dyslipidaemia often co-exists with insulin resistance and we did not include it in our multivariable model in order to avoid over-adjustment.[1] Similarly, as we had already included history of myocardial infarction in our model, addition of coronary revascularisation could have created the same problem.

Nevertheless, in order to directly address the concerns of Skelin and colleagues, we have added both variables to our model. As can be seen from the *Table 1*, this further adjustment made little difference to our findings.

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Letter on 'Pharmacy-based interdisciplinary intervention for patients with chronic heart failure: results of the PHARM-CHF randomized controlled trial'

Laufs *et al.*[1] previously reported the design of the PHARM-CHF (PHARMacy-based interdisciplinary program for patients with Chronic Heart Failure) study, the aim of which was to investigate whether regular visits to a community pharmacist improve adherence to heart failure (HF) medications. Findings on the primary endpoint showed that, in comparison with usual care, meetings with a pharmacist resulted in a significant 5.7% absolute increase in the intake of the three recommended HF medications for 365 days. Furthermore, subsequent research found a more pronounced improvement in quality of life in the intervention group, but no impact on all-cause deaths or unplanned hospitalizations compared with the usual care group after 2 years.[2]

In our institution, we conducted a preliminary study between January 2016 and February 2017 with the aim of evaluating the impact of pharmaceutical collaboration on patients' prescriptions according to the European Society of Cardiology 2016 guidelines.[3] The study included 327 patients with HF with reduced ejection fraction who were admitted with decompensation, and showed that only 43.1% of patients were in receipt of optimal treatment on admission, a proportion that improved to 61.2% at discharge ($P < 0.001$). Furthermore, pharmacists were involved in the addition of recommended treatments for between 20% and 30% of the cases. Pharmacists performed 62 interventions relating to HF treatments, which included the addition of recommended treatments (61%), dose adjustments (22%) and treatment arrests (8%). The results encouraged us to propose a randomized controlled trial to evaluate the impact of the pharmacist's role in addition to usual medical care (NCT03902028). Our trial will include all adult patients hospitalized for HF decompensation. Patients will be randomized into a regular treatment arm or a medical–pharmaceutical management arm. Our primary goal is to assess the impact of coordinated management on rates of rehospitalization for HF decompensation at 3 months after discharge. The intervention arm will include a more collaborative intervention with the physician and a review of medication conducted by a pharmacist on patient admission, as well as a proposal for therapeutic optimization according to European guidelines,[3] to be derived using a validated checklist. These activities will be completed by a medication reconciliation at discharge and patient education in order to improve patient self-management, together with a network of communication with community professionals. One month after discharge, a multidisciplinary consultation will evaluate the efficacy, safety and impact of the treatment plan on quality of life.

Our goal is ultimately to create an open network between the hospital and community professionals and thereby a more collaborative system of HF management which might reduce rates of readmission and HF-related mortality.

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Letter on 'Pharmacy-based interdisciplinary intervention for patients with chronic heart failure: results of the PHARM-CHF randomized controlled trial': reply

We thank Dr. Kalmanovich and colleagues for their comments on our randomized controlled trial on improving medication adherence and quality of life of heart failure (HF) patients by a pharmacist-led interdisciplinary approach.[1] This study showed that pharmacy care safely improved adherence to HF medications and quality of life. These data extend recent consensus statements of both the Canadian Cardiovascular Society

guidelines for the management of HF[2] and the German clinical practice guideline on chronic HF[3] that acknowledge the available evidence of pharmacist care and interdisciplinary care.[4,5] Topics and tasks include prevention of HF, particularly by improving adherence to antihypertensives, providing medication reviews, assuring appropriate self-medication, and improving both medication safety and adherence.[4] We congratulate Kalmanovich *et al.* to their research plan. Their study will hopefully provide additional randomized evidence for the effects of interdisciplinary care in patients with HF.

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Survival rates in elderly patients with heart failure

We read with interest the article by Jones *et al.*[1] which analysed the survival rates of patients in the community with chronic heart failure (HF). It is notable that in patients aged ≤65 years, the rates of survival were almost 10% and 30% better at 1 and 5 years, respectively, when compared to those aged ≥75 years. This may be due to co-morbidities in the older population, but another possibility may be due to these patients not being put on adequate HF medications.

Molnar *et al.*[2] have shown that the survival benefit of beta-blockers in chronic HF could be extrapolated to elderly patients with advanced chronic kidney disease (CKD). In a retrospective cohort study involving 5862 elderly patients with advanced CKD, the group showed reduced all-cause mortality with beta-blocker use.

Similarly, Martínez-Milla *et al.*[3] performed a single-centre, observational cohort study on 390 patients aged ≥75 years with CKD who were in receipt of angiotensin-converting enzyme inhibitors/angiotensin receptor blockers (ACEi/ARBs) and mineralocorticoid receptor antagonists (MRAs). Their findings showed that ACEi/ARB treatment was associated with fewer cardiovascular events, whilst MRAs did not reduce the number of this nor influence total mortality.

Anaemia, which is common in elderly HF patients, is associated with a worse prognosis, as shown by Savarese *et al.*[4] The group looked at the Swedish Heart Failure registry data of 49 985 patients and found that anaemia is associated with worse prognosis in both HF with preserved ejection fraction and HF with reduced ejection fraction. These patients have received more aggressive treatment with intravenous iron infusions over the last few years. It would be useful to have data, if available from the papers in this meta-analysis, on this correlation and whether treatment improved prognosis, especially in the elderly.

With newer agents such as empagliflozin not yet in wider usage but shown to improve mortality in HF,[5] it would be interesting to see how future data will be affected, particularly in the elderly population who also tend to have more advanced diabetes due to its progression over time.

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[Correction added on 19 March 2020, after first online publication: Ahmed Fathelrahman Awadalla has been added as the second author.]

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Survival rates in elderly patients with heart failure: reply

We thank Dr Khan for the interest in our systematic review of survival in patients with