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Cost-effectiveness of Nurse Practitioner–Led Regional Titration Service for Heart Failure Patients

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ABSTRACT

Nurse practitioners (NPs) have demonstrated improved outcomes for patients with chronic heart failure (HF). In regional Australia, cardiac NPs have been introduced to improve chronic disease management, primarily medication titration, for patients with HF, aiming to achieve best practice standards of care. Evaluative research methods including a comparative cost analysis of the NP HF clinic and usual care were used. This research is unique in contributing to the growing body of research demonstrating the value of NP-led clinics for regional areas where attracting and retaining experienced health professionals is challenging.

Keywords: advanced practice nursing, cardiovascular disease, cost comparison, nurse practitioner, regional health care

Comparison of the costs of diverse methods of health service provision enables decision-makers to allocate resources more efficiently to achieve the best possible outcomes for patients for the least possible cost.[1] Chronic heart failure (HF) is prevalent in 1.5%-2% of Australians, increasing to more than 10% in people aged over 65 years.[2] Once diagnosed with chronic HF, 50% of patients will die within 5 years.[3] Multitargeted approaches to the management of chronic disease are aimed at achieving cost savings from reduced hospitalization and improved access through coordination of care among primary care, community care, and tertiary care facilities.[4] Nurse-led primary health care initiatives are acknowledged to have the potential to make a powerful contribution to reducing health care inequities by making effective health care accessible to a wider population.[5] Nurse-led, including nurse practitioner (NP)-led, models of care have become increasingly discussed and evaluated, being seen as a solution to coordinating care for an aging population due to their increased scope of practice and perceived lower cost.[4,6] Regional areas are challenged when providing health services, primarily due to difficulties attracting and retaining qualified health practitioners.[7] One regional area in Queensland, Australia, introduced a NP-led clinic to provide medication titration management for patients with chronic HF. Although it appears that NP practice seems to need to be justified, this NP-led service and the way it was structured enabled evaluation of the cost of providing such a service, new information to assist in validation of NP practice. Therefore, this article presents a comparative cost analysis between this NP HF service, provided by a cardiac NP and the medical-led, outpatient service it replaced in a regional area in Australia.

LITERATURE REVIEW/BACKGROUND AND SIGNIFICANCE

In Australia, NPs are registered nurses with additional education in advanced level nursing in a specialty area at postgraduate master's level and can work autonomously in an extended clinical role. Subsequent to their professional recognition in Australia in 2000, NPs have emerged as a profession able to fill a gap in chronic disease management while continuing to

work collaboratively with other health professionals. In regional areas of Australia, attracting and retaining medical specialist care is difficult,[8,9] as is the larger distance to be traveled for access to hospital and outpatient facilities. Further supporting the call for alternative models of health care that increase health care access for all, Australian governmental reports highlight that per capita, more money is spent funding health care for residents in major cities than regional and remote areas.[10] Conversely, public hospital expenditure for this group is higher, which is thought to be related to poorer access to primary health services.[10] Although NPs may provide services that can fill this gap, there is also a need for cost-effectiveness in the current fiscal climate.[11]

NP models of care have been found to result in higher satisfaction experienced by patients while providing care on par with medical care within the NP scope of practice.[12] Meta-analyses of randomized trials demonstrate that predominantly nurse-led programs of care significantly reduce the risk of rehospitalization and reduce health care costs.[13,14] Within the cardiac specialty, NP models of care have demonstrated lower hospital readmissions for HF patients compared with a primary health care team with more patients reaching maximum titrated dose and lower mortality after 1-year follow-up.[15,16] In addition to evaluating patient outcomes, it is recommended that NPs be aware of the cost-effectiveness of the services they provide as they are competing in the primary health care market.[17]

Economics of NP models of care are reported in the literature with savings reported when utilizing NP-led services.[18,19] A systematic review of NPs as alternative providers for ambulatory care roles found equivalent or better patient outcomes than comparators and that NPs were potentially cost-effective based on the limited available evidence.[20] Literature in the cardiac field reports more positive findings that suggest that prevention and management of cardiovascular disease by a NP-led community health team that includes lifestyle counseling, medication prescription, medication titration, and promotion of compliance, is a cost-effective approach.[21]

Best practice guidelines for the titration to target dose of prescribed medication for chronic HF are based on the recommendations from the National Heart Foundation of Australia determined in conjunction with clinical experts and based on best available evidence.[22,23] They recommend the practice of up-titrating to the target dose as soon as practicable based on patient symptoms or regular blood test results.[22] Quality evidence reports that HF services that involve nurses in protocol-driven up-titration of medications are more likely to achieve target doses.[16,24] However, a recent Queensland study of multidisciplinary medical-led clinics found that effective up-titration is influenced by patient, disease, and service factors.[25]

Much research involving NP models of care focuses on the quality of care compared with the medical model.[26] The aforementioned consistently reported high levels of patient satisfaction with NP care are thought to result from longer consultations and leading the way to provision of more time to listen, explore, and problem solve across the health continuum within a nursing paradigm.[27] This time can be costly, and therefore, NP models of care are required to provide a quality service at a competitive price comparable to usual care. However, given the paucity of empirical evidence, there is a need to demonstrate the value of NP primary health care services and their cost-effectiveness.[26,28] This article adds to this body of literature by answering the following research question: Is the newly introduced NP HF service cost-effective compared with the usual care, medical-led model it has replaced?

METHODS

Study Design

This study used evaluative research methods to undertake a cost comparison to determine cost-effectiveness of 1 NP-led service. Evaluation was made on 2014 data for the NP HF service offered in a regional area of Queensland, Australia, and then a cost comparison was made between this service and usual care as provided by a medical-led, hospital outpatient service before the service was introduced. Adherence to the Consolidated Health Economic Evaluation Reporting Standards statement was completed for the preparation of this article.[29]