

The Kidney in Health and Disease



The Key Facts

This factsheet is designed to provide the essential facts about the role of the kidneys in health and disease. It describes the function of the kidneys and their importance for health as well as the challenge of kidney failure both for the individuals who have it and for national healthcare services that provide the necessary

resources for their treatment and care. The significant threat to health posed by milder forms of kidney damage is now recognized to be particularly harmful as such damage, although common and frequently symptomless, has severe adverse consequences on the long term health of individuals.

Where are the kidneys and why is kidney health important?

Humans have two kidneys which are located in the back of the abdomen and connected to the bladder by tubes called ureters. The kidney's principal function is to filter blood and so produce urine to remove excess water, salt and other minerals from the body together with the toxic waste products of metabolism. The kidneys are therefore essential for maintaining the right amount of water in the body and the normal chemical composition of the blood. The kidneys have another less obvious but equally important function which is to make and release into the bloodstream a number of proteins including some that are essential for keeping the blood pressure normal and maintaining healthy bones and preventing anaemia.

Properly functioning kidneys are essential for health. It has long been known that death is inevitable when the kidneys fail completely unless treatment with kidney dialysis machines is started or a kidney transplant is performed - collectively these two treatments are known as renal replacement therapy (RRT). Kidney failure is relatively rare, whereas less severe chronic kidney

disease (CKD) is common and often causes no noticeable symptoms. It is now known that even early CKD has long term consequences for health not only because of the risk of further disease progression to kidney failure but also because of a greatly increased risk of the development of heart and vascular disease and particularly heart failure and cardiac death.



What is chronic kidney disease?



Chronic kidney disease is the general name for persistent irreversible damage to the kidney. In its earliest stages, the kidneys may only have minor structural damage. Often such damage tends to progress if undetected and untreated. One of the signs of early CKD is the presence of small amounts of protein in the urine. Advanced CKD is characterised by altered chemical composition of the blood, low red blood cell counts and bone mass abnormalities and may ultimately require dialysis or kidney transplantation for survival. At least 8% of the population of Europe currently has some degree of CKD and so it is estimated that **at least 40 million** people in the EU are affected. Furthermore, this figure is increasing each year and if the present trend is to continue, the number of people with CKD will double over the next decade.

What causes chronic kidney disease?

Many different conditions can damage the kidney resulting in kidney disease. In the past the most common causes of CKD were caused by inflammation or were inherited. With aging of society and the worldwide epidemic of diabetes this has changed markedly and nowadays diabetes, high blood pressure and other vascular diseases are the main causes. As most health care professionals do not screen routinely for the presence of kidney injury in these high-

risk conditions many patients are unaware that they may be affected and are potentially at risk of developing progression of kidney disease and consequent cardiovascular complications. A greater scientific understanding of the basic disease mechanisms involved in the development of kidney injury is still necessary in order to promote earlier innovations to better and more effectively diagnose and treat patients.



How serious is the problem in Europe?

At present, more than 250,000 patients in Europe are on treatments with kidney dialysis machines or have kidney transplants, a number that has more than doubled over the past fifteen years. If this trend were to continue, national governments would need to spend between 3 and 5 per cent of their annual healthcare budgets on renal replacement therapies without taking into account its wider costs in terms of additional medical expenses, decreased quality of life and expectancy, increased morbidity and reduced capacity to work. Patients on renal replacement therapy currently face enormous problems: the access to, extent and quality of services for RRT varies greatly throughout the EU and most importantly opportunities for best and most cost-effective treatment - renal transplantation - are severely restricted because of the significant shortage of donor kidneys.

What action can be taken at European level?

Kidney disease presents a serious challenge for the people of Europe, their families and those responsible for providing their health care. EKHA believes that considerable improvement is needed to ensure that the best possible treatment is available throughout the EU to all who already have kidney disease. Effective strategies to prevent chronic kidney disease with its associated heart

and vascular risks and the likelihood of its progression to kidney failure is crucial and is the only way to prevent the rapidly increasing personal, societal and financial costs of kidney disease. The EKHA believes that immediate action by the EU working together with national governments will be essential if this is to be successful and provide for a healthier and better future for those at risk.

EKHA recommendations for the European Union

The following EKHA recommendations are six components of a comprehensive strategy for combating kidney disease and its consequences within the EU.

- Promote prevention of CKD by raising awareness amongst the general population of the preventable causes of the kidney injury.
- Promote early detection of CKD throughout the EU27 to ensure that individuals that are most at risk are routinely screened for kidney disease
- Promote research that provides further insights into the mechanisms responsible for kidney injury, and the subsequent development of biomarkers for early detection.
- Promote the exchange of information in and between EU member states and between stakeholders from various fields related to kidney disease (scientists, doctors, nurses, other care providers and patients).
- Ensure that all those with CKD in Europe have access to health services that enable them to minimize their risk of developing kidney failure as well as the other consequences of CKD including heart disease.
- Ensure that patients within the EU27 who require it have access to good quality Renal Replacement Therapy including renal transplantation.

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