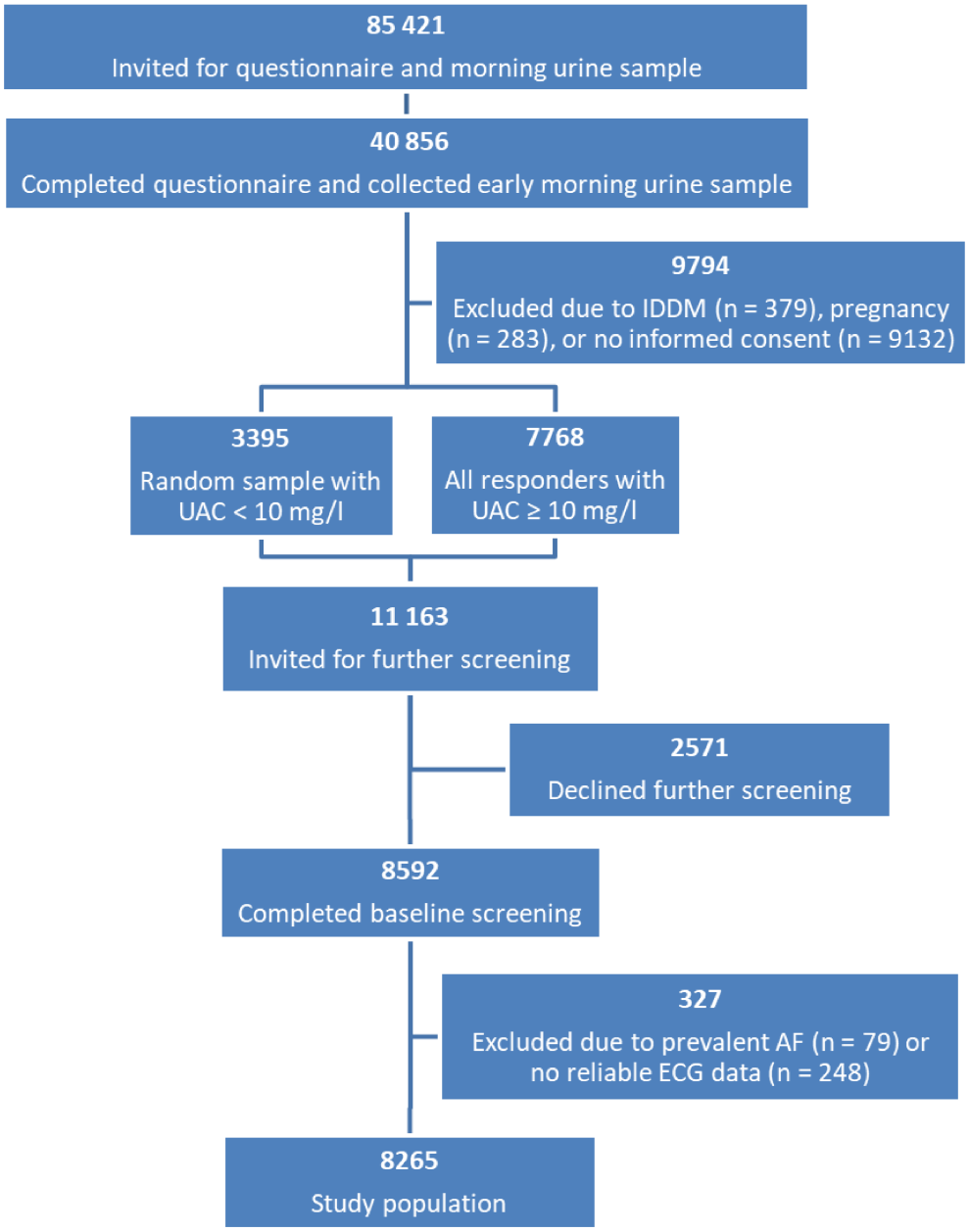
Supplementary data

Table of contents:



Supplementary Figure S1: Flowchart of the recruitment and selection of study participants. AF, atrial fibrillation; ECG, electrocardiography; IDDM, insulin-dependent diabetes mellitus; UAC, urinary albumin concentration.

Supplementary Notes

ECG screening for identification of atrial fibrillation[1]:
All 12-lead ECGs that were obtained during the PREVEND follow-up visits, as well as all available ECGs that were obtained during outpatient visits or hospital admissions in the two hospitals in the city of Groningen were screened for AF. All ECGs (n = 40 890) were digitally stored and electronically screened for absence of PR interval, atrial flutter, or ectopic atrial rhythm using a program written specifically for this purpose. The performance of the electronic screening program was validated by manually screening all ECGs from the PREVEND baseline visit and comparing the results of the electronic and manual screening. This validation procedure revealed that the electronic screening program had 100% sensitivity for the detection of AF, compared to manual screening.

All ECGs with suspected AF based on electronic screening (n = 1844) were manually reviewed by two independent observers (R.A. Vermond, E.G. Marcos). When both observers agreed that AF was present on the ECG, or when an inconsistency was found, the ECG was additionally validated by two independent cardiologists (M. Rienstra, P. van der Harst). The date of the first ECG with certain AF was used as the date of AF diagnosis. AF found to be present in 344 participants. Of these, 242 AF cases (37 prevalent AF, 205 incident AF) were first diagnosed on a hospital ECG, and 102 (42 prevalent AF, 60 incident AF) were first diagnosed on a PREVEND ECG.

Adjudication of heart failure events[2]:
Patient files (including data from hospitalisations and outpatient visits) from the two hospitals in the city of Groningen were reviewed for prevalent or incident heart failure, based on the presence of symptoms, signs, and structural or functional cardiac abnormalities, as defined by the guidelines of the European Society of Cardiology.[3] Permission to access the patient records was granted by the Medical Ethical Committees of both hospitals.

All suspected heart failure cases identified from the patient records were further evaluated by an endpoint adjudication committee consisting of seven independent heart failure experts. Each case was validated by two of four cardiologists (A.A. Voors, D.J. van Veldhuisen, P. van der Harst, R.A. de Boer), who reviewed anonymised versions of the patient files. If both experts agreed on the diagnosis of heart failure, patients were classified as having definite heart failure. In case of disagreement between the two cardiologists, a full committee of seven experts in the field (A.A. Voors, D.J. van Veldhuisen, J.L. Hillege, P. van der Harst, R.A. de Boer, R.T. Gansevoort, W.H. van Gilst) made a joint decision.

Definition of risk factors and comorbidities[1]:
Risk factors and comorbidities were defined as follows:

- Hypertension: systolic blood pressure >140 mmHg, diastolic blood pressure >90 mmHg, or self-reported use of antihypertensive drugs.
- Diabetes: fasting plasma glucose >7.0 mmol/L, non-fasting plasma glucose >11.1 mmol/L, or use of antidiabetic drugs.
- Peripheral artery disease: ankle brachial index <0.9.
- History of myocardial infarction: self-reported myocardial infarction requiring hospitalisation for at least three days.
- History of stroke: self-reported stroke requiring hospitalisation for at least three days.
- Prevalent heart failure: heart failure as adjudicated by the heart failure expert committee, with date of diagnosis prior to the PREVEND inclusion date.

References

1 Vermond RA, Geelhoed B, Verweij N, *et al.* Incidence of Atrial Fibrillation and Relationship With Cardiovascular Events, Heart Failure, and Mortality A Community-Based Study From the Netherlands. *J Am Coll Cardiol* 2015;**66**:1000–7. doi:10.1016/j.jacc.2015.06.1314

2 Brouwers FP, De Boer RA, Van Der Harst P, *et al.* Incidence and epidemiology of new onset heart failure with preserved vs. reduced ejection fraction in a community-based cohort: 11-year follow-up of PREVEND. *Eur Heart J* 2013;**34**:1424–31. doi:10.1093/eurheartj/eht066

3 McMurray JJV, Adamopoulos S, Anker SD, *et al.* ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure 2012: The Task Force for the Diagnosis and Treatment of Acute and Chronic Heart Failure 2012 of the European Society of Cardiology. Developed in collaboration with the Heart. *Eur Heart J* 2012;**33**:1787–847. doi:10.1093/eurheartj/ehs104