. *Nurs Econ*. 37(6): p. 293-305.

Abu-Qamar, M.Z., et al. (2020). 'Postgraduate nurse education and the implications for nurse and patient outcomes: A systematic review'. *Nurse Educ Today*. 92: p. 104489.

American Association of Nurse Practitioners (2022). *NP Fact Sheet*. Available at: https://www.aanp.org/about/all-about-nps/np-fact-sheet. [Accessed: 10 April 2024].

American Nurses Association (2012). *The Value of Nursing Care Coordination*. ANA: Maryland. Available at: https://www.nursingworld.org/~4afc0d/globalassets/practice-andpolicy/health-policy/care-coordination-white-paper-3.pdf (Accessed 10 April 2024).

Association of American Medical Colleges (2021). *The Complexities of Physician Supply and Demand: Projections From 2019 to 2034*. AAMC: Washington. Available at. https://digirepo.nlm.nih.gov/master/borndig/9918417887306676/9918417887306676.pdf. (Accessed: 10 April 2024).

Auraaen, A., Slawomirski L. and Klazinga, N. (2018). "The economics of patient safety in primary and ambulatory care: Flying blind", *OECD Health Working Papers*, No. 106, OECD Publishing, Paris, https://doi.org/10.1787/baf425ad-en.

Baker, A. (2001). 'Crossing the quality chasm: a new health system for the 21st century'. BMJ. 2001 Nov. 17;323(7322):1192. PMCID: PMC1121665.

Barber, S.L., Lorenzoni, L and Ong, P. (2019). *Price setting and price regulation in health care: lessons for advancing Universal Health Coverage*. Available at: https://www.oecd.org/health/health-systems/OECD-WHO-Price-Setting-Summary-Report.pdf. [Accessed 10 April 2024].

Barnes, H., et al. (2018). 'Rural and nonrural primary care physician practices increasingly rely on nurse practitioners'. *Health Affairs*. 37(6): p. 908-914.

Bodenheimer, T. and Sinsky, C. (2014). 'From triple to quadruple aim: care of the patient requires care of the provider'. *Ann Fam Med*. 12(6): p. 573-6.

Buchan, J. and Catton, H. (2023). *Recover to Rebuild: Investing in the nursing workforce for health system effectiveness*. International Council of Nurses. Available at: https://www.icn.ch/sites/default/files/2023-07/ICN_Recover-to-Rebuild_report_EN.pdf. (Accessed 10 April 2024).

Budde, H., et al. (2021). 'The role of patient navigators in ambulatory care: overview of systematic reviews'. *BMC health services research*. 21(1): p. 1-1166.

Buerhaus, P.I., et al. (2015). 'Practice characteristics of primary care nurse practitioners and physicians'. *Nurs Outlook*. 63(2): p. 144-53.

Burton, R.A. (2016). 'Health policy brief: improving care transitions'. *Health Affairs*. Robert Wood Johnson Foundation.

Canadian Medical Association (2022). *Critical family physician shortage must be addressed: CMA*. Available at: https://www.cma.ca/news-releases-and-statements/critical-family-physician-shortage-must-be-addressed-cma#:~:text=Statistics%20Canada%20reported%20in%202019,government%20recruitment%20websites%20across%20Canada. (Accessed 10 April 2024).

Carraccio, C., et al. (2002). 'Shifting paradigms: From Flexner to competencies'. *Academic medicine* : Journal of the Association of American Medical Colleges. 77: p. 361-7.

Carter, M., Moore, P. and Sublette, N. (2018). 'A nursing solution to primary care delivery shortfall'. *Nursing inquiry*. 25(4): p. e12245-n/a.

Chenoweth, D., et al. (2008). 'Nurse practitioner services: three-year impact on health care costs'. *J Occup Environ Med*. 50(11): p. 1293-8.

Chung, F.F., et al. (2021). 'Shared clinical decision-making experiences in nursing: a qualitative study'. *BMC Nurs*. 20(1): p. 85.

Conseil National de l'Ordre des médecins (2019). *GP Shortages in France*. Available at: https://www.french-property.com/news/french_health/doctor_shortages. [Accessed 7 July 2022].

Consensus Health (2021). *Coordinated Care: Key to Successful Outcomes Best practices in care coordination improve health, lower costs and increase patient satisfaction*. Available at: https://www.consensushealth.com/wp-content/uploads/2019/02/Care-Coordination-Best-Practices_CONSENSUS_2019-compressed.pdf. [Accessed 9 August 2022].

Conway, A., O'Donnell, C. and Yates P. (2019). 'The Effectiveness of the Nurse Care Coordinator Role on Patient-Reported and Health Service Outcomes: A Systematic Review'. *Evaluation & the health professions*. 42(3): p. 263-296.

Cooper, J., et al. (2018). Classification of patient-safety incidents in primary care. *Bulletin of the World Health Organization, 96* (7), 498 - 505. World Health Organization. http://dx.doi.org/10.2471/BLT.17.199802.

Craig, E. (2022). 'Collateral damage of lockdowns could be behind 1,000 deaths a week: Non-Covid fatalities rise in England and Wales as experts blame pandemic restrictions and backlogs', Daily Mail. 8 July, Available at: https://www.dailymail.co.uk/health/article-10994179/Lockdowns-killing-1-000-people-week-Excess-deaths-England-Wales.html (Accessed 10 April 2024).

Cronin, C.J. and Evans, W.N. (2021). 'Excess mortality from COVID and non-COVID causes in minority populations'. Proceedings of the National Academy of Sciences, 2021. 118(39): p. e2101386118.

de Miranda Neto, M.V., et al. (2018). 'Advanced practice nursing: a possibility for Primary Health Care?' *Revista Brasileira de Enfermagem*. 71: p. 716-721.

Deloitte Access Economics (2022). *General Practitioner workforce report 2022*.

DesRoches, C.M., et al. (2013). 'Using Medicare data to assess nurse practitioner–provided care'. *Nursing Outlook*. 61(6): p. 400-407.

Donald, F., et al. (2014). 'A systematic review of the cost-effectiveness of nurse practitioners and clinical nurse specialists: what is the quality of the evidence?' *Nurs Res Practp*. 896587.

Donaldson, L. (2021). 'Safer Care: Shaping the Future', in Donaldson, L. et al., (eds.) *Textbook of Patient Safety and Clinical Risk Management*, Springer International Publishing: Switzerland. p. 53-66.

Douglas, C., et al. (2018). 'Nurse-led services in Queensland: A scoping study'. *Collegian*, 2018. 25(4): p. 363-370.

Dussault, G., et al. (2018). *Building the primary health care workforce of the 21st century - Background paper to the Global Conference on Primary Health Care: From Alma-Ata Towards Universal Health Coverage and the Sustainable Development Goals.* WHO: Geneva. Available at: https://www.who.int/docs/default-source/primary-health-care-conference/workforce.pdf. (Accessed 10 April 2024).

Fang, D., et al. (2008). *Enrollment and Graduations in Baccalaureate and Graduate Programs in Nursing 2007-2008.*

Frenk, J., et al. (2010). 'Health professionals for a new century: transforming education to strengthen health systems in an interdependent world'. *The Lancet*. 376(9756): p. 1923-58.

Friedberg, M.W., Hussey, P.S. and Schneider, E.C. (2010). 'Primary care: a critical review of the evidence on quality and costs of health care'. *Health Aff* (Millwood). 29(5): p. 766-72.

Genova, A. and Lombardini, S. (2022). *General practitioners in front of Covid-19: Italy in European comparative perspective.*

Haakenstad, A., et al. (2022). 'Measuring the availability of human resources for health and its relationship to universal health coverage for 204 countries and territories from 1990 to 2019: a systematic analysis for the Global Burden of Disease Study 2019'. *The Lancet*. 399(10341): p. 2129-2154.

Halcomb, E., Smyth, E. and McInnes, S. (2018). 'Job satisfaction and career intentions of registered nurses in primary health care: an integrative review'. *BMC family practice*. 19(1): p. 1-14.

Hanson, K., et al. (2022). 'The Lancet Global Health Commission on financing primary health care: putting people at the centre'. *The Lancet Global Health*. 10(5): p. e715-e772.

The Health Foundation (2022a). *The GP shortfall in numbers*. Available at: https://www.health.org.uk/news-and-comment/charts-and-infographics/the-gp-shortfall-in-numbers. (Accessed 11 April 2024).

The Health Foundation (2022b). *REAL Centre Projections: General practice workforce in England*. Summary of findings. Available at: https://www.health.org.uk/sites/default/files/2022-07/gp_workforce_projections_july_2022_website_version_updated.pdf. (Accessed 11 April 2024).

Hopper, T. (2022). 'Why five million Canadians have no hope of getting a family doctor'.*e*. 25 January Available at: https://nationalpost.com/opinion/why-five-million-canadians-have-no-hope-of-getting-a-family-doctor. (Accessed 10 April 2024).

Horrocks, S., Anderson, E. and Salisbury, C. (2002). 'Systematic review of whether nurse practitioners working in primary care can provide equivalent care to doctors'. *BMJ*. 324(7341): p. 819-23.

Horton, R. (2010). 'A new epoch for health professionals' education'. *The Lancet* (British edition). 376(9756): p. 1875-1877.

Housden, L., et al. (2017). 'Attending to power differentials: How NP-led group medical visits can influence the management of chronic conditions'. *Health Expect*. 20(5): p. 862-870.

Howe, S. (2016). *Nursing in Primary Health Care (NiPHC) Program–Enhanced Nurse Clinics: A review of Australian and international models of nurse clinics in primary health care settings.* Australian Primary Health Care Nurses Association (APNA) Melbourne, VIC.

Htay, M. and Whitehead, D. (2021). 'The effectiveness of the role of advanced nurse practitioners compared to physician-led or usual care: A systematic review'. *International Journal of Nursing Studies Advances*. 3: p. 100034.

Hunter, K.F., et al. (2016). 'Benefits and Challenges Faced by a Nurse Practitioner Working in an Interprofessional Setting in Rural Alberta'. *Nurs Leadersh* (Tor Ont). 29(3): p. 61-70.

Huynh, C. et al. (2013). Medication discrepancies at transitions in pediatrics: a review of the literature. Paediatr Drugs. 2013;15(3):203–15.

Immunization Agenda 2030 (2022). *Immunization Agenda 2030: A global strategy to leave no one behind*. Available at: https://www.immunizationagenda2030.org/. (Accessed 10 April 2024).

International Council of Nurses (2007). Nurses and Primary Health Care. Position Statement. ICN Archives. ICN: Geneva.

International Council of Nurses (2008a). Delivering Quality, Serving Communities Nurses Leading Primary Health Care. International Nurses Day Report. ICN Archives. ICN: Geneva

International Council of Nurses (2008b). Nursing Perspectives and Contribution to Primary Health Care. ICN Archives. ICN: Geneva.

International Council of Nurses (2010). *Scope of Nursing Practice and Decision-Making Framework Toolkit.* ICN: Geneva. Available at: https://www.icn.ch/sites/default/files/inline-files/2010_ICN%20Scope%20of%20Nursing%20and%20Decision%20making%20Toolkit_eng.pdf. (Accessed 10 April 2024).

International Council of Nurses (2020). *Guidelines on advanced practice nursing*., ICN: Geneva. Available at: https://www.icn.ch/resources/publications-and-reports/guidelines-advanced-practice-nursing-2020. (Accessed 10 April 2024).

International Council of Nurses (2023). Charter for Change. International Nurses Day 2023. ICN: Geneva Available at: https://www.icn.ch/sites/default/files/2023-05/IND_2023_Charter_EN.pdf. (Accessed 10 April 2024).

International Council of Nurses and Nursing Now (2019). *Joint Statement responding to the World Health Organization's draft declaration on Primary Health Care,*. 2019 Available at: https://www.icn.ch/sites/default/files/inline-files/Joint_Statement_on_draft_primary_health_care_declaration_0.pdf.

Kaplan, L., et al. (2009). 'Rural-urban practice patterns of nurse practitioners in Washington state'. *The Journal for Nurse Practitioners*. 5(3): p. 169-175.

Karam, M., et al. (2021). 'Nursing Care Coordination for Patients with Complex Needs in Primary Healthcare: A Scoping Review'. *Int J Integr Care*. 21(1): p. 16.

Kruk, M.E., et al (2018). 'Mortality due to low-quality health systems in the universal health coverage era: a systematic analysis of amenable deaths in 137 countries'. *The Lancet*. 392(10160): p. 2203-2212.

Kuriakose, R., et al. (2020). 'Patient safety in primary and outpatient health care'. *J Family Med Prim Care*. 9(1): p. 7-11.

The Lancet (2018). *The Astana Declaration: the future of primary health care?* 392(10156): p. 1369. Available at: https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)32478-4/fulltext. (Accessed 11 April 2024).

Laurant, M., et al. (2018), *Nurses as substitutes for doctors in primary care.* Cochrane Database of Systematic Reviews. Issue 7. Art. No.: CD001271.

Lee, J.Y. et al. (2010). Medication reconciliation during internal hospital transfer and impact of computerized prescriber order entry. Ann Pharmacother. 2010;44(12):1887–95

Lehnborn, E.C. et al. (2014). Impact of medication reconciliation and review on clinical outcomes. Ann Pharmacother. 2014;48(10):1298–312.

Li, L., et al. (2021). 'Temporal dynamic in the impact of COVID-19 outbreak on cause-specific mortality in Guangzhou, China'. *BMC Public Health*. 21(1): p. 883.

Lloyd, S., et al. (2023). Medical and nursing clinician perspectives on the usability of the hospital electronic medical record: A qualitative analysis. *Health Information Management Journal,* 0, 18333583231154624.

Maier, C. and Aiken, L. (2016). 'Task shifting from physicians to nurses in primary care in 39 countries: A cross-country comparative study'. *The European Journal of Public Health*. 26: p. ckw098.

Martin-Misener, R. (2010). 'Will nurse practitioners achieve full integration into the Canadian health-care system?' *Can J Nurs Res*. 42(2): p. 9-16; discussion 17-8.

Martin-Misener, R., et al. (2015). 'Cost-effectiveness of nurse practitioners in primary and specialised ambulatory care: systematic review'. *BMJ Open*. 5(6): p. e007167.

McMurray, A. and Cooper, H. (2017). 'The nurse navigator: an evolving model of care'. *Collegian,*. 24(2): p. 205-212.

Michel, P., et al. (2017), 'Patient safety incidents are common in primary care: A national prospective active incident reporting survey'. *PLoS One*. 12(2): p. e0165455.

Mulligan, C.B. and Arnott, R.D. (2022). *Non-Covid Excess Deaths, 2020-21: Collateral Damage of Policy Choices?* National Bureau of Economic Research.

Murphy, M., Serowoky, M.L. and Grant, S.M. (2021). 'Nurse-led model of care that helps a community heal curbside immunizations with assistance in social determinants'. *Nursing administration quarterly*. 45(3): p. 219-225.

Mustafa, M., et al. (2021). 'Employing nurse practitioners in general practice: an exploratory survey of the perspectives of managers'. *Journal of Primary Health Care*. 13(3): p. 274-282.

National Nurse-Led Consortium (2017). *Nurse Practitioners: Improving Access to High-Quality, Cost-Effective Health Care*.

Ndwabe, H., Basu, A. & Mohammed, J. (2024). Post pandemic analysis on comprehensive utilization of telehealth and telemedicine. *Clinical eHealth,* 7, 5-14.

Nishtar, S., et al. (2018). 'Time to deliver: report of the WHO Independent High-Level Commission on NCDs'. *The Lancet*. 392(10143): p. 245-252.

Organisation for Economic Co-operation and Development (2020). *Realising the Potential of Primary Health Care*. OECD Health Policy Studies, OECD Publishing, Paris, https://doi.org/10.1787/a92adee4-en.

Organisation for Economic Co-operation and Development (2021). *Strengthening the frontline: How primary health care helps health systems adapt during the COVID 19 pandemic.* OECD: Paris. OECD: Paris.

Organisation for Economic Co-operation and Development (2023a). The COVID-19 Pandemic and the Future of Telemedicine. *OECD Health Policy Studies*.

Organisation for Economic Co-operation and Development (2023b). *OECD Health Policy Studies The COVID-19 Pandemic and the Future of Telemedicine*, OECD Publishing.

Organisation for Economic Co-operation and Development/European Union (2020). *Health at a Glance: Europe 2020: State of Health in the EU Cycle*. OECD Publishing: Paris. https://doi.org/10.1787/82129230-en.

O'Sullivan, B., et al. (2020). 'A Checklist for Implementing Rural Pathways to Train, Develop and Support Health Workers in Low and Middle-Income Countries'. *Front Med* (Lausanne). 7: p. 594728.

Palacio-Mejía, L.S., et al. (2022). 'Leading causes of excess mortality in Mexico during the COVID-19 pandemic 2020-2021: A death certificates study in a middle-income country'. *Lancet Reg Health Am*. Sep;13:100303. doi: 10.1016/j.lana.2022.100303. Epub 2022 Jun 24. PMID: 35782204; PMCID: PMC9230439.

Panagioti, M., et al. (2019). 'Prevalence, severity, and nature of preventable patient harm across medical care settings: systematic review and meta-analysis'. *BMJ*. 366: p. l4185.

Phua K.H. (2023). *Singapore: a primary health care case study in the context of the COVID-19 pandemic*. Geneva: World Health Organization. Available at: https://iris.who.int/bitstream/handle/10665/372736/9789240079793-eng.pdf?sequence=1. (Accessed 12 April 2024).

Poghosyan, L., et al. (2020). 'Physician-Nurse Practitioner Teamwork in Primary Care Practices in New York: A Cross-Sectional Survey'. *Journal of General Internal Medicine*. 35(4): p. 1021-1028.

The Royal New Zealand College of General Practitioners(2021). 2021 *GP Future Workforce Requirements Report*. Available at: https://www.rnzcgp.org.nz/gpdocs/new-website/publications/2021-GP-future-workforce-report-FINAL.pdf. (Accessed 11 April 2024).

Scanlon, A., et al. (2022). 'United Nations' Sustainable Development Goal 3 Target Indicators: Examples of Advanced Practice Nurses' Actions'. *Journal for nurse practitioners*. Vol. 18, Issue 10. Nov-Dec. p.1067-1070.

Schmüdderich, K., et al. (2023). 'Core elements and potential of nurse-led care models in residential long-term care: A scoping review'. *Journal of Clinical Nursing*. 32(9-10):1858-1884.

Schönenberger, N., et al. (2020). 'Patients' experiences with the advanced practice nurse role in Swiss family practices: a qualitative study'. *BMC Nursing*, 19(1): p. 90.

Seale, C., Anderson E. and Kinnersley, P. (2006). 'Treatment advice in primary care: a comparative study of nurse practitioners and general practitioners'. *Journal of advanced nursing*. 54(5): p. 534-541.

Serre, J., et al. (2017). 'Nurse-led vaccination program dramatically improves pneumococcal vaccination coverage among patients with autoimmune inflammatory disorders'. *Eur J Intern Med*. 43: p. e43-e45.

Silva, C., et al. (2022). Digital Health Opportunities to Improve Primary Health Care in the Context of COVID-19: Scoping Review. *JMIR Hum Factors,* 9, e35380.

Somé, N.H., et al. (2020). 'Team-based primary care practice and physician's services: Evidence from Family Health Teams in Ontario, Canada'. *Social science & medicine* . 264: p. 113310-113310.

Stanik-Hutt, J., et al. (2013). 'The Quality and Effectiveness of Care Provided by Nurse Practitioners'. *The Journal for Nurse Practitioners*. 9: p. 492-500.e13.

Strasser, R. and Berry, S. (2021).' Integrated clinical learning: team teaching and team learning in primary care'. *Educ Prim Care*. 32(3): p. 130-134.

Strasser, R. and Strasser, S. (2020). *Reimagining primary health care workforce in rural and underserved settings.* Health, Nutrition, and Population (HNP) Discussion Paper Washington, D.C.: World Bank Group. Available at: http://documents.worldbank.org/curated/en/304851606975759118/Reimaging-Primary-Health-Care-Workforce-in-Rural-and-Underserved-Settings. (Accessed 12 March 2024).

UnitedHealth Group (2014). *Advancing Primary Care Delivery: Practical, Proven, and Scalable Approaches*. United Health Center for Health Reform & Modernization Available at: https://www.unitedhealthgroup.com/content/dam/UHG/PDF/2014/UNH-Primary-Care-Report-Advancing-Primary-Care-Delivery.pdf. (Accessed 11 April 2024).

VanderZanden, A., et al. (2021). *What Does Community-Oriented Primary Health Care Look Like? Lessons from Costa Rica*. Commonwealth Fund. Available at: https://www.commonwealthfund.org/publications/case-study/2021/mar/community-oriented-primary-care-lessons-costa-rica. (Accessed 11 April 2024).

Wagner, E.H., et al. (2017). 'Effective team-based primary care: observations from innovative practices'. *BMC Family Practice*. 18(1): p. 13.

Wilson, T.R. (2017). 'Time and NP practice: Naming, claiming, and explaining the role of nurse practitioners'. *The Journal for Nurse Practitioners*. 13(9): p. 583-589.

World Health Organization (2008). *The world health report 2008: primary health care: now more than ever*. WHO: Geneva. Available at: https://iris.who.int/handle/10665/43949. (Accessed 11 April 2024).

World Health Organization (2010). *WHO Global Code of Practice on the International Recruitment of Health Personnel*. Available at: https://www.who.int/publications/i/item/wha68.32. (Accessed 11 April 2024).

World Health Organization (2016a). *Global strategy on human resources for health: workforce 2030*. WHO: Geneva. Available at: https://www.who.int/publications/i/item/9789241511131. (Accessed 11 April 2024).

World Health Organization (2016b). *Working for health and growth: investing in the health workforce*. High-Level Commission on Health Employment and Economic Growth, WHO: Geneva. Available at: https://www.who.int/publications/i/item/9789241511308. (Accessed 11 April 2024).

World Health Organization (2016c). *Medication Errors: Technical Series on Safer Primary Care*. WHO: Geneva. Available at: https://www.who.int/publications/i/item/9789241511643. (Accessed 12 April 2024).

World Health Organization (2016d). *Diagnostic Errors: Technical Series on Safer Primary Care*. WHO: Geneva. Available at: https://www.who.int/publications/i/item/9789241511636. (Accessed 12 April 2024).

World Health Organization (2016e). *Transitions of Care: Technical Series on Safer Primary Care*. WHO: Geneva. Available at: https://www.who.int/publications/i/item/9789241511599. (Accessed 12 April 2024).

World Health Organization (2018a). *Substandard and falsified medical products* [Online]. Geneva: WHO. Available at: https://www.who.int/news-room/fact-sheets/detail/substandard-and-falsified-medical-products (Accessed 7 July 2022).

World Health Organization (2018b). *Digital technologies: shaping the future of primary health care* [Online]. Geneva: WHO. Available at: https://www.who.int/docs/default-source/primary-health-care-conference/digital-technologies.pdf (Accessed 15 July 2024).

World Health Organization (2019a). *Medication Safety in Transitions of Care*. WHO: Geneva. Available at: https://www.who.int/publications/i/item/WHO-UHC-SDS-2019.9. (Accessed 12 April 2024).

World Health Organization (2019b). *Declaration of Astana*. WHO: Geneva. Available at: https://iris.who.int/bitstream/handle/10665/328123/WHO-HIS-SDS-2018.61-eng.pdf?sequence=1. (Accessed 12 April 2024)

World Health Organization (2020). *State of the world's nursing 2020: investing in education, jobs and leadership*. WHO: Geneva. Available at: https://www.who.int/publications/i/item/9789240003279. (Accessed 12 April 2024).

World Health Organization (2022a). *COVID-19 pandemic fuels largest continued backslide in vaccinations in three decades*. Available at: https://www.who.int/news/item/15-07-2022-covid-19-pandemic-fuels-largest-continued-backslide-in-vaccinations-in-three-decades. (Accessed 12 April 2024).

World Health Organization (2022b). *Vaccines and immunization*. Available at: https://www.who.int/health-topics/vaccines-and-immunization#tab=tab_1. (Accessed 12 April 2024).

World Health Organization (2023a). *Universal Health Coverage (UHC)*. Available at: https://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-(uhc)#:~:text=To%20build%20back%20better%2C%20WHO's,by%203.7%20years%20by%202030. (Accessed 12 April 2024).

World Health Organization (2023b). *Primary health care*. Available at: https://www.who.int/health-topics/primary-health-care#tab=tab_1.20. (Accessed 12 April 2024).

World Health Organization (2023c). *Primary health care*. Available at: https://www.who.int/news-room/fact-sheets/detail/primary-health-care. (Accessed 12 April 2024).

World Health Organization (2024). Global patient safety report 2024. Geneva: Licence: CC BY-NC-S 3.0 IGO. Available at: https://iris.who.int/bitstream/handle/10665/376928/9789240095458-eng.pdf?sequence=1 (Accessed 17 July 2024).

World Health Organization (n.d.). *Primary care*. Available at: https://www.who.int/teams/integrated-health-services/clinical-services-and-systems/primary-care.

World Health Organization and UNICEF (2018). *A vision for primary health care in the 21st century: towards universal health coverage and the Sustainable Development Goals*. WHO: Geneva. Available at. https://iris.who.int/bitstream/handle/10665/328065/WHO-HIS-SDS-2018.15-eng.pdf?sequence=1. (Accessed 12 April 2024).

Xue, Y. and O. Intrator (2016). 'Cultivating the Role of Nurse Practitioners in Providing Primary Care to Vulnerable Populations in an Era of Health-Care Reform'. *Policy, politics & nursing practice*. 17(1): p. 24-31.

Yoshida, S., et al. (2019). 'Geographical distribution of family physicians in Japan: a nationwide cross-sectional study'. *BMC Family Practice*. 20(1): p. 147.

International Council of Nurses
3, Place Jean-Marteau
1201 Geneva, Switzerland
+41 22 908 01 00
icn@icn.ch

www.icn.ch