# IMPROVING OUTCOMES IN HAEMODIALYSIS: A NEW LOOK AT AN OLD ISSUE

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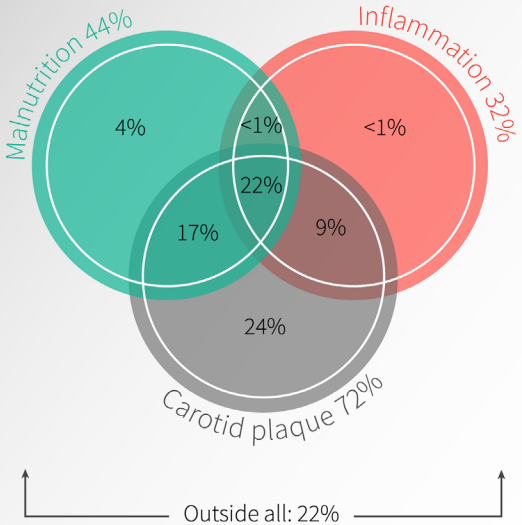
This work was supported by Baxter Healthcare

EMJ Nephrol. 2022;10[3]. DOI/10.33590/emjnephrol/10188586.
https://doi.org/10.33590/emjnephrol/10188586

## Poor Clinical Outcomes and the Link Between Malnutrition, Inflammation, and Carotid Plaques




Prevalence (%) of malnutrition, inflammation, and the presence of unilateral or bilateral carotid plaques in 109 pre-dialysis patients.

- Cardiovascular complications caused by accelerated atherosclerotic disease are the principal cause of morbidity and mortality in patients with advanced CKD.
- The 5-year survival rate for incident dialysis patients in Europe is approximately 45%, compared to 62.1% for patients with prostate cancer and 69.1% for patients with breast cancer.

ACE: angiotensin-converting enzyme; CKD: chronic kidney disease; CRP: C-reactive protein; CVD: cardiovascular disease; ESKD: end-stage kidney disease; HD: haemodialysis; HDF: haemodiafiltration; HDx: expanded haemodialysis; MCO: medium cut-off; nPCR: normalised protein catabolic rate; SGA: subjective global assessment.

Click here to view references.

## Improving Cardiovascular Outcomes for Patients with End-Stage Kidney Disease

### Malnutrition Mechanisms

- Decreased Protein Intake
- Decreased GI Mobility
- Insulin Resistance & Muscle Wasting
- Muscle Protein Catabolism
- Inflammation

### Inflammatory Mechanisms

- Uremic Toxins
- Oxidative Stress
- Fluid Overload Hypoxia
- Exposure to Mechanical Components

Markers: Albumin, CRP, & nPCR

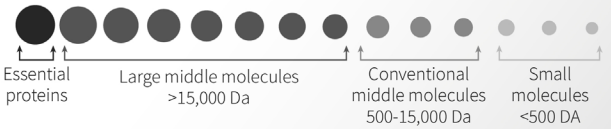
### Poor Clinical Outcomes

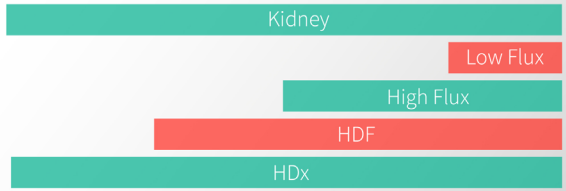
- Increased CV Risk
- Increased CV Events
- Increased Mortality

## Modifying Outcomes in ESKD

1. Increasing pro-inflammatory toxin removal by improving dialysis therapy e.g. extended haemodialysis with mid cut off membrane (HDx)
2. Improve nutrition by changing patient diet
3. Treat inflammation and comorbidities that contribute to chronic inflammation through pharmacological intervention

## Dialysis, HDx, HDF, and High Flux Dialysis




- Mortality from inflammatory and cardiovascular events in HD remains high with current dialytic therapies as large middle molecules cannot be removed.
- Large middle molecules have been associated with inflammation and the progression of cardiovascular disease.
- HDx is a renal replacement therapy that expands blood purification to large middle molecules, providing the potential to raise standards of care and ultimately improve outcomes for HD patients.

### Pre- to post- dialysis reduction in plasma level