

# Call for the development and use of nurse practitioner sensitive outcome measures

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Received 18 January 2024; accepted 19 January 2024; published 2 February 2024

**This invited commentary refers to ‘Exploring Heart Failure Nurse Practitioner Outcome Measures: A Scoping Review by M Ryder et al. <https://doi.org/10.1093/eurjcn/zvad108>.**

Despite the evidence supporting the role of nurse practitioners (NPs), their implementation into clinical practice has been slow. Clinical guidelines advocate for heart failure (HF) patients to be reviewed by a HF specialist team and whilst HF NPs are a vital component of that team, their contribution to care is absent from guideline recommendations. Heterogeneity of outcome measures, as highlighted in the paper by Ryder et al.,<sup>1</sup> is a contributory factor to the paucity of gold standard evidence of the efficacy of NP models of care, contributing to their absence from guidelines. Ryder et al. recommend the development and standardization of NP sensitive outcome measures.<sup>1</sup> Development of gold standard evidence such as Randomised Control Trials, evaluating the efficacy of the NPs using standardized outcomes and analysed in meta-analyses are necessary for NP models of care to flourish and be recommended as standard practice in clinical guidelines.

The term NP is legislated to only refer to nurses that are authorized to practise at an advanced clinical level, comply with relevant NP standards for practice, and practice independently.<sup>2</sup> Nurse practitioners must meet their regulatory responsibilities and professional standards for practice as stipulated by their respective country's regulatory board. Nurse practitioners have the authority to work within an expanded scope of practice and central to this is the authority to prescribe medications, order and interpret diagnostic tests, and refer patients to other health professionals.<sup>2</sup> To develop gold standard evidence supporting the efficacy of NP models of care, research outcomes must relate specifically to the expanded scope of practice such as ordering diagnostic tests, prescribing of guideline recommended medications and referrals to transitional care programmes such as HF exercise programmes adhering to gold standards thereby improving translation of clinical guidelines. Ryder et al.<sup>1</sup> found that there was a lack of consistency in the literature regarding the reporting of patient outcomes. They also found several outcomes that were not NP specific—such as patient and carer education undertaken by registered nurses—and whilst, important, they do not highlight the extended scope of practice associated with NPs. The development of NP sensitive outcome measures directly related to NP specific competencies would support

the additional benefit of a NP compared to an advanced practice nurse.

## Key nurse practitioner competencies

Nurse practitioners are required to meet several key competencies and they are legally endorsed by health professional regulatory boards based on these competencies. For instance in Australia, these key competencies are: independently prescribe medication, independently request and interpret diagnostic tests, working independently or collaboratively, their practice may involve technical and/or procedural competencies, and leadership in research, education, and clinical practice.<sup>2</sup> Whilst there are several competencies that are difficult to measure and may not have an impact on patient outcomes such as clinical leadership or mentoring, there are competencies that have an immediate impact such as prescribing medications and requesting diagnostic tests.

## Medication prescribing

Heart failure guidelines stipulate the life-saving urgency to prescribe the ‘four pillars’ of medications ((beta-adrenergic blocking agents, angiotensin neprilsyn inhibitors/angiotensin converting enzyme inhibitors (ACEIs)/angiotensin receptor blockers (ARBs), mineralocorticoid-receptor antagonists (MRAs), and sodium–glucose co-transporter-2 inhibitors) in patients diagnosed with heart failure with reduced ejection fraction, and then to rapidly uptitrate these medications to optimal dose.<sup>3,4</sup> The STRONG trial randomized 1078 patients hospitalized with acute HF, from 87 hospitals, to a rapid medication titration group where medications were uptitrated within 2 weeks or to usual care involving follow-up with their local doctor.<sup>5</sup> Mebazaa et al.<sup>5</sup> found that the majority of patients in the titration group was uptitrated to high dose within two weeks of discharge compared to the usual care group. Patients in the titration group were 34% less likely to die or be hospitalized with HF at six months compared to usual care [risk ratio (RR) 0.66, 95% confidence interval (CI) 0.5–0.86].<sup>5</sup>

Based on the results of the STRONG trial,<sup>5</sup> HF guidelines have all echoed a call to action for rapid medication prescribing. This is based on several studies highlighting poor prescribing of the four pillars of

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medications both in hospital and the community. Greene *et al.*<sup>6</sup> undertook a study of 658 HF patients living in the community to determine medications prescribed for HF and the dosage. They found that at 12 months, <1% of patients were treated at target dose of their HF medication and very few patients had the dosage of their medications increased.<sup>6</sup> Driscoll *et al.*<sup>7</sup> investigated medication prescribing in 696 patients hospitalized with acute HF. At 30 days post-discharge, they found that less than half of the patients (41.5%) were prescribed a beta-adrenergic blocking agent, ACEI/ARB, and a MRA.<sup>7</sup> Prescriber inertia (after adjusting for contra-indications to medications) accounted for 18.7–35.6% of non-prescribing of medications.<sup>7</sup> Sindone *et al.*<sup>8</sup> analysed data from 43 primary care clinics involving 1.12 million patients diagnosed with HF. They found that only 33.7% were prescribed a beta-adrenergic blocker, 1.2% an ARNI, 39.9% an ACEI, and 16% an MRA.<sup>8</sup>

Despite the poor prescribing of the ‘four pillars’ of medications and the call to action for rapid uptitration, NP models of care have been overlooked and are a potential solution to implementing rapid titration. The Australian HF guidelines recommend HF medication titration clinics as standard care post-discharge.<sup>4</sup> These clinics are NP led.

A cornerstone of the HF NP role and expanded scope of practice is prescribing the ‘four pillars’ of medications. A meta-analysis investigating the efficacy of titration of ACEIs and beta-adrenergic blockers (eight studies with a total of 2025 HF patients) found that nurse-led titration clinics reduced the risk of all-cause rehospitalizations by 34% (RR 0.76, 95% CI 0.68 to 0.85) and all-cause mortality by 33% (RR 0.67, 95% CI 0.48 to 0.92) compared to no nurse-led titration clinic (usual care).<sup>9</sup> Oyanguren *et al.*<sup>10</sup> also found that nurse-led titration clinics increased the number of patients prescribed beta-adrenergic blockers, ACEI/ARBs, and MRAs and a higher dose was achieved compared to patients randomized to be seen by a cardiologist.<sup>10</sup> Perhaps the initiation and titration of HF specific medications by NP would be an appropriate HF NP sensitive outcome measure.

## Diagnostic testing

Ordering and following up on diagnostic tests are another key competency of NPs and could easily be measured. In HF particularly, there are many diagnostic tests to support diagnosis, monitoring and evaluation that are within a NP scope of practice such as echo, BNP, and NTproBNP. Nurse practitioners have demonstrated proficiency in adhering to guidelines that clearly stipulate the diagnostic tests required for diagnosis and ongoing management.<sup>3,4</sup>

The role of the NP in adhering to the diagnostic guidelines enables timely recognition and response to the patient with HF, alleviating the traditional wait times required for management and titration of treatments. Nurse practitioners ability to order and interpret diagnostic investigations complements their skills in comprehensive patient assessment to autonomously undertake rapid up titration of heart failure medications whilst monitoring for potential adverse effects in the outpatient setting promoting safety in medication prescribing and monitoring.

## Conclusion

Nurse practitioners have demonstrated capacity to improve healthcare delivery and outcomes. As members of the HF multidisciplinary team, their expanded scope of practice, inclusive of advanced health assessment, diagnostic and prescribing/deprescribing capability, together with a holistic approach to psychosocial wellbeing is intertwined within their daily role. Nurse practitioners provide timely, individualized assessment and develop HF management plans to promote health and wellbeing via delivery of both pharmacologic and non-pharmacologic interventions. The development of HF NP sensitive outcome measures directly related to clinical competencies of a NP would certainly highlight the value of NPs as a vital specialist within the multidisciplinary team.

**Conflict of interest:** None declared.

## Data availability

No new data were generated or analysed in support of this research.

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