Review Article on Oncology Nursing

Growth and development of oncology nursing in Asia

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Abstract: Oncology nursing is increasingly recognized around the world as being vitally important for an effective cancer control system. Granted, there is variation between and among countries/regions regarding the strength and nature of that recognition, but oncology nursing is clearly seen as a specialty practice and as a priority for development in cancer control plans, especially for high resource countries/regions. Many countries/regions are beginning to recognize that nurses are vitally important to their cancer control efforts and nurses require specialized education and infrastructure support to make a substantial contribution. The purpose of this paper is to highlight the growth and development of cancer nursing in Asia. Several brief summaries are presented by nurse leaders in cancer care from several Asian countries/regions. Their descriptions reflect illustrations of the leadership nurses are providing in cancer control practice, education, and research in their respective countries/regions. The illustrations also reflect the potential for future development and growth of oncology nursing as a specialty given the many challenges nurses face across Asia. The development of relevant education programs following basic nursing preparation, the establishment of specialty organizations for oncology nurses, and engagement by nurses in policy activity have been influential factors in the growth of oncology nursing in Asia.

Keywords: Oncology nursing; Asia; professional growth; specialty practice

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Introduction

Asia contains 4.7 billion of the world's 7.6 billion people, accounting for more than half the world's population and making it the most populous continent (1,2). It also contains the largest proportion of the world's poorest people with 320 million living below the poverty line of $1.90 United States (US)/day (3). In Southeast Asia, 75% of the population are poor and struggling to survive while in South Asia, 4 out of 5 individuals living in rural settings suffer from hunger (4). People are largely employed in agricultural and live in rural farming settings where it is difficult to rise above poverty. Employment which would lift individuals above the poverty line is primarily located in urban centers and requires moving and additional education

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and training, both of which necessitate financial resources.

The region had seen economic growth in recent years, but the benefits are not felt by everyone; the poverty reduction strategies slowed during the pandemic (5). There are reportedly more than 1,400 billionaires in the Asia/Pacific region, an increase of one-third during coronavirus disease 2019 (COVID-19), and the 1% of the richest have more than 90% of the poorest (6). The region contains a range of well-developed to middle and low economies and generally suffers from burdens of excessive population growth, scare human and infrastructure resources, inadequate governments, and caste discrimination. Access to education, medicines, clean water, and sanitation continue to plague many.

Health care systems vary across the region, ranging from very rudimentary to highly sophisticated, and offer diverse levels of quality health care (7). Additionally, the patterns and incidence of disease vary significantly from country to country. There is striking variation in ethnicities, social norms, socio-cultural practices and traditions, socioeconomic status, habits, and dietary customs, all of which can have an influence on the patterns and incidence of illness.

In 2018, there were 8.2 million new cases of cancer in Asia and 5.2 deaths from the disease (8,9), contributing almost half the world's new cancer cases. The most common cancers are lung, liver and stomach followed by breast and colorectal. For women, the most common cancer is breast, but the most common type for men varies by country/region. Overall, the region has one of the highest rates of lip and oral cavity cancer due to the high use of smokeless tobacco products. The region is projecting increases in cancer incidence due to growing and aging populations, lifestyle changes, and socioeconomic status changes.

Throughout the region there are many cancer centers, especially in well developed countries/regions (7,10). New cancer centers are being added and new specialists and paramedical personnel are being trained in cancer care. Countries/regions such as Japan, China (mainland), South Korea, Taiwan, Hong Kong, and Singapore, have cancer centers which follow internationally accepted guidelines, engage in international research trials, have national cancer plans, and provide high quality specialist care. These countries/regions have also seen strong cancer nursing leadership. However, there remain many settings where people do not have access to good quality cancer care as screening, diagnostic and treatment facilities may not be available or affordable. The organization and delivery of cancer services in rural areas of many large countries/regions [e.g., China (mainland), India, Pakistan, the Philippines, and Bangladesh] and in low-income countries/regions such as Nepal, Laos, Cambodia, and Yeman are poorly developed (11). Nurse leaders in those countries/regions are generally not listened to and are often excluded from policy-making bodies.

Purpose of paper

Cancer nursing as a specialty has seen varied growth across the Asian region. The purpose of this paper is to share perspectives of nurse leaders from various settings in Asia. Their brief descriptions will offer illustrations of cancer nursing development and the challenges cancer nurses are facing in this area of the world. Additionally, the strategies these nurses have taken to development and grow cancer nursing may offer ideas for nurse leaders in other countries/regions.

Perspectives from oncology nursing leaders in Asia

Perspective from Japan: focus on the Japanese Society of Cancer Nursing (JSCN)

In Japan, with a population of 126.5 million, cancer has been the leading cause of death since 1981. There are about 1.02 million new cancer cases annually and 420,124 deaths. The most common cancers for women include breast (21.4%), colorectal (16.7%) and lung (10.3%) while for men, they are prostate (17.7), stomach (15.8%), lung (15.8%) and colorectal (13.6%) (12). As with many other countries/regions in the location, the incidence and prevalence of this disease are expected to continue increasing. The major issues patients currently face include the need for survivorship care (13) and decision support (14), as the number of older people with cancer increase in Japan, a country with a long-life expectancy.

The Cancer Control Act was enacted in 2006, and under it, the Basic Plan to Promote Cancer Control Programs was formulated (15). Cancer nursing in Japan has developed along with the national cancer control efforts. A key influence in specialty development of oncology nursing has been the JSCN (16).

The JSCN (16) with more than 5,300 members, has developed as a central academic organization for cancer nursing following its establishment in 1987. Special interest

groups, which are characteristic of the society, each promote mutual learning through information exchange and activities in specialized oncology nursing areas, such as medication therapy and radiotherapy. The JSCN has contributed policy recommendations to the government to improve the quality of life of patients with cancer. Additionally, the JSCN initiated the national level standardization of cancer nursing care by proposing the inclusion of cancer nursing techniques in the public medical insurance system.

The JSCN supported the development of cancer nursing practice through publication of the Japanese translation of the American Core Curriculum for Oncology Nursing [2007] and JSCN Core Curriculum [2017] (17). To promote evidence-based nursing practice, the JSCN published and revised the Cancer Nursing Practice Guidelines, jointly compiled with the Japanese Society of Medical Oncology.

In terms of specialized oncology nurses in Japan, there are 980 oncology clinical nurse specialists (OCNSs) who completed postgraduate advanced practice nurse (APN) education and 5,887 oncology certified nurses (OCNs) who completed a 300-hour training program and were certified by the Japanese Nurses Association. Hub hospitals for cancer treatment are required to either have an OCNS or OCN under the Basic Plan to Promote Cancer Control Programs. OCNS and OCN have become an integral part of the cancer care promotion in Japan.

The *Journal of JSCN* is JSCN's official journal for high-quality cancer nursing research, and approximately 500 research papers have been published over 35 years. Furthermore, the JSCN has contributed to oncology nursing research in Asia; some of the members are editors of *Asia-Pacific Journal of Oncology Nursing*, the official journal of the Asian Oncology Nursing Society (AONS) (18). The JSCN actively participates in international collaborative research projects. As a major initiative, the JSCN and International Society of Nurses in Cancer Care (ISNCC) (19) collaboratively implemented a program to stimulate tobacco control advocacy in cancer care practice and evaluated its outcomes (20). The JSCN is dedicated to the development and promotion of innovative practices, education, and research in cancer nursing.

Specialized oncology nurses such as OCNSs and OCNs contribute to improving the quality of cancer nursing in Japan, mainly at designated cancer hospitals (21) Specialized Oncology Nurses provide training programs to general nurses who work at their own, and other, hospitals and home care nurses who work for home nursing care services, thus contributing to the equalization of quality of cancer nursing care. The JSCN Core Curriculum, developed by the Japan Academy of Cancer Nursing, is the basis for various training programs for specialized oncology nurses as well as general nurses.

The COVID-19 pandemic has had a major impact on cancer care and cancer nursing (22,23). A significant number of oncology patients are experiencing loneliness, most likely as a result of mandated social distancing and isolation procedures (23). There has been a great impact on end-of-life care with increased proportion of patients dying at home (24).

JSCN believes that it is essential to promote distance nursing to respond to issues such as isolation of cancer patients, delays in consultations, and discontinuation of treatment. The Society has started to build a training program for distance nursing and is expected to launch this program in 2023. The fees for remote nursing counseling by oncology nurses using information and communication devices will be covered by the national health insurance system. More work including research and evaluation is necessary for development of distance nursing is a priority.

Perspective from Indonesia

Advances in health science and technology as well as the increasing public demand for better health care urge every country/region, including Indonesia, to enhance their health services. Since 2017, the Indonesian Ministry of Health has been implementing internal transformation through the Academic Health System (AHS) to improve access and quality of health services (25). The AHS implementation is one of the factors which spurred the development of oncology nursing in Indonesia. However, oncology nursing still needs to be formally recognized as a specialty. As a specialty, oncology nurses can take advanced roles in practice, research, and quality improvement, based on the multidisciplinary team concept.

Currently, there are over 273.5 million individuals in Indonesia. The country has 396,914 new cancer cases each year and 234,511 deaths (26). The most common cancers for women are breast (30.8%) and cervix (17.3%) while for men they are lung (14.0%) and colorectal (11.9%). There are only two comprehensive cancer centers in Indonesia, namely Dharmais National Cancer Center (27), a state-owned cancer hospital, and Mochtar Riady Comprehensive Cancer Center (28) which is a private cancer hospital. Both cancer centers are in Jakarta, the capital of Indonesia. For a large archipelagic country like Indonesia, this situation

poses a challenge for the cancer patients who must travel to the capital if their local hospital does not have enough facility for cancer treatment.

A survey by the Indonesia Oncology Nurses Association (IONA) (29) in 2020 reported there were 272 IONA members in 10 hospitals with cancer care units in Indonesia, although most of them were generalists. However, comprehensive cancer care requires nurse specialists. To close this discrepancy, in 2020, the Faculty of Nursing at the Universitas Indonesia, in collaboration with Oncology Nursing Collegium and IONA, opened a formal oncology specialty education program (30).

Although specialty practice has been acknowledged in the nursing career structure, there are significant challenges ahead. Gaining recognition from the public, government, and other health professionals, especially doctors, remains a challenge. Interprofessional shared decision-making is still lacking, mostly due to the educational gap between doctors and nurses. This gap creates inequity in terms of the working partnership and the remuneration for nurses in the multidisciplinary team.

In addition, to practice caring amid hectic daily activities in hospitals can be challenging for Indonesian nurses. Yet arguably, caring is the attribute from nurses needed most by cancer patients and their families. A nurse from the Indonesian National Cancer Centre shared her view: "*Being a cancer nurse means putting our heart to take care of the cancer patients and their families, as well as being knowledgeable and skillful to help them going through the most difficult moments in their life*." Despite the challenges, embedding caring in nursing care is highly beneficial for patients and rewarding for nurses.

Another challenge is providing evidence-based comprehensive cancer care along the care continuum and keeping up with the advancement of cancer science and treatment. Indonesian nurses provide direct care in inpatient, outpatient, and home hospice settings, patient education and counseling, and perform management roles in the clinical settings. However, in reality, Indonesian nurses mainly focus on meeting physical needs, and not the holistic needs of patients, especially cancer survivors. Nursing care for patients after therapy is still suboptimal as there are only a few survivorship programs which are hardly enough to meet the needs of the increasing number of cancer survivors. Palliative care also remains suboptimal as it commonly starts only in the terminal/end-of-life stage and few patients receive the service. Nevertheless, nurse-led services for cancer wound and stoma care, and apheresis are available in some of the major cities and hospitals.

Another challenge is conducting research. At this moment, some Indonesian oncology nurses have completed various quantitative and qualitative studies regarding unmet needs and quality of life of cancer patients and their families, symptom management, digital application for education and counselling, and other topics related to caregiver burden (31-35). Yet, the research is still limited due to oncology nurses' lack of research capacity, language barriers (most of the resources are in English and many Indonesian nurses have limited English proficiency), and lack of collaboration between clinical nurses and nurses in academia. Indonesian nurses usually only conduct research as a requirement for their educational study or for job promotion; few are publishing their research. There is a need to foster a culture of curiosity and desire to utilize research results in clinical practice.

In summary, there is much room for improvement in oncology nursing in Indonesia. However, the country made a big leap forward and nurses are proud to have established the oncology nursing specialty education in 2020. This progress is expected to improve oncology nursing in Indonesia in clinical, education, research, and management and help to achieve optimal patient outcomes throughout the cancer trajectory.

Perspective from Thailand

Cancer, one of the leading causes of mortality in Thailand, has a significant influence on the Thai healthcare system. The development of cancer control in Thailand has been epidemiologically, politically, and medically driven. The Thai National Cancer Institute was established in 1968 and began cancer registration in 1971 with cancer patient data gathered from 53 hospitals across Thailand (36). In 2018, cancer accounted for 34.94% of deaths per 100,000 population. More than half of all cancer cases are liver, lung, breast, cervical, and colorectal cancers (37).

The National Cancer Control Program (NCCP), with 5-year strategic plans started in 1997, and was developed to provide appropriate policies and practices. Since 2013, the Ministry of Public Health has implemented a cancer service plan (37). Clearly implementing these policies requires competent oncology nurses to operate and navigate care. Presently there are seven cancer specialist hospitals in Thailand and more than 50 public and private hospitals, particularly tertiary level or university hospitals, providing excellent cancer treatments and care.

Table 1 Programs by the Thailand Nursing and Midwifery Council

Title of program	Duration
Post-baccalaureate residency training	3 years
Program of nursing specialty in oncology nursing	16–18 weeks
Program of nursing specialty in radiology nursing	16–18 weeks
Nursing care of cancer patients receiving chemotherapy	1 month

The development of oncology nursing in Thailand has been slow but consistent. Historically, cancer patients were cared for by registered nurses with a bachelor's degree in nursing. Oncology nursing content formed a small part of their education and most received in-service training to cultivate their oncology nursing competencies. Few received specialized training in oncology nursing. Recently, oncology nursing competence self-assessments scales were developed for both general oncology nurses (38) and nurses working in special oncology areas such as chemotherapy (39). These self-assessment scales can assist oncology nurses in determining their respective competency strengths and weaknesses and to improve their competences for high quality of care.

The visibility and recognition of oncology nursing stem from the efforts of several nursing organizations. The specialty was acknowledged when medical-surgical advanced practice nursing was announced in the Government Gazette in 1998 and the Thailand Nursing and Midwifery Council (TNMC) issued a certificate to APNs in 2003 (40). The TNMC developed several standard oncology training courses (*Table 1*) and the Division of Nursing, Ministry of Public Health (41), released '*Criteria and guidelines for providing services according to nursing service standards for tertiary centers specializing in cancer*' in 2005 and '*Guideline for nursing service development in accordance with the national cancer service plan*' in 2018 (available online free of charge). Recently, the Nurses' Association of Thailand (42) became 'a voice to lead a nursing campaign' and launched breast cancer screening by volunteer nurses with the target of 1 million cases.

The Intravenous and Chemotherapy Nurses Society of Thailand was founded in 2004 to promote excellence in intravenous and chemotherapy nursing care for patients (43). The Oncology Nurses Society (44) in Thailand was established in 2011 to gather nurses interested in oncology nursing to provide educational support, promote quality of oncology nursing care, and research on cancer care. It is a platform for nurses to share knowledge, experiences, and research, and has organized national oncology nursing conferences annually since 2013.

Oncology nursing in Thailand has evolved significantly. Oncology nurses consider the significance of patient involvement in their cancer treatments and care, particularly symptom management (45). However, there remain considerable challenges for the advancement of oncology nursing in this disruptive era (*Table 2*) (38,39,45).

Cancer nursing in Taiwan—mission, efforts, and perspectives

Cancer has been the leading cause of death in Taiwan since 1982. With a population of 23.9 million in 2021, the cancer incidence was 336.2 per 100,000 in men and 292.8 in women. The mortality rate was 118.2 per 100,000 individuals (48). There are ten major hospitals with oncology departments and one comprehensive cancer center in Taiwan. Additionally, many regional and district hospital provide cancer diagnosis and treatment services (49). A recent survey of patients reported fatigue as the most bothersome symptom (50). The top five symptoms for survivors were reported as body changes, loss of strength, weight changes, memory and concentration changes, and fatigue (51). Almost half of these Taiwanese survivors reported needs for up-to-date understandable information.

The demands of caring for cancer patients and providing advanced and complex anti-cancer treatments have influenced the development of oncology nursing as a unique and important nursing specialty in the region. The Taiwan Oncology Nursing Society (TONS) (52), founded in November 1992, has been a major influence in this development. Its mission is to enhance the quality of cancer care available both in Taiwan and internationally. With over 3,500 active members in 2022, TONS advocates for cancer patients, caregivers, individuals with high risk of having cancer, and nurses working in cancer care. Support groups

Table 2 Challenges in Thailand for oncology nurses and recommendations

Challenge	Background	Recommendation
Complexity of oncology care in an aging population	Thailand faces a growing aged population who often have at least one co-morbid condition. Oncology care for this group is challenging, due to more complex care demands and advances in cancer treatments	Promote comprehensive oncology care through collaboration among different disciplines Initiate collaborative oncology care through interprofessional learning in formal education and in training programs after graduation
Generation gap in the information technology era	Recent evidence reported issues related to younger generation nurses' willingness to care for older persons Young generation nurses grew up with smartphones or technological-based interaction while older persons required human interactions	Design curriculum at nursing schools to prepare students to face the challenges in their future practice
Shortage of staff and heavy workload in oncology nursing care	Despite great contributions, few oncology APNs can continue the APN roles, due to unclear institutional policies and a shortage of staff. In some hospitals, oncology APNs were assigned to work as registered nurses and take APN roles only 1 day a week. As a consequence, some of the APNs decided to leave the APN role (46,47)	Develop strategies to augment APN roles in cancer programs; they provide leadership and improve quality of care
Delivering oncology care in the community	Nurses who are at frontlines in primary care levels work closely with people in their community. They are aware of social determinants of health and are in a good position to promote health, prevent and detect early diseases. The shift of oncology inpatient care to outpatient care and in-home care is challenging for nurse in primary care levels	Provide primary level nurses the opportunity to participate in special training in oncology nursing
Unmet training needs	Special training in oncology nursing is crucial to improve the quality of cancer care. The traditional training approach which required work-leave permission was not suited to current practice environments	Transform the learning approach to on-demand designs where learners can attend anywhere and anytime
PPI in oncology research	The oncology research problems were often from literature reviews and researchers' personal experiences on such topics rather than from patients' involvement in identifying research problem. Consequently, the utility of the result was limited	Integrate PPI in the cancer research process

APN, advanced practice nurse; PPI, patient and public involvement.

for oncology nurses and patients/caregivers are also offered by TONS as well as many hospitals in Taiwan.

TONS has worked to enhance the quality of cancer care through active continuing education that provides the latest knowledge on advanced cancer treatments and related care. TONS has provided 64-hour basic and advanced cancer nursing training courses since the mid-1990s. The framework of these courses and support from the Taiwan Nurses Association (TWNA) (53) Oncology Nursing Committee have earned TONS accreditation as an organizer of oncology nurse and oncology case manager (OCM) certification examinations in Taiwan. The board members of TONS are elected from among oncology leaders across Taiwan, giving the society active connections that facilitate the nationwide dissemination of related knowledge via workshops; training programs; and local, national, and international conferences. Moreover, in-hospital cancer care training programs are also provided in all medical centers in Taiwan. Cancer nursing, palliative/supportive care related course and interdisciplinary courses are offered in most nursing schools and universities.

Research and clinical experiences/idea exchanges reflect the problems/needs of cancer patients and enhance the evidence-based care abilities of oncology nurses. TONS has published a newsletter from 1993. Furthermore, *The Journal of Oncology Nursing* (*JON*), published since May 2001, includes papers covering case studies, the most recent standards in cancer care, verified clinical care standards and guidelines, literature reviews, and original articles. The TONS annal conference shares the results of clinical

projects and studies via posters and oral presentations. Oncology nurse researchers are also actively involved in many related international associations and academic conferences and publish cancer-care-related papers in influential international scholarly journals. Furthermore, some oncology nurse researchers also work as reviewers and editors in cancer-related scholarly journals such as *Asia Pacific Journal of Oncology Nursing*, *Cancer Nursing*, *Oncology Nursing Forum*, *Journal of Supportive Care in Cancer*, and *Psycho-Oncology*.

TONS is also actively involved in international cancer care organizations and related clinical and academic activities. TONS has been an active member of the ISNCC since 2004. Moreover, in 2012, several board members of TONS participated in the founding of the AONS in Prague, becoming one of the nine founding countries/regions and board members of AONS the following year (18). The collective efforts made by cancer-care-related international associations promise a better future for cancer care across the globe.

In addition to supporting the ongoing efforts of TONS, oncology nurses in Taiwan are also actively involved in official "cancer prevention, treatment, and care" accreditation. Nurses are critical to ensuring that cancer patients receive high quality treatments and care. However, few oncology nursing leaders have been invited to join the Cancer Prevention and Treatment Policy Committee, which is the senior central governmental committee responsible to direct and assess national policies related to cancer prevention, treatment, and care.

Oncology nursing has long been viewed, with the efforts of TONS, TWNA and oncology nurses, as a uniquely important nursing specialization in Taiwan. However, in the future, oncology nursing in Taiwan faces three key challenges. Firstly, more oncology nursing leaders must become even more actively involved in relevant government and hospital level committees to influence policy in the realms of both survivorship and acute-cancer care. Second, more cooperation and integration of oncology nursing into various types of cancer-related medical or multidisciplinary associations will be necessary to extend the influence of cancer care. Finally, programs, mentorship, and leadership training programs are urgently needed to inspire young talent and cultivate new generations of oncology nursing leaders in Taiwan to continue the efforts of delivering the highest-quality cancer care both in Taiwan and across the world.

Development of oncology nursing in India

India has a population of 1.42 billion people. In 2022, the cancer incidence was estimated at 14,61,427 (crude rate of 100.4 per 100,000 population). Lung and breast cancer are the most commonly occurring types. There is a 1/9 lifetime risk of cancer (54).

Sir Dorabji Tata, an Indian businessman, was able to send his wife from India to England for treatment after she was diagnosed with leukemia. Realizing the people of India could not afford the same journey, he established the Trust used to build the Tata Memorial Hospital (TMH) in Bombay (Mumbai) in 1941. It was exclusively for diagnosis and treatment of people with cancer. The hospital was taken over by the Ministry of Health in 1957 and now has an extensive network and collaboration with many health facilities across the country to facilitate cancer care (55). In early 1980's, a technology transfer program was brought to TMH by the hospital partner, Sloan-Kettering Cancer Centre in US. TMH has been key in facilitating the evolution of oncology nursing in India.

Development of oncology nursing education

In the late 1980's, a group of nurses, under the leadership of the late Robert Tiffany, then Chief Nursing Officer for Royal Marsden Hospital in London visited TMH. They were responsible for didactic lectures and demonstrations in many practical areas of cancer care (e.g., cardiopulmonary resuscitation, care of Swanganz catheters, safe administration of chemotherapy).

Through strong nursing leadership at TMH, cancer nurse specialization grew, with the advent of stoma nurses, central venous access device (CVAD) nurses, infection control nurses nursing aides, and tumor-specific Clinical Nurse Specialists (e.g., head and neck, breast). In 1994, a palliative care certification program and curriculum were developed in partnership with the Macmillan Foundation, UK, the World Health Organization (WHO) and the ISNCC.

A 12-month Post Basic Diploma in Oncology Nursing was started in 1986. It is recognized by the state and Indian Nursing Council (56). A 2-year full time post-graduation program in oncology nursing was started in 2011 under the Homi Bhabha National Institute (57). This course has a wide coverage on surgical, medical, radiation, bone marrow transplantation, and palliation. Nurses who have undergone these courses are able to focus on clients, the families, and the community in general with curative and rehabilitation focus.

Development of clinical services

Clinical specialization in cancer care is key to expert care. A number of speciality practices in cancer nursing have developed. Mrs. Patwardhan, a pioneer in enterostomal therapy, started a 3-month stoma certificate program in 1981 associated with Shreemati Nathibai Damodar Thackersey Women's University (58), India. One hundred and ninety certified stoma nurses are presently working throughout India having completed the programme.

In 1983, TMH became the first institute in India to carry out successful bone marrow transplantation. Nurse leaders were instrumental in setting up a platelet and bone marrow registry in 2010. Ms. A. Chacko had been trained at Sloan-Kettering Memorial Institute. In 1990, a CVAD Learning Programme began. Since 2000, a 6-week certification program has been held with about 300 students trained. This inspired a nurse-led peripherally inserted central catheter (PICC) clinic for the care and maintenance. Another area of nurse specialist care is Total Parenteral Nutrition (TPN), tailor-made to each patient, based on electrolyte values and glycemic levels, reported by nurses. TPN is checked by the pharmacology department before nurses take great care in the administration. Tumor site-specific nurses each have their specific clinical input. For example, nurses caring for people with head and neck cancers assist patients with oral power washes during their first visit to the clinic, minimizing odor and patient anxiety due to the unpleasant stench. These are now replaced with chlorhexidine washes. In 1988, a reference manual entitled, "*A procedure book in oncology nursing*", was authored by Retnamony (59).

Clinical multidisciplinary meetings focused on the individual patient and joint (doctor/nurse) clinics are currently a routine part of TMH activity. Nurses now present their research findings at clinical meetings; hitherto, this was only doctors. Recent research studies by nurses have focused on wound care for breast patients, nutrition for head and neck patients, infection rates in long-term central venous catheters and quality of life in breast cancer patients (60).

Development of association

During the Union for International Cancer Control (UICC) (61) conference in New Delhi in 1994, the Oncology Nurses Association of India (ONAI) (62) was inaugurated by the then Nursing Superintendent of TMH, Ms. A. K. Bhargavi, and Ms. Pearl Moore, Chief Executive Officer of the Oncology Nursing Society (ONS) (63), US. Together, an *Oncology Nursing Newsletter* was published, and has now grown to a quarterly publication, the *Indian Journal of Oncology Nursing*. ONAI is affiliated with the ISNCC (19) and endorses the Global Power of Oncology Nursing (GPON) (64) movement, showcasing the great work of oncology nurses in low resource countries/regions.

Currently, there are ONAI chapters in Kerala, Delhi, Kolkota, and Punjab. An exciting new program initiated by the ONAI is a student exchange program. The students have been able to visit Hong Kong and Singapore to understand the various scientific and cultural aspects and contribute to their becoming leaders.

Three decades after a regional cancer center in Trivandrum was established, the Kerala Oncology Nursing Chapter started in 2010 and developed a Diploma in Oncology Nursing in 2011 (65). Oncology nursing specialization slowly followed, with a state-of-the-art chemotherapy unit, nurse-led stoma clinic and expertise in CVAD, lymphedema, head and neck rehabilitation, pain management and palliative care.

In 2013, the AONS (18) was formed, based on the need to share practice, education and research with all nurses working in cancer care in the diverse region. The Society holds an annual conference and supports a peer-reviewed journal. Its aim is developing oncology nursing in Asian countries/regions, identifying potential and leadership roles, exchanging developments in practice education, research, and advocacy strategies among members. The member countries/regions are Japan, Indonesia, India, China (mainland), Thailand, South Korea, Philippines, Singapore, Malaysia, Hong Kong, Taiwan.

Thus, the evolution of oncology nursing in India has led to great change in care through education, clinical specialization, and research. The strength of nursing is enhanced when brought together by the Oncology Nursing Association of India to share experiences and improve the lives of those people at risk of or with cancer throughout this large country.

Discussion

Asia is facing significant challenges in terms of cancer care. Wide variation exists across this most populous region in organized cancer care and cancer rates are predicted to continue climbing. Nurses with specialty preparation in the care of cancer patients will be essential in achieving necessary improvements. These nurses have a critical role in providing quality care to patients and families in their

respective countries/regions.

The descriptions offered by the cancer nurse leaders in this paper illustrate significant leadership the specialty has had in selected countries/regions in Asia. Their descriptions reflect growth over the years in education, clinical practice, and recognition of the specialty. In summary, their reflections emphasize the important capability of nurses to keep pace with increases in scientific knowledge and cancer control advances, make changes in their practice approaches, and engage actively in policy development and national cancer control initiatives.

Several observations from these leaders may be of benefit to other nurses who wish to influence further development and growth of the specialty field in this region. These observations concern the availability of relevant specialty education, the establishment and growth of professional specialty nursing associations, and the engagement in policy decision-making. Each of these factors is evident in the descriptions shared in this paper and reflect insights observed in other parts of the world. As advances in science and technology occur, the complexity of cancer care and its impact on patients and families becomes a driving force in recognizing the need for specialty practice (66), and realizing the benefit of developing relevant nursing education programs. Subsequently, the availability of advanced preparation in oncology nursing facilitates the development of the specialty by preparing expert clinicians and leaders as well as fostering the production of research relevant for practice. The availability of relevant education that underpins the practice of caring for cancer patients has been identified as a necessary condition for the growth of a nursing specialty (67,68). Relevant education implies not only relevant curriculum content concerning cancer and its management, but also aspects such as side effect management by nurses, patient education and support, and culturally contextualized practice (63,69). Advocating for this type of program development and its availability for nurses caring for cancer patients remains a priority across Asia.

Another notable facilitator in the recognition and growth of the specialty in these countries/regions was the establishment of oncology nursing associations. These specialty oriented professional organizations have objectives of offering opportunity to network and share knowledge among nurses in the specialty. The organizations aim to support nurses so that they are enabled to provide a high standard of patient care. Conferences, newsletters, and journals were utilized by the organizations as strategies which were helpful with this process of connection and knowledge exchange. The associations also provided a platform to express the perspectives of cancer nurses. The issues and concerns the nursing community observed could be expressed using a collective voice. Having a strong unified voice in speaking about gaps in patient care and necessary solutions, can be impactful in creating change. The professional specialty organizations can offer a strategic platform for supporting and developing nurse leaders who can be effective in this policy-oriented activity (70).

The third factor which was helpful in advancing the specialty in this region, as illustrated by these authors, was the involvement of cancer nurses in policy decision-making and their engagement in designing policy documents and priorities. Engagement in cancer control planning offers an opportunity to identify gaps in care needs publicly and communicate key ideas about what is needed for improvements in patient care. Nurses in other regions of the world have also realized similar success with their active engagement in task groups, committees and focus groups which have responsibility for crafting policy to improve cancer control. The capacity of nurses to be effective is also linked to their capacity for research and their capability to use the research results in their practice improvements and advocacy efforts. These successes can be seen at local, regional, and national levels (71,72).

Conclusions

Asia is a region of great diversity and great need in cancer care. Nurses have an important role to play but require access to relevant education if they are going to be able to perform that role successfully. Some countries/regions have benefited from significant cancer nursing leadership and have realized remarkable growth in the specialty. Their approaches with establishing cancer nursing education, professional organization development, and engagement in policy formation may be helpful to other countries/regions in the region who remain struggling with the myriad of issues which face those caring for cancer patients.

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