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Review Article

Development and Implementation of the Advanced Practice Nurse Worldwide With an Interest in Geriatric Care



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Many countries are seeking to improve health care delivery by reviewing the roles of health professionals, including nurses. Developing new and more advanced roles for nurses could improve access to care in the face of a limited or diminishing supply of doctors and growing health care demand. The development of new nursing roles varies greatly from country to country. The United States and Canada established “nurse practitioners” (NPs) in the mid-1960s. The United Kingdom and Finland also have a long experience in using different forms of collaboration between doctors and nurses. In other countries, such as Australia, NPs were endorsed more recently in 2000. In France, Belgium, or Singapore, the formal recognition of advanced practice nurses is still in its infancy, whereas in other countries, such as Japan or China, advanced practice nurses are not licensed titles. The aims of this article were to define precisely what is meant by the term “advanced practice nurse (APN),” describe the state of development of APN roles, and review the main factors motivating the implementation of APN in different countries. Then, we examine the main factors that have hindered the development of APN roles. Finally, we explain the need for advanced practice roles in geriatrics.

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Many countries are looking at ways to improve efficiency in health care delivery by reviewing the roles and responsibilities of different health professionals, including nurses. Discussions on the scope of practice of nurses often take place in the context of broader efforts to reorganize different parts of health care systems, particularly the reorganization of primary care. The aims of this article were to define precisely what is meant by the term “advanced practice nurse (APN),” describe the state of development of APN roles, and review the main

factors motivating the implementation of APN in different countries. Then, we examine the main factors that have hindered the development of APN roles. Finally, we explain the need for advanced practice roles in geriatrics.

Defining Advanced Practice Nurse

The term “advanced practice nursing” first appeared in the nursing literature in the 1980s¹; however, there remain difficulties in providing a concise and clear definition of “advanced practice(s),” stemming from the fact that they encompass a wide (and growing) variety of competencies and practices. At the international level, achieving a broad consensus on the definition of “advanced practice nursing” is even more difficult, as countries are at different stages in

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implementing these advanced roles. The International Council of Nurses has proposed the following broad definition of advanced practice nursing: “A Nurse Practitioner/Advanced Practice Nurse (APN) is a registered nurse who has acquired the expert knowledge base, complex decision-making skills and clinical competencies for expanded practice, the characteristics of which are shaped by the context and/or country in which s/he is credentialed to practice. A Master’s degree is recommended for entry level.”² An international review identified no fewer than 13 different titles that APNs may have in various countries, such as “nurse practitioner,” “advanced nurse practitioner,” “nurse consultant,” “clinical nurse specialist,” and others.³

State of Development of APN Across Countries

Among English-speaking countries, 2 main categories of APNs can be found: (advanced) nurse practitioners (NPs), and clinical nurse specialists (CNSs). In addition to NPs and CNSs, there are actually 2 other categories of APNs in the United States: certified registered nurse anesthetists (CRNA) and certified nurse-midwives (CNM). According to the American Association of Colleges of Nursing, CRNAs administer more than 65% of all anesthetics given in the United States each year.⁴ In most countries in which the NP category exists, NPs generally carry out a range of activities that may otherwise be performed by physicians, including diagnostics, screenings, prescriptions of pharmaceuticals or medical tests, activities in the fields of prevention and health education, the monitoring of patients with chronic illnesses, and a general role in care coordination (alone or together with doctors). NPs practice in the primary care and hospital sectors. The roles of CNSs include clinical practice, education, research, and leadership. They work mainly (but not exclusively) in hospitals, in which their more advanced skills and competencies enable them to provide consultation to patients, nurses, and others in complex situations; promote and improve quality of care through the support of evidence-based practice; and facilitate system change.

Countries are at very different stages in implementing new APN roles. Some countries, including the United States, the United Kingdom, and Canada, have been experimenting and implementing new APN roles for many decades. In the United States, the introduction of NPs, responsible for delivering a wide range of services with a high level of autonomy, dates back to the mid-1960s. In Australia the first NP was endorsed in 2000 and new NP standards guide practice and endorsement.^{5,6} Since 2009, NPs are licensed under the Health Practitioner Regulation National Law Act in Australia.⁷ However, the NP service model in Australia is currently still under development, and evaluation of the NP role is needed to demonstrate the value of such a role in practice.⁶ Most new NP projects focus on specialization, including mental health^{6,8} and oncology.⁹ In other countries, the development of APN roles is still in its infancy, although some countries, such as France, have recently launched a series of pilot projects to test new models of teamwork between doctors and nurses in primary care and chronic disease management. There are 1694 Certified Nurse Specialists in Japan, making approximately 0.15% of approximately 1.1 million registered nurses.¹⁰ Japan introduced NPs in 2010 and in a pilot program in nursing homes, NP care resulted in improved health status and decreased hospitalization.¹¹ The number of nurses in advanced practice roles still represents a small proportion of all nurses even in those countries that have the longest experience in using them. In the United States, NPs and CNSs represented, respectively, 6.8% (205,000)¹² and 2.5% (78,000) of the total number of registered nurses (3,131,003 in January 2016).¹³ In Canada, they accounted for a much smaller share, NPs representing only 0.6% and CNSs 0.9% of all registered nurses in 2008, although their numbers have increased in recent years. On the other hand, after more than a decade, in Australia the number of NPs (1287) is relatively small.¹⁴ In China, APN development was introduced only in recent years. The Outline of Development Plan

for Nursing in China (2011–2015) issued by the Ministry of Health articulated a plan to develop different specialties of nursing.¹⁵ In Hong Kong, a special administrative region of China where the development of APNs started in 1994,¹⁶ there are 2700 APNs¹⁷; approximately 7.8% of the total number of registered nurses in the city. A historically matched controlled study found that patients under the care of nurse consultants in Hong Kong had more favorable health and service outcomes than those who were not.¹⁸ APNs in Hong Kong, similar to many Asian countries, such as Japan and the Philippines, do not have formal legislative status like that of a registered nurse. The title of an APN, however, is regulated in Singapore and can be used only by individuals certified by the Singapore Nursing Board. Among 24,530 registered nurses in 2014 in Singapore, fewer than 1% were APNs.¹⁹ Since 2000, NPs, but not CNSs, are licensed in Taiwan.²⁰

The educational requirement to become an APN varies to some extent across countries. In most countries, a graduate degree in nursing (eg, a Master’s degree) is now recommended or required. This is the educational requirement that has been established in Australia, as new education programs for APNs are being set up. In the United States and Canada, there has been a gradual increase in educational requirements, with a Master’s degree now becoming the norm to become an APN. In 2004, the American Association of Colleges of Nursing published a position paper recommending that by 2015 the terminal degree for advanced practice nursing change from a Master’s degree in Nursing to a Doctor of Nursing Practice (DNP). Although the doctoral programs are gaining in popularity in the United States, no state boards of nursing have made the move to adopt the DNP as the new educational requirement.²¹ In the United Kingdom, a first-level university degree (eg, a Bachelor’s degree) is sufficient to become an APN, with relevant work experience playing an important role in determining qualifications for more advanced posts.

Reasons Motivating the Implementation of APN

A number of reasons may explain the growing interest in the implementation of advanced roles for nurses, with these reasons possibly varying according to each country’s circumstances. However, in most countries, the main reasons for developing APN roles are to improve access to care in a context of growing demand for different types of health services and a limited supply of doctors. In several countries, discussions on how best to respond to growing demand for care are also taking place in a context of tight government budgetary constraints and discussions on how to control the growth in health spending.

Responding to Shortages of Doctors

APN roles (in particular, NPs) tend to be more developed in those countries in which there are a relatively low number of doctors, a relatively high number of nurses, and thus a high nurse-to-doctor ratio. This is the case in Finland, the United States, Canada, and the United Kingdom. In these countries, the much greater number of nurses compared with doctors may be both a cause for the development of advanced practitioner roles and a consequence of this development.

It is important to look not only at the current composition of the workforce, but also at future trends. In countries like France, discussions about extending the roles of nurses are taking place in a context of a projected decline in the number of doctors per capita, and in particular a reduction of general practitioners (GPs).²² Hence, the development of APN roles is considered as a possible way to respond to a reduced supply of doctors while at the same time providing incentives to increase the recruitment and the retention of nurses. In some geographically large countries, the uneven distribution of doctors across different regions has also reinforced the interest in

developing APN roles, so as to respond to the needs of the population in rural and remote areas. In Finland, Canada, and Australia, APNs play a significant role nowadays in providing a range of services to people in these remote areas.

Responding to Changing Demand for Care

Population aging, the growing prevalence of certain chronic diseases, and comorbidities (multiple health problems) are increasing the demand for care in different settings. In particular, the development of home-based and nursing home care options in many countries, as a way to reduce hospitalizations, provides new opportunities to develop APN roles, so as to free up doctors' time and other hospital staff's time to deal with more acute or complex cases. Patients suffering from one or more chronic diseases generally need more frequent visits at home or in other settings for follow-up and monitoring to prevent further complications, and advice on self-care management and lifestyle changes. Many of these time-consuming tasks can be performed by nurses with proper training and skills.²³

Responding to Growing Health Cost

Containing the growth in health spending may be an additional reason for promoting new forms of cooperation among health professionals and more APN roles. Some researchers have tried to estimate the potential savings that may be associated with promoting the delivery of certain services by other health professionals than doctors. In the United States, Hussey et al.²⁴ estimated that the further use of NPs and medical assistants may lower the growth in health care spending by 0.3% to 0.5% per year.

Improving Career Prospects for Nurses

One of the arguments is that the nursing profession needs to maintain its attractiveness. The development of more advanced education and training programs, leading to more highly skilled nursing jobs, may help improve recruitment and retention rates.²⁵ Such a strategy is found in Western^{26,27} as well as in Asia-Pacific countries.

Barriers in the Development of Advanced Roles of Nurses

Opposition of the Medical Profession

The opposition of the medical profession has been identified as one of the main barriers to the development of APN roles. The main reasons for physician resistance to APN roles include a potential overlap in the scope of practice and loss of activities, the degree of autonomy and independence of APNs, concerns about legal liability in cases of malpractice, and concerns about the skills and expertise of APNs. Indeed, in Australia the Australian Medical Association has been supportive of nurses working in expanded roles in the rural and remote areas of Australia, but once authorized as NPs they were seen as a threat to the traditional medical role.²⁸ The potential overlap in the scope of practice between APNs and doctors may be greater for NPs working in primary care than for CNSs working in hospitals (whose role involves more service/quality enhancements than task substitutions). For example, the American Medical Association advises that at least 1 doctor in the integrated practice must be immediately available for supervision and consultation by the NP.²⁹ In France and other countries, the National Council of Doctors has raised concerns about the legal liability of doctors in cases of malpractice in the context of teamwork, and requested a clearer definition of roles and responsibilities of different health care providers.³⁰

Organization and Funding of Care

The organization of primary care varies widely from country to country. In some countries (Belgium, France), the predominant mode of provision of primary care continues to be based mainly on solo practice, whereas in other countries (Australia, Canada, Finland, United Kingdom, and United States), group practice is the dominant mode. In Finland, more than 95% of GPs work in group practices, whereas this proportion reaches close to 90% in Australia and the United Kingdom. By contrast, only approximately 30% of GPs in France work in group practices.³¹ As expected, APN roles in primary care are more developed in those countries in which primary care is mainly delivered in group practices.

Many studies indicate that fee-for-service payments for doctors can act as a barrier to the development of APN roles in primary care.³² Any transfer of tasks to nurses may result in a loss of income for doctors, unless they are able to offset this reduction in activities by providing other and potentially more lucrative services. In Finland, nurses handle many preventive and routine chronic care consultations, and almost all home visits. Most doctors and nurses delivering primary care and other services in municipal health centers are salaried. In the United Kingdom, government initially encouraged the recruitment of nurses by GP practices in the 1970s and 1980s by subsidizing a large part of their wages (70%).³³ In the United States, the initial deployment of APNs occurred in rural and remote areas, as NPs were allowed to bill directly for services that were provided. This encourages the APNs to practice in areas that were underserved by doctors, leaving more room for nurses to extend their scope of practice. Certain categories of APNs, including NPs, obtained the right in the 1990s to be paid directly by private health insurance or public health insurance (ie, Medicare or Medicaid) on a fee-for-service basis.³³ This reimbursement option promoted further interest in and development of APN roles. In France, by contrast, primary care continues to be delivered mainly by GPs working in solo practice, thereby limiting the emergence of APN roles in that sector. However, there has been a recent development of multidisciplinary health centers ("maisons de santé pluridisciplinaires"), in response to a reduced supply of GPs in certain regions (particularly rural areas) and a growing interest of the new generation of doctors in teamwork and group practices.³³ Cooperation of doctors and nurses often involves a greater role of nurses in the management of patients with chronic diseases (eg, diabetes and hypertension), including patient education and counseling. The evaluation of new approaches to chronic disease management generally shows positive results, with higher quality of care achieved (notably through the provision of more advice to patients on lifestyle and self-care) at no greater cost.³⁴ However, the degree of interprofessional cooperation often remains limited because health professionals in these group practices continue to be paid on the basis of individual-based fee-for-services. This suggests a need to experiment with new forms of collective or group-based payment methods to promote greater doctor-nurse cooperation.³⁵

Legislation

In most countries, the development of more advanced roles for nurses has required legislative and regulatory changes, so as to remove barriers to the implementation of these new roles. Such barriers may relate, for instance, to the rights of nurses to prescribe pharmaceutical drugs or to perform other roles in primary care or in hospitals. For example, the United Kingdom has introduced a series of legislative changes over the past 15 years to gradually extend the rights of nurses to prescribe a growing number of drugs, while ensuring that patient safety would be protected through requiring proper training. In the United States, regulations regarding the scope of practice and prescriptive authority vary considerably across states

Table 1
Evaluations of the Impact of APNs in Different Countries

Country	Author (Year)	Aim	Method	Main Outcomes	Interventions Developed by the APN	Findings
Sweden	Berglund et al ⁶³ (2013)	Analysis of frail older people's views of quality of care when receiving a comprehensive continuum of care interventions by APNs measured with a questionnaire	RCT/12 months, n: 161	Quality of care	Health screening; case management; discharge planning; telephone consultation; telephone follow-up; program design and development; support for patients and caregivers; health education	Older people receiving a comprehensive continuum of care intervention perceived higher quality of care on items about care planning, compared with those receiving the usual care; in addition, they had increased knowledge of whom to contact about care/service, after 3 and 12 months
Denmark	Rosted et al ⁶⁴ (2013)	Effect of a 2-stage nursing assessment and intervention to address older adults' uncompensated problems to prevent readmission and functional decline	RCT/30 and 180 days, n: 271	Quality of life	Health screening; case management; program design and development; referral; guidance through the health system for patients and caregivers; health education	At 180 days of follow-up, they found positive results in mental health, measured with GDS 5 and quality of life, measured with SF-12 PCS; there were also significant differences in the min/mo spent by the community nurse between groups
France	Mousquès et al ³⁴ (2010)	Assess the efficacy and the cost of a French team work experiment between nurses and GPs for the managing of patients with type 2 diabetes	Case control study	Medico-economic evaluation	Evolution of process (standard follow-up procedures) and final outcomes (glycemic control), and the evolution of cost	Patients in the intervention group, compared with those in the control group, have more chances to remain or to become correctly followed-up and under glycemic control
Canada	Martin-Misener et al ⁶⁵ (2009)	Adults living in a rural community receiving primary health care and emergency services from a team that included an on-site APN and paramedics and an off-site family physician would, over time, demonstrate evidence of improved psychosocial adjustment and less expenditure of health care resources	RCT/3 y	Impact of the model of care	Structured questionnaires, individual and group interviews with patients, health and social service care providers	The innovative model of care resulted in decreased cost, increased access, a high level of acceptance and satisfaction, and effective collaboration among care providers; organizational structures to support the innovative model of primary health care were identified
United States	Naylor et al ⁶⁶ (2004)	To examine the effectiveness of a transitional care intervention delivered by APNs to elders hospitalized with heart failure	RCT/52 wk n: 239	Hospital admission, acute care admission, quality of life	Health screening; case management; discharge planning; telephone consultation; telephone follow-up; program design and development; support for patients and caregivers; health education; referral	Time to first readmission or death was longer in intervention patients; at 52 wk, intervention group patients had fewer readmissions and lower mean total costs; for intervention patients, only short-term improvements were demonstrated in overall quality of life, physical dimension of quality of life, and patient satisfaction
United Kingdom	Griffiths et al ⁶⁷ (2001)	To evaluate the outcome and cost of transfer to a nursing-led inpatient unit for "intermediate care"; the unit was designed to replace a period of care in acute hospital wards and promote recovery before discharge to the community	RCT/20 mo n: 176	Quality of life	Referrals; management of admission and discharge	Care in the unit had no significant impact on discharge destination or dependence; length of inpatient stay was significantly increased for the treatment group; the daily cost of care was lower on the unit, but the mean total cost was £1044 higher, although the difference from the control was not significant
New Zealand	Parsons et al ⁶⁸ (2012)	Effectiveness of a care management program on residential	RCT/3-6-12-18-24 mo n: 351	Institutionalization	Case management; program design and development; referral; guidance through the health system for patients and caregivers	The risk of permanent residential care placement or death was 0.36 for usual care (control group) and 0.26 for the care management initiative, a 10.2% absolute risk reduction, with most risk reduction seen in residential care placement (control group 0.25, intervention group 0.16)
Japan	Ono et al ¹¹ (2015)	Effect of NP on nursing home care	Pre-/Postintervention n: 479	Hospitalization	Clinical care	Hospitalization decreased from 45.8% to 30.1%

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Table 1 (continued)

Country	Author (Year)	Aim	Method	Main Outcomes	Interventions Developed by the APN	Findings
Australia	Wand et al ⁸ (2011)	Realistic evaluation of an emergency department –based mental health nurse practitioner outpatient service	Mixed-methods 3 phases over 4 y n: 101	Delay in access to mental health intervention	Outpatient service offering triage, review, and discharge by NP (up to 5 sessions)	Most outpatients required only 1 follow-up appointment (n = 64), 20 returned for 2 sessions and 5 attended 5-session limit; follow-up mean score for psychological distress (K-10) decreased by 2 categories (from very high to moderate with statistically significant improvement on all items, $P < .001$); small improvement on General Self-Efficacy Scale and modest association between a decrease in psychological distress and improvement in perceived self-efficacy ($P = .0137$)

GDS, Geriatric Depression Scale; PCS, Physical Component Summary, SF-12: Short Form health survey—12 items.

for NPs. Some states, like Missouri, are much more restrictive, probably due to a strong medical lobby. In Australia, although from the year 2000 NPs were able to prescribe, patients were required to pay the full cost of the medications prescribed. The *Health Legislation Amendment (Midwives and Nurse Practitioner) Act 2010* was passed allowing NPs to apply for provider numbers, which meant patients were no longer disadvantaged when prescribed medications by an NP. However, alongside this Act, NPs had to enter into a *Determination of Collaborative Agreement* with medical practitioners.²⁸ In France, although the responsibility for defining the scope of practice of different health professions is very much centralized, one of the barriers to the expansion of the role of nurses is that current national legislation defines in very specific terms what each health profession can (or cannot) do.

The Need for Advanced Practice Roles in Geriatrics

In our aging society, care for older people is one of the greatest challenges in health care.^{36,37} As compared with other adults, older patients have longer hospital stays, more documented cases of functional decline when hospitalized, and higher rates of patient safety incidents.^{38,39} Clearly, nurses with gerontological expertise are needed to care for a patient population with such complex nursing needs not only in the geriatric unit but also in primary care, especially in nursing homes.

The Impact of Advanced Practice Nursing in Primary Care

Older adults currently use a disproportionately higher amount of health services compared with other age groups.⁴⁰ With an increasing aging population, primary care must determine how to meet the growing demand for health care. In this context, APNs may specialize in the care of older adults. According to a systematic review of APNs in primary care (11 randomized controlled trials [RCTs] and 23 observational studies), APNs increased patient satisfaction, increased the length of consultation, and performed more investigations than GPs and no differences were found in health outcomes or prescriptions.⁴¹ The findings seen in initial evaluations of APN care in Sweden and Finland corresponded with international research: APNs contribute to increased access to care, liberate GP time, and offer care on the proper level.^{42,43} A Cochrane review of the substitution of GPs with nurses in primary care (4253 articles were screened, 25 included) concluded that appropriately trained nurses are able to provide equally high-quality care and good health outcomes for patients.⁴⁴ A systematic review of clinical effectiveness and cost-effectiveness of nurse-led health promotion for older persons in the UK identified a decrease in mortality and health

benefits.⁴⁵ There was a tendency for the intervention to be cost-effective. APN clinical outcomes, care processes, use of services, and cost-effectiveness have been found to be equivalent or superior to GP care.⁴⁶ Successful implementation of APN in primary care requires good cooperation between the APN and GP.^{47,48}

Advanced Roles in Nursing Homes

Nursing homes provide both acute and long-term care to the frailest of older adults.^{49,50} With the institution of diagnosis-related group payment systems in acute care hospitals, there was substantial motivation to reduce hospital bed days. Since then, hospitals have discharged patients “quicker and sicker” into nursing homes. This phenomenon has reshaped the landscape of what was once almost exclusively a long-term care environment into an environment of patients who need increasingly complex chronic care, along with growing numbers of short-stay rehabilitation patients needing frequent and intensive medical care. The increasing complexity of nursing home residents has challenged the ability of the physicians who provide medical care, typically family practice and internal medicine physicians, to meet these patients' complex medical and emotional needs. Experts have suggested that the addition of APNs could both increase the numbers of those providing care and improve the quality of the care provided in nursing homes.^{51–55} Residents attended by APNs in comparison with traditional care show improvements in incontinence, pressure ulcer rates, aggressive behavior, and affective relationships in patients with cognitive impairment.⁵⁶ Positive clinical outcomes associated with the presence of an APN in the nursing home also include an impact on issues related to end-of-life care, such as a reduction in the use of feeding tubes in residents with dementia, and an increase in completion rates for “Do-Not-Resuscitate” and “Do-Not-Hospitalize” orders. It is suggested that this may be due to increased provider availability and increased communication regarding advance directives.⁵⁷ A recent Australian scoping study of literature reporting on NPs in aged care identified a growing number of positive outcomes reported from studies exploring the NP role in aged care.⁵⁸ In particular, the NP role in aged care was reported to have a positive impact on a client's health, quality of life, and access to services. An evaluation of an NP dementia outreach model also reported reduced staff stress and an improvement in staff confidence in management of residents with dementia. Due to the newness of the NP aged care models of practice in Australia, the Australian government provided AUS \$17.4 million over 4 years to develop, test, and evaluate NP models across Australia. Alongside this, the University of Canberra is currently conducting a national evaluation of the 30 NP aged care models of practice program. Moreover, positive effects have been demonstrated on accidental falls.⁵⁹ Finally, the Evercare APN

program in US nursing homes showed a halving of hospital admissions with a savings of \$103,000 per year per nurse practitioner.⁶⁰ In the United States, states with full-practice NPs have lower hospitalization and rehospitalization rates.⁶¹ Similarly, findings from the third year of a Centers for Medicare and Medicaid Services *Evaluation of the Initiative to Reduce Avoidable Hospitalizations Among Nursing Home Residents* in Missouri that embedded an APN in each of 16 nursing homes, revealed a 34.5% decrease in potentially avoidable hospitalizations.⁶²

Conclusion

Many countries are currently considering a possible expansion of the roles of nurses to respond to pressures on health care systems from both the supply-side, in particular a limited supply of doctors and GPs and the demand-side, the need to respond in an efficient manner to the growing number of older people with chronic illnesses requiring close monitoring, treatment, and education and counseling to manage their condition. These pressures may offer substantial opportunities in the years ahead to expand further the roles of nurses. Countries are at very different stages in implementing new APN roles. Although some countries, such as the United States, Canada, and the United Kingdom, began to formally implement such new roles back in the 1960s and the 1970s, other countries are only just beginning to explore possibilities. There is a need to continue to assess the development and implementation of new APN roles with proper evaluation of their impact (Table 1), focusing mainly on the impact on patient care and costs. This is particularly important for countries that are just beginning the process, so that they can identify early on any implementation issues. In geriatric care, APNs are showing particular expertise in providing care in nursing homes⁶⁹ and also in early recognition and management of frailty and other geriatric syndromes.^{70,71} In the United States, NPs play a major role in the annual wellness visit.⁷²

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