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DISCUSSION PAPER

An Expert Opinion on the Management of Frailty in Heart Failure from the Australian Cardiovascular Alliance National Taskforce

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Approximately 50% of all adults with heart failure (HF) are classified as frail. Frailty is a clinical state of 'accelerated ageing' that complicates management and results in adverse health outcomes. Despite recommendations for frailty assessment in HF guidelines, its implementation into routine clinical practice has been slow. Further, evidence to inform models of care and pharmacological treatment for individuals with HF who are classified as frail is lacking. The complexity of management underscores the importance of tailoring models of care that can improve the focus on frailty through multidisciplinary care teams. Frailty can be reduced in some cases through the comprehensive geriatric assessment model of care, integrating treatment pillars such as exercise, nutrition, social engagement and support networks, and optimised medication use. A national agenda for action on frailty in the context of HF is needed to advance policy, practice, education, and research improve health outcomes for individuals affected.

In November 2023 the Australian Cardiovascular Alliance (ACvA) facilitated a national workshop on frailty and HF with key experts. This has led to the development of a frailty and HF national taskforce with the aim to address major priorities and unmet needs. This statement is first step for the taskforce in implementing a national agenda for the management of frailty in HF. Here we outline key considerations for policy, practice, education, and research in Australia.

Keywords Heart failure • Frailty • Multimorbidity • Multidisciplinary care

Introduction

Heart failure (HF) is a common, complex syndrome affecting approximately 500,000 Australians and over 65 million people globally [1,2]. The global economic burden of HF is estimated to be US$108 billion per annum [3]. There are two main HF subtypes: HF with reduced ejection fraction (HFrEF) and HF with preserved ejection fraction (HFpEF) [4]. HFpEF is associated with older age and higher comorbidity [5]. HF is compounded by multimorbidity and adverse elements of social determinants of health [6]. Approximately half of all adults living with HF are affected by frailty [7]. Frailty is a clinical state of 'accelerated ageing' associated with an exaggerated vulnerability to acute stressors [8,9]. Frailty occurs more commonly in older adults with HFpEF (up to 90%) [10,11]. While frailty is associated with older age, it also occurs in younger adults with HF [12–14].

Frailty and HF are syndemic, underpinned by shared pathophysiological mechanisms and symptomatology, as well as the complex interplay between social, environmental, and economic factors [15]. Frailty and HF both contribute to reduced quality of life and worse health outcomes [5]. In adults living with HF, frailty is associated with increased mortality (hazard ratio [HR], 1.54; 95% confidence interval [CI], 1.34–1.75) and incident hospitalisation (HR, 1.56; 95% CI, 1.36–1.78), as well as increased length of hospital stay, cognitive impairment, social isolation and poor symptom control [7,16–19]. Further, there is unwarranted clinical variation and failure to achieve HF guideline-directed medical therapy (GDMT) due to the inability to access specialist services, evidence of polypharmacy, or the perceived risk of adverse health outcomes in those who are frail [20,21]. Figure outlines the bidirectional relationship between frailty and heart failure [15].

Frailty presents along a continuum of severity rather than a simple dichotomy, spanning from non-frail to pre-frail to living with significant disability, often compounded by concomitant multimorbidity [22,23]. Assessing frailty is now recognised as increasingly important to identify adults who may benefit from interventions to improve well-being and reduce the risk of adverse health outcomes. There are over 60 different instruments available to assess and screen for frailty, with no single measure demonstrated to be superior to others [24]. The two most used are Fried's Frailty Phenotype; and the Frailty Index (also called the Deficit Accumulation Index), first developed by Rockwood and colleagues [22,25,26]. Fried's Frailty Phenotype defines frailty as a biological syndrome characterised by age-related *physical* decline across five domains: slowed walking speed; unintentional weight loss; exhaustion; weakness; and low physical activity [25]. A patient is classified as frail if $\geq$3 of the five criteria are met, pre-frail if 1–2 criteria are met and non-frail if none are met [25]. Fried's Frailty Phenotype is a widely used and accepted instrument [24]. However, it only considers the

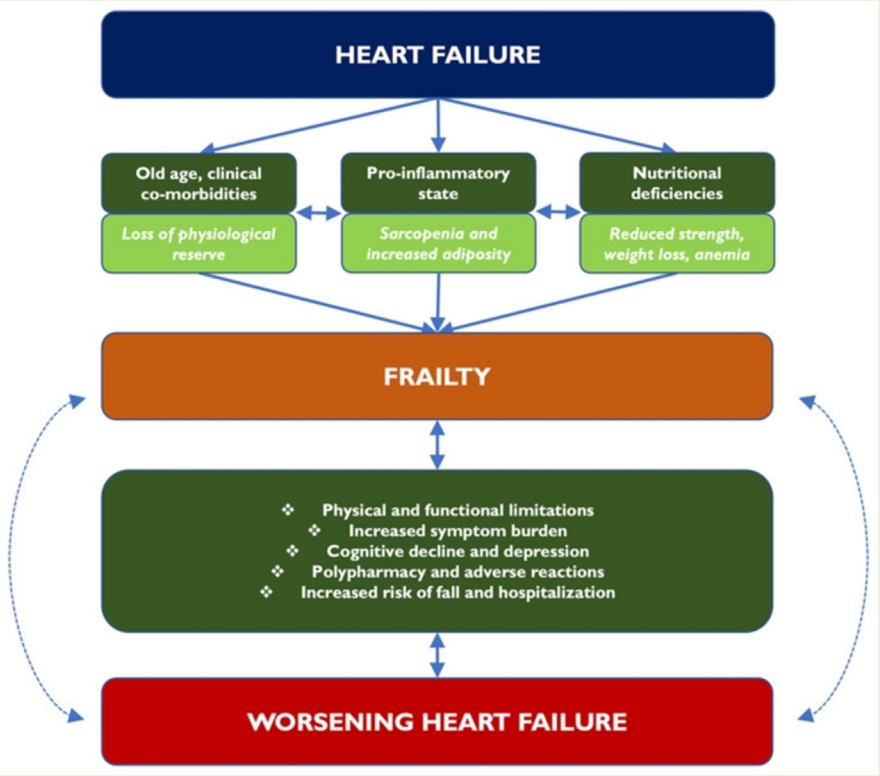

Figure The bidirectional relationship between frailty and heart failure. Image from Talha KM, Pandey A, Fudim M, Butler J, Anker SD, Khan MS. Frailty and heart failure: State-of-the-art review. J Cachexia Sarcopenia Muscle. 2023 Oct;14(5):1959-1972. https://doi.org/10.1002/jcsm.13306 [15]. Image reproduced under the terms of a https://creativecommons.org/licenses/by/4.0/ license.

physical component of frailty and does not include an assessment of social factors (e.g., loneliness, depression), cognition, or comorbidities (e.g., diabetes, osteoarthritis, cardiovascular disease).

In contrast, the Frailty Index regards frailty as a *multidimensional* disorder, defining it as an accumulation of deficits across multiple domains of human functioning, e.g., social, physical, cognitive, and comorbidities. The more deficits an individual has, the greater degree of the frailty [26]. The Frailty Index requires an assessment of a minimum of 30 deficits ('variables') [27]. Deficits can include symptoms, diseases, functional impairments, and abnormal laboratory results [28]. Some, but not all, deficits in the index can improve with intervention. Whilst the Frailty Index has been criticised as being time-consuming, it has good clinical utility in being able to use routine data collected for other purposes, including electronic medical records [29]. Denfeld and colleagues [30] provide a helpful description Fried's Frailty Phenotype and the Frailty Index in the context of advanced HF.

The National Heart Foundation of Australia (NHFA)/Cardiac Society of Australia and New Zealand (CSANZ) and the European Society of Cardiology (ESC) HF guidelines recommend assessing frailty [4,31]. Yet, there is a lack of consensus on which instrument to use leading to inconsistencies in reported prevalence rates, poor clinician engagement and limited application of frailty assessment into routine clinical practice [17,32,33]. Fried's Frailty Phenotype is the most commonly used instrument to identify frailty in the HF context (with most using modified versions of Fried's original tool), and physical function/mobility is the most common frailty domain assessed [33]. While the ongoing focus on physical frailty in HF persists [33], assessing frailty with a multidimensional instrument incorporating cognitive and mood domains can improve predictive validity and may have better clinical utility [34].

There is a limited evidence base to inform models of care and pharmacological treatment for individuals with HF who are frail [15,35,36]. This is attributed to the routine exclusion from clinical trials of older adults who are frail, usually unintended but a direct consequence of listing exclusion criteria that cover different comorbidities [37–41]. This has led to an evidence practice gap given the prevalence of frailty seen in routine care. The complexity of clinical management underscores the importance of reviewing models of care and transitioning the treatment approach for individuals with frailty and HF from a single disciplinary focus to an integrated, multidisciplinary approach. The degree of frailty can be reduced or improved in some cases through treatment pillars based on the Comprehensive Geriatric Assessment model of care, such as exercise, nutrition, increased social

engagement and support networks, and optimised medication use [35,42]. This model needs to be integrated with sub-specialist expertise in HF management.

This document highlights key considerations for addressing frailty in people with HF. Yet, a significant number of older adults with frailty may have 'atypical' HF presentations (e.g., presenting with delirium, or falls, instead of shortness of breath), which may be under-recognised. Many older adults with frailty will access HF treatment through primary care, geriatric, or general medicine services rather than cardiology due to atypical presentation, multimorbidity, functional impairment or limited access to sub-specialist care. It is important that these individuals also have access to best-practice HF management, underscoring the need for effective multidisciplinary collaboration, which this statement advocates for.

Methods

On 17 November 2023, the Australian Cardiovascular Alliance (ACvA) facilitated a national Frailty and Heart Failure Workshop to discuss priorities for policy, practice, education, and research. The ACvA and the two workshop leads (J.M. and C.F.) convened a panel of 36 research and clinical experts from across Australia, including representation from consumers with lived experience, clinicians and researchers across a range of disciplines and expertise, comprising geriatric medicine, general medicine, cardiology, clinical pharmacology, advanced HF, frailty, musculoskeletal health, nursing, nutrition and dietetics, physiotherapy, pharmacy, exercise physiology, epidemiology, public health, basic science, and policy. Most attended in person at the Victor Chang Cardiac Research Institute, NSW, Sydney, Australia, and some joined virtually. Representative panel members were asked to present the top priorities for clinical practice and research across five broad topic areas predetermined by the workshop facilitators. These included 1) the biology of ageing, 2) routine frailty assessment, 3) cardiogeriatric care models, 4) prehabilitation for frailty and HF, and 5) multidisciplinary management.

This statement aims to set a national agenda to improve health outcomes of people living with frailty and HF. This statement primarily focuses on frailty in older adults with HF. Specific frailty recommendations for people with advanced HF and those awaiting heart transplantation or mechanical circulatory support have been recently published elsewhere [30]. The recommendations outlined in this statement are based on expert opinion within the context of available evidence and are premised by the importance of person-centred care and shared decision making as outlined in other guidelines [43].

A summary of the key discussions from the national workshop and priorities for action are provided.

Biology of Ageing and Frailty

Understanding the biology of ageing and frailty within the framework of contemporary epidemiology and therapeutics is important. Promoting understanding is likely to lead to more innovative therapeutics. Ageing is caused by the accumulation of cellular and molecular damage over time. This gradual process reduces physical and mental capacity and increases the risk of illness and disease [44]. These phenomena can be understood through a 'geroscience' lens [45]. On a cellular level, ageing results in the loss of stem cells, cell senescence, and mitochondrial dysfunction [46]. At a pathophysiological system level, ageing results in cognitive decline, cardiovascular decline, respiratory decline, , liver fat accumulation, sensory decline, muscle atrophy, reduced bone mineral density, and skin fragility [47]. There are common biological pathways for HF and frailty in older age, e.g., neurohormonal activation, immune cell dysfunction and pro-inflammatory processes [30,48]. HF and frailty are associated with changes in skeletal muscle composition, such as increased adipose tissue, muscle fibre changes, decreased capillary density, and anabolic resistance of muscle protein, leading to impaired mitochondrial function and diminished exercise capacity [30].

Studying the biology of ageing and frailty and developing therapeutics for age-related diseases such as HF, requires age-appropriate animal models, e.g., mouse models must be matched to human-aged equivalents [49]. Recent models of key factors have been developed that could be applied to preclinical evaluation of HF therapeutics for older people with frailty, such as mouse models of frailty [50], polypharmacy and deprescribing [51]. Age is a primary risk factor for most types of HF, and therefore research should focus on hallmarks of ageing and using age-appropriate models. Further research into identifying novel biomarkers of frailty in the context of HF is also needed [52]. Biomarkers may be clinically useful for diagnosis, understanding biological mechanisms, assessing treatment effectiveness and enhancing prevention strategies for frailty in the context of HF [53].

Key points:

- Age-appropriate animal models are needed.
- Models of frailty, HF with common comorbidities and relevant exposures, including polypharmacy, are needed for research translation.
- Further research into identifying clinically important biomarkers of HF frailty is needed.
- Further research is needed into the effects of ageing, frailty and associated multimorbidity and polypharmacy on the pharmacokinetics, pharmacodynamics, safety, tolerability, and effectiveness of HF pharmacotherapies.

Routine Assessment of Frailty in Adults With Heart Failure

The assessment of frailty is recommended for people living with HF, yet translation into routine clinical practice has been slow. Several studies have examined the predictive validity of various instruments for use in HF, showing good predictive ability for adverse clinical outcomes, such as mortality and rehospitalisation [10,17,34,54]. Much of the

focus has been on finding a 'gold-standard' instrument for the HF context; however, now, the dial has shifted and the need for frailty intervention has come to the forefront [55]. Therefore, we propose a two-fold approach for assessing frailty in adults living with HF.

Firstly, when assessing for frailty as part of routine clinical care, an instrument should be validated for the setting (i.e., acute care, primary care). However, a specific approach has been recommended for adults with advanced HF and those listed for heart transplantation or mechanical ventricular assist devices [30]. Frailty should not be identified using the 'eyeball' or the 'end-of-the-bed' test, as this has been proven to be unreliable [13]. The choice of a frailty instrument should be guided by the local context, i.e., clinical setting, patient acuity level, multidisciplinary expertise and education level, and local policy. It is most important that frailty is objectively assessed in all adults receiving treatment for HF and appropriate treatment provided.

Secondly, we propose that all HF trials evaluate frailty at baseline and as a treatment outcome, consistent with broader international recommendations on frailty measurement in clinical trials [37]. To ensure consistency and interoperability across HF trials, we recommend that frailty be measured with both a physical frailty instrument (e.g. the Frailty Phenotype [25], or the SHARE-FI [56]), and a multidimensional Frailty Index [57]. Adopting a Frailty Index using routinely collected electronic medical record data may be helpful to avoid responder burden and time pressures [28]. Adopting a national approach to identifying frailty in adults with HF will help investigate levels of agreement, clinical utility, feasibility, and responsiveness to change.

Supplementary Table 1 provides an overview the strengths and weaknesses of the commonly used frailty instruments in the HF setting.

Key points:

- All patients receiving treatment for HF should be assessed with a validated frailty instrument.
- HF trials consider the evaluation of frailty at baseline and as a treatment outcome using both a physical frailty instrument (e.g., Fried's Frailty Phenotype or the SHARE-FI) and a Frailty Index.

Strategies to Improve Frailty in the Context of Heart Failure

Siloed health care, characterised by limited collaboration between health disciplines, poses significant risks for patients living with HF and frailty. Failure to recognise the interconnectedness of medical issues and lack of a holistic understanding can be particularly perilous for people living with frailty, leading to gaps in care plans. Multidisciplinary team (MDT) care improves HF outcomes regardless of setting and is recommended in HF guidelines during hospitalisation and post-discharge [4,58]. Integrated MDT management is important in the care of patients with HF, irrespective of the level of frailty. MDT management is advocated as the gold standard for HF and frailty management [59], yet there is a poor translation of knowledge into practice. The American College of Cardiology recommends an optimal team structure comprising a broad range of clinicians, including physicians, speciality nurses, palliative care providers and dieticians, pharmacists, physiotherapists, and exercise physiologists. Yet, guidance regarding frailty beyond screening and assessment is limited [60]. Furthermore, only approximately half of Australians with HF are referred to a cardiologist [61]. Innovative approaches are required to improve the referral and uptake of MDT care and the application of GDMT in patients with frailty and HF.

Several interventions are recommended to reduce frailty, e.g., the Asia-Pacific Frailty Clinical Practice Guidelines strongly recommend prescribing physical activity with a resistance training component and addressing polypharmacy by reducing or deprescribing inappropriate/superfluous medications [42]. Other recommendations to reduce frailty have been made across four treatment pillars [62]:

I. Exercise
II. Nutrition
III. Social engagement
IV. Medication optimisation.

A summary of the discussions on each pillar in the context of HF is provided.

Exercise

Resistance-based (strength) training has been recommended for older adults with frailty [42]. Further, a systematic review and meta-analysis of 69 randomised controlled trials (RCTs) compared non-pharmacological interventions for frailty, reported that physical activity was the most effective (standardised mean difference = 0.43, 95% CI: 0.34–0.51) compared to other lifestyle interventions [63]. Recent research has reported a reduction in frailty and measures of physical function following exercise rehabilitation in adults with HF [64,65]. More evidence is required to determine how to individualise exercise according to a patient's level of frailty and determine the optimal duration, intensity, frequency, exercise mode and program location (e.g., home-based vs gym or clinic). Cardiac rehabilitation programs that incorporate exercise are currently available to patients with HF. However, it is documented that such programs are underutilised in people with HF, with older adults, women, and racial minorities also less likely to be referred [66]. Beyond referral, the problem extends to the uptake, sustainability, and overall completion of exercise programs.

Recent exercise prescription guidelines for patients with HF recommend that for adults identified as pre-frail, a greater emphasis should be placed on resistance training

followed by balance exercises and aerobic exercise. In contrast, adults identified as frail are recommended to complete a higher degree of aerobic exercise, followed by balance/flexibility exercise and resistance training [67]. The prescription of exercise for people with HF and frailty is multifaceted and should be individualised based on an individual's physical functioning and adapted as needed [68]. The role of incidental exercise or exercise 'snacks' (multiple brief exercise sessions spaced out in a day) warrants further exploration [69]. Ideally, the prescription of exercise should be undertaken by an Accredited Exercise Physiologist (AEP) or physiotherapist with appropriate HF expertise. Under the Medicare Benefits Schedule, people with a chronic condition can be reimbursed for up to five AEP/physiotherapist visits per year. People with comorbid HF and frailty would benefit from this service and should be encouraged or assisted in booking the five appointments when presenting for HF treatment. In the absence of an AEP or physiotherapist in a HF service, other members of the clinical team should be educated regarding the prescription of exercise, including nurses and physicians. As part of cardiac rehabilitation programs, specialised nurses have been prescribing exercise for many years; however, there has traditionally been reluctance to prescribe resistance training for people with HF due to concerns about potential negative cardiac outcomes [70]. Resistance training is now considered safe for people with HF and has numerous benefits even as a single treatment (i.e., when aerobic exercise is not feasible) [71]. Therefore, resistance training should be incorporated into cardiac rehabilitation programs in line with recent CSANZ Guidelines and made accessible to people with HF and frailty [72].

Key points:

- An exercise program with a resistance training component should be considered for patients with HF and frailty.
- Encourage utilisation of the five Medicare-funded appointments with an AEP or physiotherapist.
- Education regarding exercise prescription should be provided to clinicians, including nurses, physicians, etc.
- Incorporate resistance exercise into cardiac rehabilitation programs and improve accessibility for people with HF and frailty

Nutrition

Malnutrition is closely linked with frailty and may be present in up to 57% of adults with HF [73]. In patients with frailty, the aim of nutritional management is to stabilise the acute disease status, prevent malnutrition and unintentional weight loss and to optimise nutritional status. Best practice guidelines recommend routine screening for malnutrition (with the use of validated and population-specific screening tools), which facilitates timely and supportive person-centred dietary interventions related to the provision of high-energy, high-protein foods [74,75]. Furthermore, a balanced diet rich in fruit and vegetables also provides numerous cardiovascular, cognitive and musculoskeletal health benefits [76]. A person-centred approach is essential for health professionals in delivering culturally sensitive and tailored dietary interventions. However, when food-first approaches are insufficient, and patients are unable to achieve their caloric and protein requirements, or they are experiencing unintentional weight loss, patients should be referred to an Accredited Practising Dietitian for a comprehensive malnutrition assessment and the provision of medical nutrition therapy, which may include dietetic counselling, food fortification strategies, provision of oral nutrition support (high-energy, high protein supplementation) and/or enteral nutrition support if indicated [74,75].

Nutritional supplementation alone and as part of a multicomponent intervention is effective in reducing frailty, yet the evidence is graded as 'low certainty' [63]. Future studies should address important clinical outcomes such as mortality, falls, and hospital admissions, which are known adverse events related to frailty. Nutritional interventions (whole foods or oral nutrition support) should be combined with multicomponent exercise programs prescribed and supervised by accredited health care professionals (e.g., AEP), which incorporate components of resistance training, balance, and functional training that mimic activities of daily living (ADLs) to attenuate functional decline. Experimental studies combining the effect of exercise and nutritional interventions to improve frailty in people with HF are scarce [77]. Vitamin D supplementation is conditionally recommended for older adults with frailty, and emerging data in HF suggests it may induce an anti-catabolic effect by reducing inflammatory markers that activate muscle proteolytic pathways [42,77].

Key points:

- Routine screening for malnutrition risk should be undertaken upon hospital admission in acute care settings and periodically thereafter.
- People with frailty or unintentional weight loss (>5%–10% per year) should be referred to an accredited practising dietitian for a comprehensive nutrition assessment and individualised medical nutrition therapy.
- Nutrition interventions delivered with a food-first approach consider high-energy, high-protein interventions, providing at least 1.2–1.5g/kg protein per day and 20–25 grams protein per meal for patients with malnutrition and frailty.
- Oral nutritional supplementation should be considered for those who have unintentional weight loss, poor appetite, or are unable to achieve their energy and protein requirements.

Social Support Networks

Loneliness and social isolation are associated with HF and frailty [78,79]. Social prescribing is an approach designed to address social determinants of health that may benefit adults

with frailty and HF [80]. Social prescribing involves healthcare professionals referring patients to community resources and activities tailored to individual needs and preferences, such as exercise classes, social clubs, and volunteering opportunities [81]. By addressing the social determinants of health, social prescribing aims to reduce isolation, enhance social support networks, promote physical and mental health and may also improve adherence to HF treatment and reduce rehospitalisation [80]. A 'community link' worker, a relatively new professional role, can help facilitate social prescribing programs by liaising between clients, health professionals and community organisations [82]. The evidence regarding the specific social support interventions that most effectively reduce frailty is unclear [62]. In the clinical setting, patients with HF and frailty can be referred to a community link worker (if available) or social worker for individualised social support.

Key points:

- Further research into effective social support interventions is needed.
- Refer people with frailty to a community link worker or social worker for support.

Medication Optimisation

Patients with HF and frailty need medication management that integrates best practice for both HF and frailty. Optimisation of HF therapy needs to consider the pharmacokinetic and pharmacodynamic changes in old age and frailty [83], as well as complex drug-drug interactions in polypharmacy. When tolerability of HF medication is limited by fall risk, identification of other fall risk-increasing drugs, using tools such as the Drug Burden Index, can guide medication management. The Drug Burden Index is a tool to quantify an individual's cumulative exposure to medications with anticholinergic and sedative properties and to assess the potential burden of these medications on cognitive and physical function, especially in older populations [84]. Increasing Drug Burden Index scores are associated with prevalent and incident frailty and falls, independent of polypharmacy [85] and in a preclinical mouse model, chronic polypharmacy with a high Drug Burden Index causes frailty in old age, which was attenuated by deprescribing [51]. Polypharmacy and a high Drug Burden Index score may be a trigger for medication review, including consideration of deprescribing, along with adverse drug reactions, prescribing cascades, and as part of end-of-life care [86].

The efficacy and safety of deprescribing HF medications for older adults with frailty warrants future investigation. Current practice may be siloed, with specialist cardiologists, nurse practitioners and general physicians providing guidance on HF medications and geriatricians, general practitioners and pharmacists providing comprehensive medication review. Further, not all older adults with HF have access to MDT care, which can exacerbate siloed practices. Polypharmacy is common in patients with HF and frailty [87]. A recent meta-analysis reported that patients with HF who are frail have a higher risk of polypharmacy (odds ratio [OR]: 1.87, 95% CI 1.72–2.04, I^2=0%, $p<0.01$) compared to those who are not frail [87]. The impact of polypharmacy on older patients with frailty is not well understood, and the potential harms (e.g., falls, delirium, incontinence) from HF medications in these people are poorly studied [88]. Adults aged ≥80 years report lower adherence and higher medication discontinuation compared to those aged <65 years, and only half achieve target doses recommended in clinical trials [89,90].

Comprehensive medication review is important and focuses on the appropriateness of all medications being taken/prescribed and the complexity of the patient's medication regimen, as well as the method of medication dispensing, e.g., pill box, blister pack, which may facilitate adherence [91]. Structured family conferences may enhance communication on medication safety and therapeutic goals between clinicians, patients, and family carers [92]. Shared decision making is a helpful approach to guide informed decisions and understanding the risks and benefits of medicines [93]. Domiciliary Medication Management Review (DMMR), also known as Home Medicines Review is listed on the Medicare Benefits Schedule (Item 900). A Home Medicines Review can help patients to better understand their medicines. Referral to a community pharmacy that offers Home Medicines Review may be helpful to optimise adherence, and persistence.

Key points:

- The use of dose administration aids, such as blister packs, pill boxes, and reminders, can help improve medication persistence and adherence.
- Consider referral for Home Medicines Review.
- Research is needed to characterise the effects of frailty on medication pharmacokinetics and pharmacodynamics and the impact on alterations in pharmacology on frailty metrics.
- Consider trial designs that will enable the generation of evidence on prescribing and deprescribing drugs in frail older people with HF, e.g., double-blind, piggyback trials with frailty measured at baseline and as an outcome or hybrid implementation-efficacy design.

Palliative Care Considerations

Frailty is increasingly gaining attention as a 'trigger' for palliative care referral [94]. Individuals with HF who are frail have a greater number of unmet palliative care needs, and so assessing for frailty and undertaking a comprehensive palliative care needs assessment in individuals with HF is a feasible way of identifying individuals at risk of poor outcomes and evaluating the level of unmet palliative needs [19]. Unmet palliative care needs can be triaged to the appropriate team or resource, depending on the severity and type of need and can be

Table 1 **Summary of key considerations.**

Policy	• Advocate for and achieve policy changes that support preventive measures and comprehensive healthcare for individuals at risk of or affected by HF and frailty. • Advocate for representative samples that include adequate numbers of older adults and people with frailty in clinical trials and registries. • Advocate for access to specialist HF management for all patients, including those presenting for treatment in non-cardiology settings.
Practice	• Perform a routine clinical assessment for frailty on all patients receiving treatment for HF using a validated frailty instrument and develop a treatment plan. • Consider everyone with HF and frailty for home outreach review, enrolment in an exercise program (with resistance component), for dietician review, comprehensive medication review and review of social prescribing. • Frailty assessment scores and management plans should be included in HF care plan documentation and MDT communications.
Education	• Engage with existing initiatives to train clinicians and the wider public in the identification and management of frailty. • Multidisciplinary clinicians should be upskilled in the management of frailty, through supportive education programs. • Interdisciplinary education opportunities that focus on applying the four pillars of frailty management should be encouraged.
Research	*Pre-clinical:* • Support an ageing rodent colony in Australia to facilitate pre-clinical research in clinically relevant models, improving translation to practice. • Evaluate and validate suitable biomarkers to identify frailty in the context of HF. *Clinical:* • Engage meaningfully with consumers with lived experience to help shape the research agenda and determine the most suitable interventions and outcome measures. • HF trials should consider the evaluation of frailty at baseline and as an outcome and using both a physical frailty instrument (e.g., Fried's Frailty Phenotype or the SHARE-FI) and a Frailty Index. • Gather robust evidence regarding effective intervention components to address frailty and improve the quality of life of people with HF.

Abbreviations: HF; heart failure, MDT; multidisciplinary team, SHARE-FI; Survey of Health Ageing and Retirement Frailty Instrument.

addressed by the HF team, in partnership with palliative care specialists, nurses, pharmacists, social workers and community resources [95]. Shared decision making, communication, and advance care planning should underpin intervention planning.

Table 1 provides a summary of the key considerations outlined in this statement.

Conclusions

This ACvA statement outlines the discussions from a national workshop on frailty and HF. Key considerations seek to address policy, practice, education, and research, including a standardised approach to frailty assessment in clinical practice and trials, increasing frailty focus within cardiac MDT management, and increasing HF expertise in comprehensive geriatric and primary care management. This will help to meet the needs of people with both HF and frailty. Addressing frailty in the context of HF requires a comprehensive, multidisciplinary approach tailored to individual patient needs and preferences. Implementing this agenda nationally would help mitigate the adverse effects of frailty and HF, enhancing quality of life and health outcomes for people living with both conditions.

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Declaration of Competing Interests

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Appendix

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