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The current situation and issues of nursing education in Japan

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[Abstract] In Japan, "nurse-related professions" include four types of licenses: registered nurse (General), public health nurse, midwife, and practical nurse. Basic nursing education is a three-year program. Most applicants for nursing attend three-year technical schools, junior colleges, or four-year universities. The number of universities has increased to 274 in the past two decades, with the reduced number of technical schools and junior colleges. Post-licensure certifications include certified nurse specialists, certified nurses, and training system for nurses to perform specific medical interventions. The requirements for applicants of the post-licensure certifications include: years of clinical experience, graduation from a recognized educational institution, pass of a post-graduation national examination, and the legitimacy to renew certification every five years. The applicant must graduate from a master's program in order to become a certified nurse specialist. Various career paths are available for nurses in their career development. It is necessary for policymakers and nursing educators to develop effective linkages between basic nursing education and post-licensure education in order for students to have an awareness of their career plans from the very beginning of their professional journey.

[Key Words] Basic Nursing Education Post-licensure Education Post-licensure Certification System Certified Nurse Specialists Certified Nurse

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1 The Nursing Education System in Japan

1.1 The Basic Nursing Education in Japan

In 1915, the first law on nurse registration was enacted in Japan. In 1920, the High-Grade Nurse Training School attached to St. Luke's International Hospital in Tokyo was established, and this signifies the beginning of nursing education in Japan. Bachelor's degree education began in 1952 at the Department of Home Economics, Kochi Women's University in Kochi prefecture. In 1965, graduate education for Master's Degree began at University of Tokyo.

In Japan, "nurse-related professions" include four types of professional licenses: registered nurse, public health nurse, midwife, and practical nurse. To become a nursing professional, one must have the necessary training, as stipulated by law, pass the national examination (or the prefectural examination for practical nurses), and obtain the relevant licenses.

Nursing education systems vary and are complex

(Figure 1). For example, there are four ways to become a registered nurse: by attending a four-year university or college, a three-year junior college, or a three- or four-year technical school, or by taking a five-year nursing course in high school. The latter is the fastest way.

There are two ways to become a practical nurse: taking a three-year nursing course in high school or attending a two-year practical nursing school after graduating from junior high school. Practical nurses can obtain a registered nurse license by completing an additional educational course at a nursing school or junior college. There are three types of additional educational courses: two-year full-time, three-year evening, and two-year correspondence courses. Many schools require applicants to complete a certain number of hours of practical practice.

In Japan, to become a public health nurse or midwife, additional education is required after completing the course for a registered nurse (Figure 1).

Some universities and colleges allow students to take public health nursing and midwifery courses concurrently with the registered nurse course.

When an applicant who has become a registered nurse through educational institution other than university or college wishes to become a public health nurse or midwife, there are several paths from which to choose. They can take public health nursing or midwifery courses at a university or junior college, or enter a one-year public health nursing or midwifery school. Previously, most universities and colleges offered integrated curricula that allowed students to take public health nursing and midwifery courses concurrently with registered nurse courses. However, in recent years, most universities and colleges have limited the number of students taking these additional courses to 10-20.

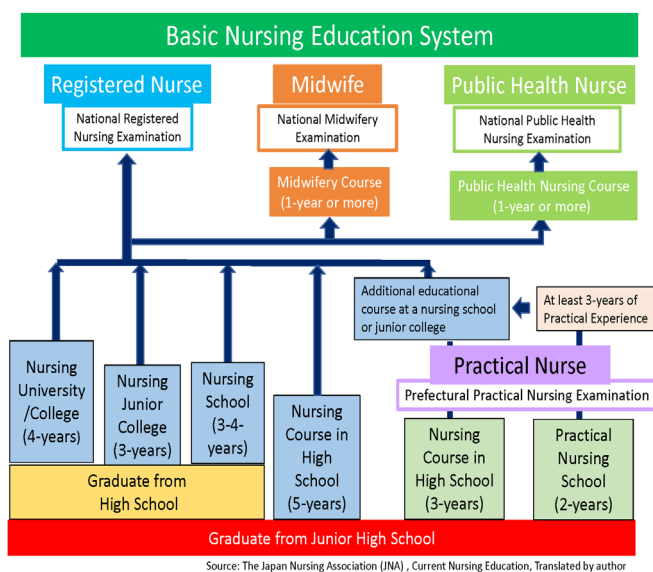


Figure 1 Basic Nursing Education System

1.2 Rapid Growth in the Number of Four-Year Nursing Universities and Colleges

The number of universities and colleges for bachelor's degree in nursing is increasing annually in Japan. In 2021, there were 290 universities and colleges offering nursing education - a significant increase from 11 in 1991. The 290 universities and colleges include 42 national universities, 50 prefectural universities, 196 private universities, and 2 ministries. Since 1991, the number of private universities has gradually increased.

Since 2003, approximately 8-15 new universities have been established every year. The rapid increase is expected to continue in the near future in accordance with the increased demand for health care due to the aging population and transition to bachelor's program.

Between 1991 and 2020, the number of nursing universities increased by 24.9 times, from 11 to 274, and the number of students also increased by 44.6 times (Figure 2). However, the number of three-year junior colleges and technical schools has decreased. One of the reasons for this rapid increase in the number of universities is that technical schools have combined into degree-based health science programs in universities. Another reason is that junior colleges have advanced into universities, and new universities are also being established. Nursing education still lags far behind other health and science programs in terms of educational levels, such as medicine, pharmacy, and engineering. Even at present, nursing education at three-year technical schools is still the most common pathway to becoming a registered nurse (accounting for 65% of the total).

At many public and private nursing universities, the department of nursing is one of the medical school's faculties or departments. Recently, some universities have combined their nursing department with rehabilitation and/or nutrition under the name health and medical, health and science, or nursing and rehabilitation.

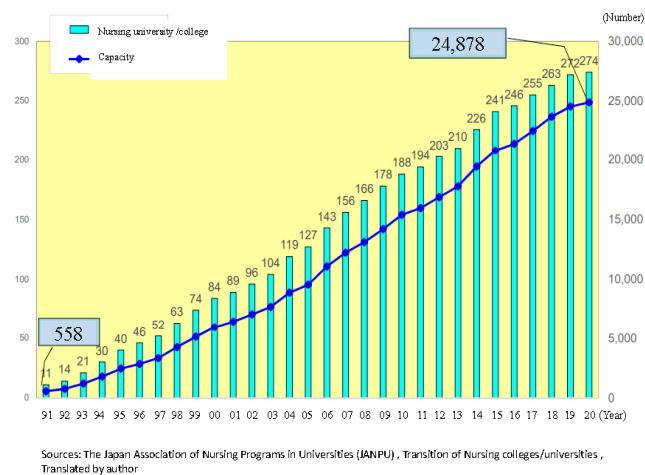


Figure 2 Transition of Nursing Colleges / Universities and Capacity in Japan (1991-2020)

1.3 Issues with the Shortage of Nurses

The main reason for this complicated education system is that a large volume of applicants has to be accepted to remedy the constant shortage of nurses. In general, there should be only one way to become a registered nurse, as the registered nurse license is a professional government-granted license. From this perspective, the shortage of nurses is an urgent issue that needs to be remedied.

If all education were to be provided at universities or colleges, technical schools managed by hospitals would have to be closed, and new universities and colleges would have to be established. This is not realistic in terms of facilities, faculties, and finances.

Various opinions and arguments from diverse fields and perspectives have been put forward regarding the unification of the nursing education system into a four-year university or college program. From a nurse's point of view, this change in the education system is welcome. The nursing specialty is becoming increasingly sophisticated and complex. More discussions should be held regarding the strategic inclusion of the nursing specialty in basic nursing education, reconsideration of the linkage between clinical education and basic nursing education, and promotion of the establishment of university or college education programs that teach general as well as nursing education.

2 Post-Licensure Nursing Education in Japan

2.1 The Post-Licensure Education Support System

Japan's mortality rate is high because Japanese society has the world's highest aging rate. As the medical system is adapting to societal changes, it is necessary to establish a nursing system that supports both medical care and care in daily life. With the development of nursing science and education, nursing specialties in clinical settings are becoming more segmented, while workplaces and working styles are diversifying. In accordance with these changes, a variety of post-licensure educational systems exist.

The Japan Nursing Association (JNA) developed

Clinical Ladders for Nurses (JNA Ladders) in 2016 as an objective evaluation indicator that all nurses can use. The purpose of JNA Ladders is to ensure that nurses in any setting can evaluate their skills and knowledge of care, the tool also aims to support the development of nurses' abilities. The Clinical Ladders instrument provides a step-by-step explanation of nurses' clinical abilities. There also exists a tool known as Career Ladders that explains management and career development. The Career Ladders instrument covers the career trajectories of certified nurse specialists, certified nurses, and training system for nurses to perform specific medical interventions, which are explained later in this article. Some nursing post-licensure certifications include certified nurse specialists, certified nurses, certified nurse administrators, nurse practitioners (tentative names), and training system for nurses to perform specific medical interventions.

2.2 Certified Nurse Specialist

The purpose of certified nurse specialists (CNSs) is to contribute to the development of health and welfare and improve nursing science by maintaining high standards and providing effective care to individuals, families, and groups who have complicated and difficult-to-solve nursing problems. Certification began in 1995 in the fields of cancer nursing and psychiatric mental health nursing.

To be certified as a CNS, the applicant must have a Japanese registered nurse license, a graduate degree from a school that offers CNS courses, earned a certain number of university credits as determined by the Japan Association of Nursing Programs in Universities (JANPU), and have at least five years of clinical experience, including at least three years of experience with the specialty field. As of 2021, there were 310 CNS courses offered at 105 graduate programs in Nursing. After meeting all the requirements, the applicant sits an examination and is certified if they pass it. As of the end of March 2021, 2,744 CNSs had been certified in 13 specialty areas. The largest number of CNSs (785) are in cancer nursing. The author's university offers seven

CNS courses: cancer nursing, psychiatric mental health nursing, gerontological nursing, child health nursing, chronic care nursing, critical care nursing, and home care nursing.

In addition, there is certification for certified nurse administrators. Applicants must have at least five years of clinical experience and must complete at least 510 hours of certified nurse administrator education, as determined by the JNA, or earn university credits in nursing management and complete a master's program. Once these requirements are satisfied, the applicants can take an examination and be certified if they pass it. As of December 2021, there were 4,756 certified nurse administrators. CNSs and certified nurse administrators must renew their certification every five years to sustain their certification status.

2.3 Certified Nurse

Certified nurses (CNs) are intended to promote nursing care and improve the quality of care using specialized nursing skills and knowledge of specific nursing fields. CN is a unique Japanese certification developed to meet the urgent demand from clinical settings and replace CNSs, whose numbers have not been increasing (Matsumoto & Okabe, 2009).

Certification began in 1995 in the fields of emergency nursing and wound, ostomy, and continence nursing. There are currently 21 CN specialty fields, but these courses are scheduled to terminate by 2026. In February 2019, the CN regulations were amended to reorganize CN specialties into 19 fields, and new regulations that include specific technical training were initiated in 2020. The 19 new specialty fields are listed in Table 1. At the end of March 2021, 21,971 CNs had been certified.

Unlike for CNSs, completing a master's degree is not a requirement to become a CN, and the training period ranges from six months to one year. Many applicants use leaves of absence for the training and return to the same workplace after training.

2.4 Training system for nurses to perform specific medical interventions

The training system for nurses to perform specific medical interventions is determined by the Act on Public Health Nurses, Midwives, and Nurses. Created on October 10, 2015, this system was to promote home health care by allowing nurses to perform medical interventions by following a procedure manual without a physician's or dentist's order.

The specific medical intervention is broadly to assist with medical treatment. There are 38 interventions that require practical understanding, the ability to think and judge, and advanced and specialized knowledge and skills. There are 21 classifications of specific medical interventions (Table 2). Nurses must take training for the specified interventions, comprising common subjects such as clinical pathophysiology and clinical reasoning, as well as illness-specific subjects. "Package training" was initiated in 2019 to make the training more effective by providing a course covering necessary techniques for the specialty fields. There are currently six domain-specific packages.

At least five-years of clinical experience is required to undergo training. The training content, including package training, varies among institutions. The training period is approximately one and a half years.

2.5 Nurse Practitioner

There are two routes of certification to "Nurse Practitioners (NPs)" in Japan. One is certified by the Japanese Organization Nurse Practitioner Faculties (JONPF), and the other is certified by the Japan Association of Nursing Programs in Universities (JANPU). In this article, we introduce NPs that are certified by the JONPF.

NPs are nurses who collaborate with physicians and other health care professionals to improve patients' quality of life (QOL) and provide ethical and effective care based on scientific evidence. To obtain an NP qualification, an applicant must complete NP education at a graduate program and pass an examination organized by the JONPF. The Japanese NP is modeled after its equivalent in the United States. NPs can perform medical procedures such as intubation and abdominal

Table 1 Overview of the CNS and CN systems in Japan

	Roles	Fields	Credentialing system
Certified Nurse Specialist (CNS)	(6 roles) 1. Excellent nursing practice including nurses 2. Consultation with care providers 3. Coordination among the concerned parties 4. Ethical coordination to protect the rights of individuals, etc 5. Education of nursing personnel 6. Research activities at clinical settings	(13 fields) 1. Cancer Nursing 2. Psychiatric Mental Health Nursing 3. Community Health Nursing 4. Gerontological Nursing 5. Child Health Nursing 6. Women's Health Nursing 7. Chronic Care Nursing 8. Critical Care Nursing 9. Infection Control Nursing 10. Family Health Nursing 11. Home Care Nursing 12. Genetics Nursing 13. Disaster Nursing	A national license for nurses ↓ Completing a master's program at a graduate programs that offers CNS courses (2years) ↓ At least 5years of clinical experience, including at least 3years of experience with the specialty field ↓ Passing the credentialing examination given by JNA ↓ Required to renew the certification every 5 years.
Certified Nurse (CN)	(3 roles) 1. Nursing practice at high level 2. Instruction of nurses 3. Consultation with nurses	(19 fields) *2020year~reorganization 1. Infection Control 2. Radiation Oncology Nursing 3. Cancer Chemotherapy and Immunotherapy Nursing 4. Palliative Care 5. Critical Care 6. Respiratory Nursing 7. Home Care 8. Perioperative Nursing 9. Pediatric Primary Care 10. Neonatal Intensive Care 11. Heart Failure Nursing 12. Nephrology Nursing 13. Reproductive Health Care 14. Dysphagia Nursing 15. Diabetes Nursing 16. Breast Cancer Nursing 17. Dementia Nursing 18. Stroke Nursing 19. Wound, Ostomy and Continence Nursing	A national license for nurses ↓ At least 5years of clinical experience, including at least 3years of experience with the specialty field ↓ Completing the required education program for certification (600 hours) ↓ Passing the credentialing examination given by JNA ↓ Required to renew the certification every 5 years.

paracentesis, in addition to the above mentioned specific techniques. Japanese NPs can only provide medical procedures when they are ordered by physicians. They are not allowed to diagnose or prescribe medications. They also cannot open their own medical clinics or offices. An NP certification equivalent to the U.S. does not currently exist in Japan.

NPs have seven roles: comprehensive health assessment skills, ability to practice medical procedures and management, expert nursing practice skills, nursing

management skills, teamwork and collaboration skills, ability to utilize and develop health and welfare systems, and ethical decision-making skills.

This qualification differs from CNS in the accreditation bodies, education systems, and medical procedures that are allowed to be performed. An applicant must complete master's program (NP course) in a college or university where JONPF authorized as NP's educational institutions. In 2015, this NP course was approved by the Ministry of Health, Labour and

Table 2 Specific Medical Interventions

Categories for specific medical interventions	Specific medical interventions
Respiratory system (Airway management)	Adjusting the position of an oral tracheal tube or nasal tracheal tube
Respiratory system (Mechanical ventilators)	Changing the mode settings for invasive positive ventilation Changing the mode settings for non-invasive positive ventilation Adjusting the dose of sedatives for persons under mechanical ventilation management Weaning from mechanical ventilation
Respiratory system (Long-term respiratory therapy)	Replacing a tracheal cannula
Circulatory system	Operating and managing a temporary pacemaker Removing temporary pacemaker leads Operating and managing a percutaneous cardiopulmonary support device Adjusting the assistance frequency of an intra-aortic balloon pump at the time of weaning off
Pericardial drainage catheter management	Removing a pericardial drainage catheter
Thoracic drainage tube management	Setting and changing suction pressure levels for a continuous low-pressure suction drainage system Removing a thoracic drainage tube
Abdominal drainage tube management	Removing an abdominal drainage tube (including the removal of a puncture needle placed within the abdominal cavity)
Fistula management	Replacing gastrostomy tube, jejunostomy tube or gastrostomy button Removing a suprapubic catheter
Nutrition management (central venous catheter)	Removing a central venous catheter
Nutrition management (peripherally inserted central catheter)	Inserting a peripherally placed central catheter for injection
Wound management	Removing necrotic tissues with no blood circulation for the treatment of pressure ulcers or chronic wound Negative pressure wound therapy
Wound drainage tube management	Removing a wound drainage tube
Arterial blood gas analysis	Collecting a blood sample by direct arterial puncture Securing a radial artery line
Dialysis management	Operating and managing a hemodialysis machine or hemofilter for acute blood purification therapy
Administration of medications for nutrition and fluid management	Adjusting the dose of high-calorie intravenous fluid during the continuous infusion Correcting dehydration symptoms with intravenous fluid
Administration of medications for infections	Administering temporary medications as needed to persons with signs of infection
Administration of medications for blood glucose control	Adjusting the dose of insulin
Postoperative pain management	Administering analgesics via an epidural catheter, and adjusting the dose of analgesics
Administration of medications for hemodynamics	Adjusting the dose of catecholamine during the continuous infusion Adjusting the dose of sodium, potassium and/or chloride during the continuous infusion Adjusting the dose of hypotensives during the continuous infusion Adjusting the dose of intravenous fluid with carbohydrates or electrolytes during the continuous infusion Adjusting the dose of diuretics during the continuous infusion
Administration of medications for psychiatric and neurological symptoms	Administering anticonvulsants (temporarily) as needed Administering antipsychotics (temporarily) as needed Administering of anxiolytics (temporarily) as needed
Administration of medications for skin injury	Injecting steroids locally in the case of extravasation of chemotherapy or other agents and adjusting the dose of steroids
Package Training Areas	
Home and chronic care	
Post-Surgical management	
Anesthetic management	
Emergency care	
Basic surgical care	
Intensive care	

Welfares as a course to train nurses to perform specific medical interventions, so that nurses who complete this NP course will be certified to perform specific medical interventions described in Chapter 2.4. Upon completion of the NP course, students can write an NP examination. If they pass, they are qualified as NPs by the JONPF. Therefore, the difference between NPs and CNSs is that NPs can perform "specific medical interventions" and are required to have the "ability to practice medical procedures and management" of the above seven roles.

In 2011, the first NP examination was administered, and ten NPs qualified for the license. Currently, there are three fields: primary care (adult and geriatric), primary care (pediatric), and critical. As of April 2021, 583 NPs have qualified. NP qualifications are to be renewed every five years.

3 Issues and Prospect of Post-Licensure Nursing Education in Japan

3.1 Various systems of post-licensure certification

Various career paths have been available for nurses to pursue lifelong development and to accommodate evolution in response to social conditions. There are various motivations for nurses to obtain these certifications, such as improving clinical practice competences, pursuing expertise, exploring solutions for problems found in clinical practice, advancing career, and satisfying one's interests.

With such a wide variety of choices for nurses, it is more and more important for policy makers and nursing educators to develop effective linkages between basic nursing education and post-licensure education, as well as to strengthen career support systems, in order for students to have a clear awareness of their own career plans from the stage of basic nursing education.

3.2 Challenges for clinical nurses to pursue certifications

Among the various certifications that may emanate from post-licensure education, the CNS and NP certifications require two years of post-graduate education and therefore have limited recognition and social evaluation. The reason for the lack of recognition

is that it is very difficult to study full-time at graduate programs while working full-time as a nurse. Most nurses must quit their jobs or take leaves of absence, which requires them to prepare to cover school tuition and living expenses for two years without a full income.

Furthermore, in Japan, quitting one's job interrupts one's career. Even if a person is able to return to work after taking a leave of absence, it is entirely dependent on the employer whether that individual can return to the same department or position or be promoted once they have secured their new certification. For nurses working in clinical settings, these are obstacles to obtaining CNS or NP certification.

The number of CNSs is one-tenth that of CNs, as the CNs do not require post-graduate education and can be certified after six months to one year of training. Most hospitals, especially small-to medium-sized hospitals, do not have CNS. This is why CNSs are not widely recognized by public, therefore their social values are not recognized. With the increased number of universities, it is hoped that many nurses consider attending graduate programs to be an accessible career path.

3.3 Financial support for nurses with advanced training

Financial support for nurses is an important issue. Currently, there is no standard of commensurate with the certification, as it is left to the discretion of the employer. Furthermore, a working environment in which nurses can exercise their expertise and receive assurances of an appropriate salary and benefits will help ensure the quality of care in clinical settings and improve the social recognition and evaluation of nurses. To achieve this, the immediate issues concern building and visualizing the practice of these certified nurses, establishing an evaluation system to measure effectiveness, and spreading their practice and promoting its value not only among nurses but also among other healthcare professionals and organizations as well as communities.

In Japanese society, where people can live over 100 years old, illness care and healthcare are becoming

more sophisticated and complex, and the needs of the community are becoming more diverse. It is necessary to educate and train highly skilled nurses with a broad academic foundation, advanced specialized knowledge and skills, and high ethical standards to respond to these social needs. Nurses should recognize the purpose and background of these post-graduate licensure certifications, as well as the roles and specialties associated with each certification. It is expected that an integrated nursing care system with complementary relationships will be developed by utilizing each certification's strengths and autonomy.

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