

論文の内容の要旨

論文題目 An assessment of the clinical and health service outcomes of introducing
Nurse Practitioners in a Japanese community setting

(日本の地域におけるナースプラクティショナーの導入による
健康上及び医療サービス利用上の効果に関する研究)

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Background and objectives

The global population is ageing rapidly. Ageing societies face the challenge of workforce reduction, especially in health care systems, at a time when the increase in prevalence of non-communicable diseases and physical and intellectual morbidity in elderly people place new pressures on the health workforce. One solution to this increasing health services demand and shrinking health workforce is task-shifting between Medical Doctors (MDs) and allied health professionals, and better integration and sharing of medical care tasks. However, this task-shifting should be considered only when allied health professionals, especially nurses, attain higher education and are able to practice to the full extent of their education and training. Through this expanded scope of nursing practice, Advanced Practice Nurses (APNs) who acquire higher nursing competencies could help to alleviate health workforce shortages through task-shifting from MDs.

The Nurse Practitioner (NP) is an APN demonstrating clinical competencies for expanded nursing practice. The NP was introduced in the US, the UK and other countries to provide primary health care services in rural areas where MDs were not available, and to ensure community-based continuity of care. In Japan, the world's fastest-ageing country, the Master's degree NP program started in 2008, and a trial period of institutional practice at a long-term care health facility (LCHF) began in 2011. Although the variety of NP clinical practice is restricted and the level of autonomy in Japan is more limited compared to NP in the US and the UK, NPs in the three countries have similar roles and types of practice. This study aims to review the global evidence on NP practice systematically and to apply this experience to Japan's integrated community-based care system. This study aims:

1. To assess whether Nurse Practitioners practicing in the community-based health services can provide equivalent services to Medical Doctors;
2. To examine the effect of introducing and utilizing Nurse Practitioners on clinical and health service

- outcomes in long-term care health facilities in the Japanese context; and
3. To provide lessons for Japanese nursing and integrated community care policy based on the global experience of NP introduction, and to use the experience of reformation of Japan's integrated care system to provide lessons for policy-makers in other countries facing the challenge of ageing.

This study achieves these objectives through a systematic review and meta-analysis of NP practice and a comprehensive and rigorous evaluation of the introduction of NPs to geriatric care health facilities in Japan.

Systematic review and meta-analysis

Objectives

To examine whether services provided by NPs result in equivalent patient and health system utilization outcomes to standard care delivered by MDs in a community setting.

Methods

Five databases were searched for RCTs published between 1990 and 2015 on the effectiveness of treatment and care by NPs compared to standard care by MDs in community settings. Hospitalization, patient mortality and biological data, and five secondary outcomes were examined. A combination of meta-analysis and equivalence testing were conducted in order to examine the statistical equivalence of NP and MD practice.

Results

16 studies and 11 studies were included in the systematic review and meta-analysis, respectively. Most studies were conducted in North America and the UK. Patient mortality and costs were found to be statistically significant, favouring NP practice compared to MD practice. Additionally, NP practice was equivalent to or higher quality than MD practice in blood LDL-C control. However, most outcomes showed neither statistically significant differences nor statistical equivalence between NP and MD groups. Since those cases likely represent the low power of the studies in meta-analysis, bigger and better studies are needed to investigate statistically significant differences in some of those outcomes.

Retrospective cohort study

Objectives

To examine the influence of NP introduction on clinical and health services outcomes in LCHFs in the Japanese context by comparing outcomes between facilities with and without NP practice.

Methods

All residents admitted to two facilities from April 2009 to March 2013 were included. Hypertension control, hypertension management and fever outcomes, and hospitalization were examined using a Cox-proportional hazards regression model with difference-in-difference methods.

Results

Over the four years there were 473 residents with 791 admission episodes in the two facilities. Hazard ratios for all outcomes are shown in Figure 1. The hazard ratio of hospitalization was 0.55 (95% CI: 0.37 – 0.82), showing a statistically significant reduction after NP introduction compared to its pre-intervention level.

There was no significant change in any clinical outcomes between facilities after NP introduction.

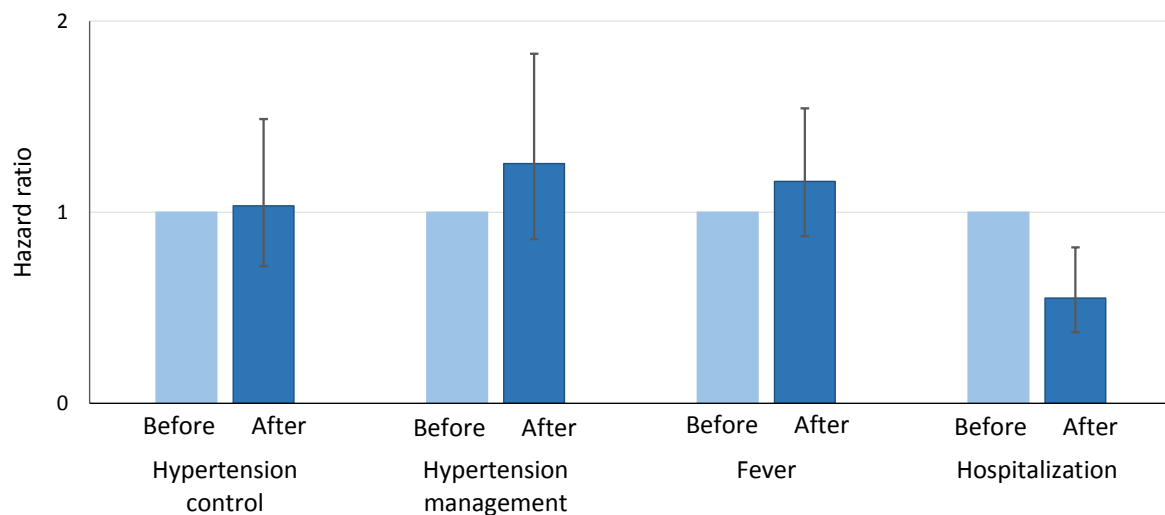


Figure 1. Overview of Hazard Ratio (HR) for the effects of Nurse Practitioner practice on clinical and health services outcomes (bars) with 95% confidence interval (whiskers).

Conclusions and Recommendations

The meta-analysis has shown that there were neither statistically significantly different nor statistically equivalent results between community based services provided by NPs, mainly in the North America and the UK, and standard care provided by MDs. Significant improvements were only found in patient mortality, blood lipid control and intervention costs. This result suggests that NPs could provide services with no risk of reduction in quality, but the evidence remains unclear and larger studies are needed to examine equivalence of services between NPs and MDs.

Although the regulatory status of NP and autonomy of practice are limited in Japan, the types and role of NP

practice are similar between the US, the UK and Japan. To ensure a properly rigorous assessment of the role and effect of NPs in Japan, a retrospective cohort study of the impact of introducing NPs in a long-term care health facility (LCHF) was conducted. This study found that NP practice reduced hospitalization risk by 45% compared to the period without NP practice. This suggests that NPs may be able to produce efficiencies in the health care system which may reduce health care resource challenges expected to arise as the Japanese population ages.

Overall results of the two studies indicate NPs could provide adequate services without reduction in quality by serving as a substitution for MDs while reducing the risk of hospitalization in a long-term care health facility. For countries such as Japan that have structured education systems and recognised credentialing systems for nurses, but also suffer from health workforce restrictions, these findings support the need for discussion of the establishment of an advanced practice nursing system. This could benefit these ageing societies by ensuring adequate provision of health care in a community setting.

The commencement of NP practice in Japan in April 2011 offers an ideal opportunity to comprehensively assess a new human resources program. This can be done by establishing baseline monitoring suitable for research in facilities where NPs are expected to be in practice in future, and preparing robust evaluation programs through:

1. Expansion of the numbers and types of facilities in which NPs' role is evaluated
2. Comprehensive assessment of health and health system outcomes to examine clinical practice of NPs and nursing team
3. Longitudinal studies to assess the long-term effect of NP practice and the development of NP competencies
4. Health economic assessment to examine the health economic impact of NP practice in order to support the establishment of a national NP regulation system

These studies can help other countries to learn from the Japanese health system's efforts to deal with growing health workforce demand and help to realize an ageing society where the population are able to live independent, healthy, high-quality lives.