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Using bedside ultrasound to study fluid status and blood pressure drops during haemodialysis

Submission date 04/07/2026	**Recruitment status** Not yet recruiting	[X] Prospectively registered [X] Protocol [_] Statistical analysis plan [_] Results [_] Individual participant data [X] Record updated in last year
Registration date 06/07/2026	**Overall study status** Ongoing	
Last Edited 06/07/2026	**Condition category** Urological and Genital Diseases	

Plain English summary of protocol
Not provided at time of registration

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Study information

Scientific Title
Ultrasound-guided haemodynamic profiling in haemodialysis patients: a single-centre prospective observational study

Study objectives
1. To describe pre- and post-dialysis ultrasound-derived haemodynamic profiles in adults receiving maintenance haemodialysis, including cardiac ultrasound, lung ultrasound and modified VEXUS venous congestion parameters.
2. To assess the within-patient association between pre-dialysis ultrasound parameters and same-session intradialytic hypotension.
3. To describe whether delayed disclosure of ultrasound findings would have changed treating physicians' intended management.
4. To explore associations between serial ultrasound trajectories and longitudinal clinical outcomes, including hospitalisation, cardiovascular events and mortality.

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 18/06/2026, Ethics Committee Erasme Hospital (808 route de Lennik, Brussels, 1070, Belgium; +322555 37 07; comite.ethique.hub @hubruxelles.be), ref: P2026/298 / B4062026000128

Primary study design
Observational

Secondary study design
Cohort study

Study type(s)

Health condition(s) or problem(s) studied
End-stage kidney disease treated with maintenance haemodialysis; intradialytic hypotension and fluid overload/haemodynamic instability during haemodialysis.

Interventions
This is a single-centre prospective observational cohort study in adult patients receiving maintenance haemodialysis. After written informed consent, participants undergo study assessments during routine dialysis care. At baseline, month 3, month 6 and month 9, a trained operator performs multi-organ point-of-care ultrasound immediately before and after one

haemodialysis session. The ultrasound assessment includes focused cardiac ultrasound, lung ultrasound B-line assessment and a modified VEXUS venous congestion assessment using inferior vena cava, hepatic vein and portal vein measurements.

Routine haemodialysis proceeds unchanged. No study-mandated therapeutic algorithm is applied, and the study team does not require or recommend changes to the dialysis prescription on the basis of ultrasound findings. Session-level clinical data, intradialytic blood-pressure recordings, symptoms, ultrafiltration data, dialysate prescription and nursing interventions are recorded from routine care and the case report form.

When clinically feasible and safe, additional event-triggered ultrasound may be performed during or immediately after intradialytic hypotension, suspected clinically significant fluid overload or suspected underestimated dry weight. For scheduled sessions, the treating physician completes a brief questionnaire before disclosure of the study ultrasound findings and again after delayed disclosure, after the dialysis session has finished and intradialytic outcome data have been recorded, except for prespecified emergency findings. Each participant is followed for 12 months for hospitalisations, cardiovascular events and mortality.

Intervention Type
Other

Primary outcome(s)
1. Ultrasound-derived haemodynamic profile measured using ultrasound assessment at 0, 3, 6 and 9 months

Key secondary outcome(s)

Completion date
17/07/2027

Eligibility

Key inclusion criteria
1. Adults aged 18 years or older
2. Receiving thrice-weekly chronic haemodialysis for end-stage kidney disease
3. Receiving haemodialysis treatment at the study centre
4. Able and willing to provide written informed consent

Healthy volunteers allowed
No

Age group
Mixed

Lower age limit
18 Years

Upper age limit
99 Years

Sex

All

Total final enrolment
0

Key exclusion criteria
1. Unable safely to undergo ultrasound procedures or follow the protocol, for example because of an open chest wound or severe skin infection at probe sites
2. Cognitive inability to provide informed consent without a legal representative
3. Pregnancy
4. Prisoner status or other vulnerable status preventing freely given consent
5. Peritoneal dialysis
6. If a participant receives a kidney transplant or transfers care during the study, active participation ends from that point; data collected up to that time remain included

Date of first enrolment
12/07/2026

Date of final enrolment
17/07/2027

Locations

Countries of recruitment
Belgium

Sponsor information

Organisation
Université Libre de Bruxelles

ROR
https://ror.org/01r9htc13

Funder(s)

Funder type

Funder Name
Investigator initiated and funded

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary

Not expected to be made available

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Protocol file	version 2.0	11/06/2026	06/07/2026	No	No