

## **EARLY DETECTION OF CHRONIC KIDNEY DISEASE**

### **INTRODUCTION**

*Chronic kidney disease, also known as chronic renal disease or CKD, is a condition characterized by a gradual loss of kidney function over time. Chronic kidney disease includes conditions that damage your kidneys and decrease their ability to keep you healthy by filtering wastes from your blood. If kidney disease worsens, wastes can build to high levels in your blood and make you feel sick. high blood pressure*

- *High blood pressure*
- *anemia (low blood count)*
- *weak bones*
- *poor nutritional health*
- *nerve damage*

*Are the risk factors of the CKD*



### **FACTS**

- *37 million American adults have CKD, and millions of others are at increased risk*
- *Early detection can help prevent the progression of kidney disease to kidney failure*
- *Heart disease is the primary cause of death for all people with CKD*

**Keywords:** *chronic kidney disease, Jidialysis, end-stage kidney disease, transplantation*

### **EXISTING SOLUTION**

*The prevalence of chronic kidney disease and its risk factors is increasing worldwide, and the rapid rise in global need for end-stage kidney disease care is a major challenge for health systems, particularly in low-*

and middle-income countries. Countries are responding to the challenge of end-stage kidney disease in different ways, with variable provision of the components of a kidney care strategy, including effective prevention, detection, conservative care, kidney transplantation, and an appropriate mix of dialysis modalities. This collection of case studies is from 15 countries from around the world and offers valuable learning examples from a variety of contexts. The variability in approaches may be explained by country differences in burden of disease, available human or financial resources, income status, and cost structures. In addition, cultural considerations, political context, and competing interests from other stakeholders must be considered. Although the approaches taken have often varied substantially, a common theme is the potential benefits of multistakeholder engagement aimed at improving the availability and scope of integrated kidney care.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2474786/>

## TECHNICAL PAPERS

Functional renal magnetic resonance imaging (MRI) has seen a number of recent advances, and techniques are now available that can generate quantitative imaging biomarkers with the potential to improve the management of kidney disease. Such biomarkers are sensitive to changes in renal blood flow, tissue perfusion, oxygenation and microstructure (including inflammation and fibrosis), processes that are important in a range of renal diseases including chronic kidney disease. However, several challenges remain to move these techniques towards clinical adoption, from technical validation through biological and clinical validation, to demonstration of cost-effectiveness and regulatory qualification. To address these challenges, the European Cooperation in Science and Technology Action PARENCHIMA was initiated in early 2017. PARENCHIMA is a multidisciplinary pan-European network with an overarching aim of eliminating the main barriers to the broader evaluation, commercial exploitation and clinical use of renal MRI biomarkers. This position paper lays out PARENCHIMA's vision on key clinical questions that MRI must address to become more widely used in patients with kidney disease, first within research settings and ultimately in clinical practice. We then present a series of practical recommendations to accelerate the study and translation of these techniques.

[biomarker](#), [chronic kidney disease](#), [fibrosis](#), [inflammation](#), [MRI](#)

### Topic:

- [magnetic resonance imaging](#)
- [kidney failure, chronic](#)
- [biological markers](#)

### Issue Section:

[Special Report](#)

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7015670/>



## RESEARCH PAPER

*Testing for kidney disease is routine in clinical practice. This review focuses on advances in clinical evaluation of the glomerular filtration rate and albuminuria and their use in detecting acute and chronic kidney disease, designing trials of disease progression, and predicting risk in clinical practice*

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