ALBUMINURIA FOR EARLY CARDIOVASCULAR RISK DETECTION

The European Kidney Health Alliance (EKHA), representing 100 million Europeans with kidney disease, calls for the **systematic testing of urinary albumin** (albuminuria) as a simple, non-invasive, cost-effective, and evidence-based method to detect major cardiovascular risk, particularly undiagnosed diabetes, hypertension, dyslipidemia and chronic kidney disease (CKD).

CKD, often neglected in health policy, is a **major public health threat**, as recently acknowledged by the **Kidney Health Resolution,** adopted at the 78th **World Health Assembly**[1]. CKD impacts 13% of Europeans[2], but ~80% are unaware of their diagnosis[3]. M**ortality continues to rise,** while CVD mortality is declining. By 2050, CKD is forecasted to become **5th leading cause of death worldwide and 3rd in Western Europe**[4].

CKD is a major cardiovascular risk factor and must be **fully integrated in cardiovascular health planning**. At least 30% of people with cardiovascular disease (CVD) have CKD[5], and vice versa[6]. Cardiovascular risk is doubled with early CKD and rises exponentially as CKD progresses[7] – reaching a several hundred-fold increase in the ~500,000 Europeans on dialysis[8]. Among people with diabetes, 20-30% develop CKD, 90% of whom die of CVD[9]. Also for CVD, CKD acts as a significant accelerator[10] . The cardiovascular burden can thus not efficiently be addressed if CKD is ignored.

CVD, CKD, diabetes and hypertension often remain **asymptomatic until late**, when therapies are less effective, necessitating frequent hospitalizations and complex, costly interventions. Specifically for kidney disease, **dialysis**, costing up to **80,000 €** per patient year[11], is physically and psychologically exhausting[12], with poor long-term outcomes, and in children, growth and development disruptions. Dialysis also creates a heavy **environmental burden**: each of the ~150 annual hemodialysis sessions consumes 500 L of water,

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produces 1 kg plastic waste and emits greenhouse gas equivalent to a 240 km car trip[13], **which in turn increases** kidney and cardiovascular **disease risk**[14,15].

Early detection and timely therapy of CVD, hypertension, diabetes and CKD, are therefore essential. Albuminuria is an **effective** tool to facilitate this goal: normal levels are under 30 mg/g urinary creatinine, and higher values signal **early vascular and/or kidney damage**. Albuminuria is markedly more sensitive than the traditional marker of kidney dysfunction, serum creatinine, which increases only later in disease[16]. In addition, urine collection is less invasive than that of blood.

In a Dutch general population study (>45y), systematic testing identified albuminuria in 4% of participants, in 64% of whom one or more CVD or CKD risk factors were newly detected[17]. **Cost-effectiveness** analyses **support systematic albuminuria screening from the age of 45**, if combined with effective treatment of the detected conditions[18].

Although recommended by international CVD, diabetes, and CKD guidelines[19-22], albuminuria testing is still grossly underused in Europe[23]. EKHA strongly advocates for systematic albuminuria screening in adults above 45 and in younger individuals with risk factors (diabetes, hypertension, cardiovascular disease, obesity, smoking, family history of one or more risk factors, personal history of kidney or vascular damage, preeclampsia, low birth weight, or sub-Saharan African origin). This would **reduce** personal and societal **costs**, **suffering**, and social and regional health **inequities** linked with chronic diseases[24].

Screening must be accompanied by **education campaigns**, such as the European Renal Association's "ABCDE: **A**lbuminuria, **B**lood pressure, **C**holesterol, **D**iabetes, **e**GFR (kidney function measure)" initiative[25,26]. Those activities should target the **general public** and **frontline health professionals** - general practitioners, nurses, pharmacists, community workers and specialists confronted with early cardiovascular risks.

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