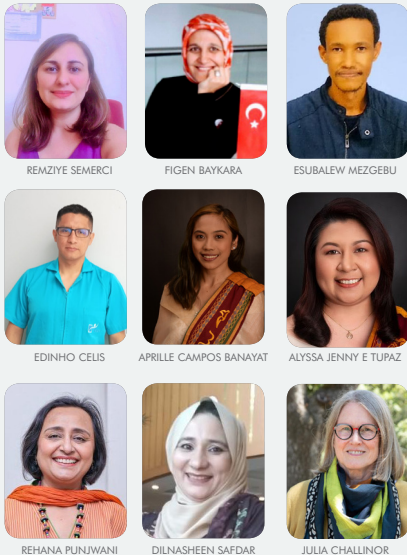


Current global oncology nursing with highlights from five low- and middle-income countries

Remziye Semerci, Assistant Professor, School of Nursing, Koç University, Istanbul, Türkiye; **Figen Baykara**, Gazi University Health Research and Application Center, Gazi Hospital Infection Control Committee, Ankara, Türkiye; **Esubalew Mezgebu**, Head Nurse, Pediatric Oncology Unit, Jimma University Medical Center, Jimma, Ethiopia; **Edinho Celis**, Paediatric Oncology Nurse, Instituto Nacional de Enfermedades Neoplásicas, Lima Peru; **Aprille Campos Banayat**, Assistant Professor, College of Nursing, University of the Philippines Manila, Manila, Philippines; **Alyssa Jenny E Tupaz**, Assistant Professor, College of Nursing, University of the Philippines Manila, Manila, Philippines; **Rehana Punjwani**, Additional Director of Nursing, Dow University Hospital, Karachi, Pakistan; **Dilnasheen Safdar**, Director Nursing/Infection Prevention & Control, National Institute of Blood Diseases and Bone Marrow Transplantation, Lahore, Pakistan and **Julia Challinor**, Associate Adjunct Professor, School of Nursing, University of California San Francisco, San Francisco, California, USA



Low- and middle-income countries (LMICs) have 70% of the world's cancer deaths and their incidence of cancer is rising. National successful cancer control planning and programmes require essential nursing practice and leadership. However, without government recognition of this specialty, robust oncology nursing faculty, training, advanced clinical opportunities and appropriate remuneration, cancer control will remain compromised. The current status of oncology nursing in five LMICs (Türkiye, Peru, Pakistan, Philippines, and Ethiopia), give insights into progress made and work still to be done.

In December 2019, WHO declared 2020 as the year of the nurse and midwife in collaboration with the International Council of Nurses, Nursing Now, the International Confederation of Midwives, and the United Nations Population Fund (1). At that time, nine million nurses were needed worldwide to address universal health coverage. Unfortunately, the global pandemic intervened, and many oncology nurses were reassigned to COVID-19 units or had to make significant changes in practice to manage patients with cancer (2). In fact, shortly after the pandemic, many nurses left their practice due to stress, anxiety, and fear of the disease, and others planned to leave the profession (3,4). Thus, the global nursing shortage remains critical, and in oncology specifically.

Departing from words written by Drury et al. about oncology nursing in Europe, "... nursing and cancer care face challenges, arising from workforce shortages, under-investment in

services and under-representation in decision-making." (p. 2), (5), we present short descriptions of the state of oncology nursing in two upper-middle-income (Türkiye and Peru), two lower-middle-income (Pakistan and Philippines), and one low-income (Ethiopia) country to demonstrate that the challenges are worldwide. The authors include recommendations for strengthening the oncology nursing workforce in their settings, which can be extrapolated to other LMICs and high-income countries as well.

Türkiye

The history of the Turkish Oncology Nursing Association (TONA) began with a collaboration between the Ministry of Health (MOH) and Hacettepe University (6). This collaboration started after organizing a seminar on the topic of "Cancer Nursing" at Ankara in 1987 (6). Hacettepe University Nursing

School faculty, under Professor Dr Leman Birol's leadership, launched oncology service training, founding TONA in 1989. TONA focuses on educating nurses in cancer detection, specialized patient care during treatments like chemotherapy and radiotherapy, conducting research, organizing seminars, publishing literature, and collaborating nationally and internationally. TONA currently comprises approximately 755 members and among 15 nursing working groups (7).

The TONA conducted a series of studies on "safety measures related to the preparation and administration of antineoplastic drugs" between 1995 and 2003 (8). In 2004, in collaboration with the MOH, they developed the "Guidelines for the Safe Use of Antineoplastic Drugs," and published it (9). Additionally, in 2005, TONA and MOH initiated the "Chemotherapy Nursing Certification Course." Today, the programme has been updated to align with the needs of nurses and revised as the "Oncology Nursing Certification Programme." This certification programme includes 56 hours of theoretical and 64 hours of practical training over three weeks (10). Professor Dr Sultan Kav collaborated with the European Oncology Nursing Society (EONS), initially serving on its Board of Directors and later becoming its President in 2014. TONA has conducted training and educational programmes in Türkiye aligned with EONS initiatives (11).

In recent years, there have been promising developments in the specialization of nursing and oncology nursing (12,13). The first oncology nursing master's programme was initiated by Dokuz Eylül University (14), subsequently, at Ege University (15). Currently, universities offer both undergraduate and graduate programmes in the field of oncology nursing, but specialization has not yet reached the desired level in Türkiye. Challenges remain in effectively deploying specialist nurses into clinical settings, particularly when they are redeployed without the resources necessary for their roles.

In Türkiye, the primary challenges for specialized oncology nursing include language barriers that necessitate English proficiency for postgraduate studies. The demanding clinical workload makes it difficult to devote sufficient time to specialist training (16).

Moreover, the lengthy duration of training programmes might necessitate taking annual leave (17). Additionally, there's no assurance of employment in an oncology clinic after achieving specialization (18). In Türkiye, nurses completing the "Oncology Nursing Certification Training Programme" receive incentives from the MOH. However, these incentives are relatively low and do not strongly motivate nurses to pursue specialization.

In Türkiye, to enhance oncology nursing specialization, the MOH should guarantee employment in oncology clinics for certified nurses. There is a need to increase the number of

universities offering postgraduate programmes in oncology nursing. Establishing an official specialization programme and legislation supporting this field is crucial. Expanding and improving accessibility to education programmes for oncology nurses, developing undergraduate programmes, and defining clear specialization areas are essential. These steps will encourage career advancement and strengthen healthcare services for oncology patients. Implementing these recommendations is crucial to enhance nurse education and improve care for oncology patients.

Peru

In Peru, the nursing career training is five years of study at national and/or private universities, then in order to practice in the profession you have to take the SERUM for one year. Currently there are 96,000 registered nurses in Peru (19). There are postgraduate studies and/or subspecialties, the training lasts two years; Each nurse will be trained according to skills and/or interest in a speciality. A specialized nurse has a salary of approximately 3,500 to 5,000 soles (US\$ 929–1327). Currently, there is a society of nurses in oncology (Sociedad de Enfermeras Oncólogas del Perú [SPEO]). This society is in charge of carrying out training related to oncology for nurses. We have a large group of empowered nurses in the area in the different entities of the state and in the private sector practising this nursing profession in oncology. This is the effort of preparation, studies and training at the national and international level, and they are highly trained to be able to work in various functions such as clinical, administration, teaching and research. SPEO has the support of the MOH and the College of Nurses of Peru and is recognized as such, because it keeps a registry of general nurses, specialist nurses and nurses with masters degrees.

In 2019, Peru was the first Latin American country to join the World Health Organization Global Initiative for Childhood Cancer (GICC). (20) The MOH assembled a paediatric oncology nursing committee from multiple paediatric oncology treatment facilities to guide work relevant to the CureALL framework that guides the GICC. This committee reinforced government recognition of national oncology nursing leaders and their expertise.

Another weakness we encounter includes intrusiveness by other health professionals in nursing care. We are working to overcome these weaknesses and further strengthen our profession. We are also currently working on a project to create the specialty of Nursing in Pediatric Oncology and the Society of Nurses in Oncopaediatrics.

Pakistan

Oncology nursing in Pakistan is at a primitive stage;

historically special training was limited to basic specialties, e.g. mental health, paediatrics and maternity and child health. Subspecialty nursing started two decades ago with cardiac nursing as a trailblazer. Oncology care came into limelight with the inception of speciality oncology hospitals, highlighting the need for speciality nursing education. Shaukat Khanam Cancer Hospital, established in Lahore in 1994, initiated an oncology nursing diploma in 2000, and The Children Cancer Hospital, in Karachi, initiated training in paediatric oncology, including nurses, in 2009 (before merging with the Indus Hospital in 2014). Both programmes received approval from Pakistan Nursing Council. These two centres remain the only two specialized oncology nurse training programmes in a country with a population of over 220 million with an estimated 8000 children (21) and 178,388 patients overall diagnosed with cancer per year (22).

There are 127,050 registered nurses in Pakistan (23), a country with less nurses (0.5/1000 population) than physicians (1.1/1000 population) (24,25). Pakistan has no existing oncology nursing society or association. Nurses do not have a national voice or recognition as a central aspect of cancer care and are still struggling for their status within the leadership of cancer control. Because of lack of recognition and career opportunities and the low number of cancer centres, there is less of an attraction for novice nurses to join the field of oncology nursing. The progress of this subspecialty to date is only because of senior nursing leadership efforts and initiation.

More nurses are now moving abroad due to poor socioeconomic conditions in Pakistan. The government spends 0.4% of the GDP on healthcare (26) and 78% of the population must pay for healthcare out of pocket (27). Nurses can earn 300 times more money in neighbouring countries, and out migration results in a need for 1.3 million nurses in Pakistan (28). With an increasing number patients with cancer and high mortality due to late diagnosis, poverty and limited supportive care, it is imperative that the government offer additional opportunities for oncology nurse training. The government and existing schools of nursing and cancer hospital nursing leaderships should immediately create an oncology nursing association/society to give a national voice to the experts in oncology nursing care and leadership. The role of national oncology societies and associations has been shown to be effective in improving patient care and outcomes (29). A Pakistani oncology nursing society/association could collaborate with the Pakistani Nursing Council and other key stakeholders, e.g., local civil society and international partners to move the agenda of developing advanced oncology nursing training programmes, e.g., essential palliative care and nurse researchers to establish local evidence for best practices. Existing paediatric oncology nurses deserve due recognition

in salary and status (official government recognition as a subspecialty) to address this imminent pressing cancer burden posing a serious public healthcare threat to many patients and to decrease mortality and improve quality of care. Unless efforts are put in increasing training, providing competitive salaries, improved work conditions and opportunities, effective cancer control cannot be achieved.

Philippines

The Philippine cancer nursing landscape has advanced throughout the years. Various government agencies produced the Philippine Qualifications Framework (PQF) to standardize qualifications (30). It “describes the levels of educational qualifications and sets the standards for qualification outcomes” (30). This paved the way for professional organizations to set educational qualifications and standards for qualification outcomes. Particularly, the Philippine Oncology Nurses Association (PONA), the accredited cancer nursing association in the Philippines promulgated the standards of practice for nurses in practice, educators, and even researchers (31). Baccalaureate standards are also set, aiming for the Philippines to lead in promoting professional nursing in the Asia Pacific Region (32). Post-baccalaureate, and doctoral and postdoctoral levels are still under development and review. The challenge for these standards is in their embedding, including alignment of programme outcomes of MS Nursing with Oncology Nursing track, for appropriate training in both undergraduate and postgraduate nursing programmes, and their subsequent competencies and outcomes validation.

Various landmark Philippine policies and laws essential for cancer care have been passed in recent years. Included in these is the Universal Health Care (UHC) Act of 2018 wherein it mandated that all citizens are automatically entitled to health benefits, including those for cancer care (33). Even before this law, changes were implemented in 2012, including the Z benefit package, which aimed to update minimum standards of care based on the best available evidence and current standards of practice applicable in the Philippine setting (34). This package covered diagnostics, treatments, and therapies for select haematologic malignancies and solid tumours, making cancer care affordable and available for Filipinos. Another important law that was passed was the National Integrated Cancer Control Act (NICCA) of 2019, which recognized that cancer is one of the leading causes of death in the Philippines, thus, the country shall adopt an integrated and comprehensive approach to address this concern (35). The State was then able to allocate a budget for integrative, multidisciplinary (including nursing), patient and family-centred cancer control policies, programmes, systems, and interventions at all levels of care.

Optimizing and localizing the implementation of landmark

policies and laws continue to pose a challenge. Even novice nurses who are new in practice, with little to no experience, are being hired and assigned to cancer centres, especially with the advent of speciality regional hospitals in different parts of the Philippine archipelago. In addition, public health institutions should work with their current number of nurses until approved by the Department of Budget and Management. In addition to this, even with the PQF, additional positions for those with higher qualifications are unavailable. Subsequent training of nurses who are currently in practice is not standardized, thus, cancer care widely varies across institutions. There is currently no recognized advanced practice nursing (APN) across specialties, including cancer nursing. Nurse experts who would train and accredit nurses in oncology nursing remain scarce in the country, especially since there are no APNs in the Philippines. But even with these challenges, oncology nursing and care in the Philippines continue to evolve and develop.

Ethiopia

Ethiopia has an estimated population of over 123 million (36), the second highest in Africa. Climate change, industrialization, and changes in lifestyle are linked to an increasing risk of cancer, since infectious diseases are under better control. Unfortunately, oncology services are woefully inadequate for this large patient population, and the country is ill-prepared to address the expanding cancer burden (53,560 patients diagnosed in 2019 or 104.3/100,000 population from the only population-based registry covering 3–5% of the population (37) with few doctors (0.1/1000 population (25) and nurses and midwives (0.8/1000 population) (24) overall in the country. Historically, Tikur Anbessa Specialized Hospital (TASH), in Addis Ababa, was the only cancer centre, however, services have now expanded to many hospitals throughout the country, i.e., St Paul Hospital Millennium Medical College ([St Paul] Addis Ababa), Harar (Hiwot Fana Comprehensive Specialized Hospital), Jimma University Medical Center, Hawassa University Comprehensive Specialized Hospital; University of Gondar Specialized Hospital, Mekelle (Ayder Referral Hospital), Dessie Comprehensive and Specialized Hospital, Tibebe Ghion Comprehensive and Specialized Hospital, and Felege Hiwot Comprehensive and Specialized Hospital.

Although the number of oncology service facilities has increased, the number of oncology nurses has not kept pace. Nurses represent the largest single health workforce worldwide and WHO has called for nurse graduates to “match or surpass health system demand and have the requisite knowledge, competencies and attitudes to meet national health priorities” (p. 8) (38.) Only two masters’ programmes in oncology nurses are currently available: Addis Ababa University and St Paul. Other centres educate nurses to care

for patients with cancer in onboarding classes combined with on-the-job training. To tackle this challenge, a collaboration of oncology nurses, paediatric oncologists/haematologists, the Ethiopia MOH, and international oncology nurse experts with experience in low-income countries (LIC) developed a paediatric oncology nursing onboarding training manual.

Experienced paediatric oncology nurses from Jimma, Addis Ababa (TASH), and Gondar and a nursing school faculty member from Jimma participated. After three in-person workshops to refine manual drafts in Addis Ababa, funded by The Aslan Project, a non-governmental organization in Washington, DC, USA, the manual was officially approved by Ethiopian MOH April 2023. This formal curriculum is expected to improve paediatric patient care, but the field is complex and fast changing so nurses need extensive knowledge, skill, and experience to give standardized and quality care including evidence-based practice. To strengthen oncology nursing in Ethiopia, attendance at national and international conferences, e.g., the International Society of Paediatric Oncology (SIOP) and the African Organization for Research and Training in Cancer (AORTIC) to network and learn about best practices and experiences. In this way, nurses caring for patients with cancer, even in LIC settings can prepare and engage in research, seminars, and workshops to share their challenges and successes and network to strengthen oncology nursing in their region. Ultimately, oncology nurses in Ethiopia should consolidate into an association such as an Ethiopian Oncology Nurses Society and strengthen their networking abroad to join other professional oncology nursing organizations with the common goal for the development of the field as an officially recognized nursing specialty.

Conclusion

Contributions from the five LMIC authors demonstrate that there are shared challenges and opportunities for oncology nursing today. As our Peruvian author recommends “Dedication and preparation in our work is essential to be able to advance as health professionals, all focusing on the well-being of our patients. The essence of care has to become stronger as time goes by and always seek continuous improvement for our patients.” Sulosaari and colleagues highlight the critical need for oncology nurse leadership, “The engagement of nursing leaders on multidisciplinary leadership is critical in the cancer care setting for the future of the nursing profession, quality of care, and the overall healthcare system” (*abstract*, 39). The WHO Global Strategic Directions for Nursing and Midwifery call for four strategic directions and policy priorities 2021–2025: education, jobs, leadership and service delivery (38). All four address areas of oncology that need strengthening highlighted by the oncology nurse authors above. Until

oncology nurses everywhere are officially recognized as a key specialized health workforce, well-educated and skilled, with appropriate remuneration and governments invest in advanced oncology nursing faculty and training programmes including in clinical settings and place oncology nurse leaders at the highest level of policy development (nationally, regionally, and internationally), government and civil society efforts to address the ever increasing cancer burden in all countries will be compromised. ■

Remziye Semerci is an Assistant Professor in the Department of Pediatric Nursing at Koç University, Istanbul, Turkey. She is interested in childhood cancer and symptom management. Her research and teaching focus management of chemotherapy-induced symptoms and reducing these symptoms with non-pharmacological methods. She is a member of the Turkey Oncology Nursing Society; besides, she takes part in the role in some commissions; Pediatric Oncology Group (group secretary) and Research Group (group secretary). She is a Turkish representative of the Young Cancer Nurses Network and a member of the SIOP Nursing Working Group.

Figen Bay is a specialist nurse and has worked as a nurse at a university hospital for 28 years. She served as the charge nurse for the Oncology Hematology Clinic for many years. She has been a board member of the Turkish Oncology Nursing Society for 22 years and has served as the society's president for the last six years. Figen Bay has attended numerous national and international congresses and courses in the field of oncology, authored several book chapters, and holds the authority responsible for the Ministry of Health-approved Oncology Nursing Certification training programme. Actively involved in planning and implementing training programmes nationwide, in every region and province, Figen Bay aims to educate nurses in the field of oncology and enhance the quality of oncology patient care.

Esubalew Mezgebu, RN, MSc, is a clinical oncology nurse, working as Head Oncology Nurse in the Pediatric Oncology Unit of Jimma University Medical Center, and a nurse preceptor. Mr Mezgebu is a member of the International Society of Paediatric Oncology (SIOP), African Organization for Research and Treatment in Africa (AORTIC) and a local data manager for CANCaRe Africa collaborative group. He participates in various activities, e.g., member of the unit quality improvement team and hospital emergency response team as well as participating in community voluntary service!

Edinho Celis graduated with a degree in nursing from the Daniel Alcides Carrión National University and as a nurse in oncology from the Universidad Peruana Cayetano Heredia in

Peru. He received a Master's in Health Services Management from the César Vallejo University. He is a Spanish-language instructor for the US-based Association of Pediatric Hematology Oncology Nurses Chemotherapy/Biotherapy Provider Program taught across Latin America. Mr Celis is the coordinator of the Nursing Committee for the Pan American Health Organization/(Peruvian) Ministry of Health (MINSA). He is currently a Supervisor I of the Pediatric service at the Instituto Nacional de Enfermedades Neoplásicas (National Institute of Neoplastic Diseases [INEN]), in Lima, Peru.

Aprille C Banayat is an Assistant Professor at the University of the Philippines College of Nursing. She has been trained as an inaugural fellow of the St Jude Children's Research Hospital-Viva Asia Nursing Institute in 2019. Her major is in maternal and child nursing with a specialization in paediatric critical care and paediatric haematology-oncology. She is working with local and global leaders to improve nursing, especially for childhood cancer care.

Alyssa Tupaz is an Assistant Professor and College Secretary of the University of the Philippines College of Nursing. She is a member of the board of directors of the Philippine Oncology Nurses Association (PONA). Her major is on Adult Health Nursing, and she specializes in cancer care. She is actively involved in the different projects and programmes of PONA.

Rehana Punjwani RN, BScN, MS Global Child health has over 20 years of experience in paediatric oncology in Pakistan and is a well-recognized nurse educator and palliative care specialist. She was one of the team leads that initiated the first Pediatric Oncology Nursing Education department in Karachi, Pakistan. She has served as a co-Chair of the International Society of Paediatric Oncology (SIOP), Pediatric Oncology in Developing Countries (PODC, now called Global Health Network) Nursing Working Group and received the SIOP Nursing Leadership award in 2021. She has conducted consultations and volunteer support for nurses through other non-governmental organizations, e.g., The Aslan Project for Ethiopia, to provide expert education and training in pediatric oncology nursing in other low- and middle-income countries.

Dilnasheen Safdar, RN, RM, BScN, MScN/MBA is the Director of Nursing/Infection Prevention and Control at the National Institute of Blood Diseases (NIBD) and Bone Marrow Transplantation (BMT) in Lahore, Pakistan. She is regional head for NIBD outreach programme. She was awarded "Best Project" from Government of Pakistan in 2019 and received a Master of Nursing award 2022 from the Global Power of Oncology Nursing (GPON) (UK). She is a member of the International Society of Paediatric Oncology, Pediatric Infectious Diseases Society (USA), and Association of

Pediatric Hematology Oncology Nurses (USA). She is a co-Chair of the Pakistan Pediatric Nursing Association.

Julia Challinor, RN, PhD, MS Education, MS Med Anthropology collaborates in multiple international paediatric oncology projects in Africa, Asia, and Latin America. She focuses on promoting and supporting nurses and healthcare professionals in low- and

middle-income countries to deliver the best care using available resources, and to be acknowledged as specialists capable of advanced practice when given appropriate education and training. As a member of the International Society of Paediatric Oncology (SIOP), she contributes to SIOP's strategic plan actions including SIOP's role as a non-State actor in official relations with WHO and WHO Global Initiative for Childhood Cancer.

References

- World Health Organization. WHO News Release: HRH Duchess of Cambridge letter marks Year of the Nurse and the Midwife. Accessed Nov 16, 2023. <https://www.who.int/news-room/detail/27-12-2019-hrh-duchess-of-cambridge-letter-marks-year-of-the-nurse-and-the-midwife>
- Duncan R, Szabo B, Jackson QL, et al. Care and Coping During COVID-19: Practice changes and innovations in the oncology setting. *Clinical Journal of Oncology Nursing*. 2021;25(1)
- Falatah R. The impact of the coronavirus disease (COVID-19) pandemic on nurses' turnover intention: an integrative review. *Nursing Reports*. 2021;11(4):787-810.
- Grinspun D, Perry L, Abu-Qamar MeZ, Stannard D, Porritt K. Nursing crisis: Challenges and opportunities for our profession after COVID-19. *International Journal of Nursing Practice*. 2022;28(3)
- Drury A, Sulosaari V, Sharp L, Ullgren H, de Munter J, Oldenmenger W. The future of cancer nursing in Europe: Addressing professional issues in education, research, policy and practice. *European Journal of Oncology Nursing*. 2023;102271
- Onkoloji Hemşireliği Derneği [Oncology Nursing Association]. Onkoloji Hemşireliği Derneği'nin Tarihiçesi [Onkoloji Hemşireliği Derneği'nin Tarihiçesi]. Accessed Nov 2, 2023. <https://onkohem.org.tr/>
- Onkoloji Hemşireliği Derneği [Oncology Nursing Association]. Onkoloji Hemşireliği Derneği Çalışma Grupları [Oncology Nursing Association Working Groups]. Accessed Nov 2, 2023. <https://onkohem.org.tr/>
- Ünlü H, Karadağ A, Taşkın L, Terzioğlu F. Onkoloji Alanında Çalışan Hemşirelerin Yerine Getirdikleri Rol Ve İşlevler [Roles and functions performed by nurses working in the field of oncology]. *Hemşirelikte Araştırma Geliştirme Dergisi [Journal of Research and Development in Nursing]*. 2010;12(1):13-28
- Onkoloji Hemşireliği Derneği [Oncology Nursing Association]. Kemoterapi Ünitesi Standartları [Chemotherapy Unit Standards]. Accessed Nov 18 2023, 2023 <https://onkohem.org.tr/kemoterapi-unitesi-standartlari>
- Turkish Ministry of Health. Oncology Nursing. Health Services General Directorate. Department of Training and Certification Services. 2015. Accessed Nov 2, 2023 <https://dosyamerkez.saglik.gov.tr/Eklenti/36289/0/51-onkoloji-hemşireligi-sep-standartlaripdf.pdf>
- Karadağ A, Ünlü H, Yavuzaslan F, Gündoğdu F. Profile of nurses working in oncology departments in Turkey. *Turkish Journal of Cancer*. 2004;34(1):24
- International Council of Nurses. *The Scope of Practice, Standards and Competencies of the Advanced Nurse*. Geneva 2008
- Kocaman G, Yürümezoğlu HA. Türkiye'de hemşirelik eğitiminin durum analizi: Sayılarla hemşirelik eğitimi 1996-2015 [Situation analysis of nursing education in Turkey: Nursing education in numbers 1996-2015]. *Yükseköğretim ve Bilim Dergisi [Journal of Higher Education and Science]*. 2015;(3):255-262
- Dokuz Eylül University Health Sciences Institute. Oncology Nursing Master's Programme. Accessed Nov 2, 2023. https://debis.deu.edu.tr/ders-katalog//2020-2021/tr/bolum_1656_tr.html
- Ege University Health Sciences Institute. Oncology Nursing Master's Programme. Accessed Nov 2, 2023. https://sbe.ege.edu.tr/tr-4886/lisansustu_programlarmimiz.html
- Arıkan Dönmez A, Ovaolu Ö, Ovaolu N, et al. Quality of work life and working conditions among oncology nurses: A national online descriptive cross-sectional study. *Archives of Environmental & Occupational Health*. 2023;78(3):131-141
- Kutlutürkan S, Kirca K. Strengths, weaknesses, opportunities and threats analysis of being an oncology nurse: a Turkish oncology nurses' perspective. *International Journal of Palliative Nursing*. 2022;28(5):222-231
- Baykal U, Seren S, Sokmen S. A description of oncology nurses' working conditions in Turkey. *European journal of oncology nursing*. 2009;13(5):368-375
- Facultad de Enfermería [Nursing Faculty] Universidad Nacional del Altiplano de Puno [National University of Altiplano de Puno]. Día de la enfermera peruana: ¿cuál es la situación actual del profesional de salud? [Peruvian Nurse's Day: what is the current situation of the health professional?]. Accessed Nov 18, 2023. <https://ep.unap.edu.pe/enfermeria/dia-de-la-enfermera-peruana-cual-es-la-situacion-actual-del-profesional-de-salud/#:~:text=De%20los%2096%20000%20enfermeros,57%20000%20ejercen%20la%20carrera.>
- Vasquez L, Maradiegue E, Rojas N, et al. Catalyzing childhood cancer care in Peru after one year of the global initiative for childhood cancer. *JCO Global Oncology*. 2021;7
- Staff. '8,000 children diagnosed with cancer every year'. DAWN News. Accessed Nov 18 2023. <https://www.dawn.com/news/1464231>
- International Agency for Research on Cancer. Pakistan. 2020. <https://gco.iarc.fr/today/data/factsheets/populations/586-pakistan-fact-sheets.pdf>
- Moosavi S, Rohani C, Borhani F, Akbari ME. Consequences of Spiritual Care for Cancer Patients and Oncology Nurses: a Qualitative Study. *Asia Pac J Oncol Nurs*. Apr-Jun 2019;6(2):137-144. doi:10.4103/apjon.apjon_37_18
- 10.4103/apjon.apjon_37_18
- World Bank. Nurses and midwives (per 1,000 people). 2023. Accessed 2021/01/12/10:40:37. <https://data.worldbank.org/indicator/SH.MED.NUMW.P3>
- World Bank. Physicians (per 1,000 people). Accessed March 27, 2021. <https://data.worldbank.org/indicator/SH.MED.PHYS.ZS>
- Muhammad Q, Eiman H, Fazal F, Ibrahim M, Gondal MF. Healthcare in Pakistan: Navigating Challenges and Building a Brighter Future. *Cureus*. 2023;15(6)
- Khan S. Situation analysis of health care system of Pakistan: post 18 amendments. *Health Care Current Reviews*. 2019;7(3):244
- Editorial. Shortage of Nurses. *The Express Tribune*. Accessed Nov 18, 2023. <https://tribune.com.pk/story/2428821/shortage-of-nurses>
- Truant T, Chan RJ. Future ready: Strengthening oncology nursing leadership in the context of professional oncology nursing organizations. *Canadian Oncology Nursing Journal*. 2017 2017;27(1):2
- Philippines GotRot. Philippines Qualification Framework. Accessed Nov 18, 2023. <https://pqf.gov.ph/>
- Philippine Oncology Nursing Association. Accessed Nov 18, 2023. <https://ponaph.com/>
- Association PN. PNA Roadmap 2030. Accessed Nov 18, 2023. <https://pna-ph.org/the-company/pna-roadmap-2030>
- World Health Organization. UHC Act in the Philippines: a new dawn for health care. Accessed Nov 18, 2023. <https://www.who.int/philippines/news/feature-stories/detail/uhc-act-in-the-philippines-a-new-dawn-for-health-care#:~:text=Duterte%20has%20just%20signed%20a,refor%20in%20the%20health%20system.>
- Philippine Information Agency. Filipinos now covered under PhilHealth's Z Benefit package. Accessed Nov 18, 2023. [https://pia.gov.ph/news/2023/01/20/filipinos-now-covered-under-philhealths-z-benefit-package#:~:text=These%2020%20listed%20illnesses%20and,Z%20MORPH%20\(Mobility%2C%20Orthosis%2C](https://pia.gov.ph/news/2023/01/20/filipinos-now-covered-under-philhealths-z-benefit-package#:~:text=These%2020%20listed%20illnesses%20and,Z%20MORPH%20(Mobility%2C%20Orthosis%2C)
- The LAWPHIL Project. National Integrated Cancer Control Act. Accessed Nov 18, 2023. https://lawphil.net/statutes/repacts/ra2019/ra_11215_2019.html
- World Bank. Ethiopia. Accessed Nov 18, 2023. <https://data.worldbank.org/country/ethiopia>
- Awedew AF, Asefa Z, Belay WB. National burden and trend of cancer in Ethiopia, 2010–2019: a systemic analysis for Global burden of disease study. *Scientific Reports*. 2022;12(1):12736
- World Health Organization. Global strategic directions for nursing and midwifery 2021–2025. <https://www.who.int/publications/i/item/9789240033863>
- Sulosaari V, Kosklin R, De Munter J. *Nursing Leaders as Visionaries and Enablers of Action*. Elsevier; 2023:151365