Purpose: It is increasingly recognised that chronic kidney disease (CKD), diabetes mellitus (DM) and heart failure (HF) is a common cluster of chronic conditions which contribute to a substantial burden on healthcare systems. In combination, these conditions complicate treatment, increase rates of hospitalisation and carry a poorer prognosis for survival. Current health services are organised around single conditions, making coordination of care more difficult and adding complexity to patients’ lives; however, a recent Australian government inquiry identified the need for integrated treatment models for chronic disease management as a one-stop location which focuses on the whole person rather than each disease.

In Australia, nurse practitioners (NPs) are Masters-prepared and highly experienced registered nurses who are authorised to practice autonomously at an advanced level (such as in chronic disease care). This role includes, but is not limited to: collaborating with other clinicians to assess and interpret disease diagnoses; planning and implementation of treatments; and referral of patients to other clinicians (Australian College of Nurse Practitioners, 2017).

In 2014, NPs observed a group of patients with CKD, DM and/or HF arriving on different days to attend different outpatient clinics; some patients commented on the burden of frequently coming to the hospital to see one specialty team at a time. The Integrated Chronic Disease Nurse Practitioner (ICDNP) clinic became a strategy that brought together NPs with specialty expertise to collaborate at the point of care for patients with comorbid chronic diseases.

describe the implementation of an integrated model of care provided by nurse practitioners (NPs) for patients with multiple chronic diseases.

Methods: A longitudinal, prospective health service evaluation informed by the Donabedian (2003) Quality of Care Framework (structure, process and outcome) was used to examine the effectiveness of the ICDNP clinic in delivering coordinated services to patients with two or three chronic diseases (CKD, DM and/or HF) attending the ICDNP clinic. We measured attendance patterns, clinical targets and patient-reported outcomes (knowledge, self-efficacy, health-related quality of life [HRQoL] and patient satisfaction).

Results: From June 2014 to December 2016, the clinic provided 925 appointments to 121 patients aged between 27-90 years. Primary diagnoses were: CKD (43.0%); DM (24.0%); and HF (33.0%). Most patients (76.0%) had two diagnoses, and the remaining 24.0% had all three. New patients waited for a mean of 15.3 days between referral and first appointment. Instances of non-attendance were rare (6.0-7.0%), and there were no instances of patients leaving the clinic without being seen by a NP.
Achievement of clinical targets amongst patients was variable, and only two patients who attended the clinic did not show markers of CKD. Between clinic entry and 12-18 months of clinic attendance, patient knowledge of and self-efficacy to manage their chronic disease remained stable. Patients did display improvements in aspects of HRQoL (physical functioning: mean difference +11.30, CI 1.35-21.24, $d = 0.39$; role limitations due to physical health problems: mean difference +27.78, CI 9.51-46.04, $d = 0.71$; bodily pain: mean difference +15.37, CI 4.89-25.85, $d = 0.53$; and general health: mean difference +8.70, CI 3.77-0.95, $d = 0.38$). After six months of attendance, there was high overall patient satisfaction with the new service (98.7%).

**Conclusion:** In the current and growing context of multi-morbid chronic health conditions, integration of care within and across organisations is required to meet future healthcare demands.

Nurse practitioners can reform healthcare delivery through innovative, person-centred models of care, breaking down the siloes of treatment for chronic disease. Supporting patient adherence with complex chronic disease self-management is the goal of care at the ICDNP clinic. The primary advantage of the clinic is that patients are reviewed at one appointment by one or more NPs, thereby streamlining and coordinating management, especially regarding medication treatment and self-management support. Other advantages for patients were that the clinic is patient-centred (not disease-centred) so that early detection and intervention can occur, and that the clinic is easily accessible by public transport and there is ample free car-park space available for patients.

Applying clinical practice guidelines to achieve recommended targets in patients who have multiple chronic diseases is a challenge and, while care ought to be focused on working towards clinical targets, clinician judgement about patient response and safety takes precedence. For this specific group of patients, supporting adherence to treatment, monitoring for effects of polypharmacy and increasing the focus on lifestyle modification interventions is an important goal for NPs.

Patients continue to attend the clinic regularly to: achieve clinical stabilisation (including making necessary medication adjustments); receive self-management support; and receive education about lifestyle modification, chronic diseases, and medications. Behavioural change strategies such as motivational interviewing are used to increase adherence with complex treatment regimens.

Communication among health professionals is crucial because these patients have many healthcare providers. The NPs create a bridge between various individuals (including medical specialists and general practitioners) and other members of the multidisciplinary team. Explicit action plans are prepared for teams (electronic hospital records) and also communicated in letters to general practitioners. Phone calls and emails are regularly used to facilitate timely communication. Within the scope of practice, referral by a NP can also be made to other medical specialists (e.g. vascular surgeon, ophthalmologist), and allied health professionals including psychologists, dietitians, and podiatrists.

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**Title:**
Chronic Disease Multi-Morbidity: Nurse Practitioners Reforming Healthcare Delivery in Australia

**Keywords:**
chronic disease, models of care and nurse practitioner

**References:**
Aguilar, D. (2016). Heart failure, diabetes mellitus, and chronic kidney disease: A clinical conundrum,
*Circulation: Heart Failure, 9*(7). doi:10.1161/circheartfailure.116.003316

Abstract Summary:
This presentation describes the implementation of a novel integrated model of care provided by nurse practitioners for patients with multiple chronic diseases. The model of care shows great potential as an effective way to streamline and simplify appointment-burden for patients, with a focus on achieving optimal patient outcomes.

Content Outline:
Introduction

- explains chronic disease multi-morbidity and its effects on patients and healthcare systems
- describes the role of nurse practitioners in Australia

Body

- describes the integrated chronic disease nurse practitioner model of care
- describes the research design and methods
- explains the results
- interprets the results in the context of the literature

Conclusion

- critically argues for the need to reform healthcare delivery structures

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