

# **Exploring the pathways leading from disadvantage to end-stage renal disease for Indigenous Australians**

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## **Abstract**

Indigenous Australians are disadvantaged, relative to other Australians, over a range of socio-economic and health measures. The age- and sex- adjusted incidence of end-stage renal disease (ESRD)—the irreversible pre-terminal phase of chronic renal failure—is almost nine times higher amongst Indigenous than it is amongst non-indigenous Australians. A striking gradient exists from urban to remote regions, where the standardized ESRD incidence is from 20 to more than 30 times the national incidence. We discuss the profound impact of renal disease on Indigenous Australians and their communities. We explore the linkages between disadvantage, often accompanied by geographic isolation, and both the initiation of renal disease, and its progression to ESRD.

Purported explanations for the excess burden of renal disease in indigenous populations can be categorised as:

- 1) primary renal disease explanations;
- 2) genetic explanations;
- 3) early development explanations; and
- 4) socio-economic explanations.

We discuss the strengths and weaknesses of these explanations and suggest a new hypothesis which integrates the existing evidence. We use this hypothesis to illuminate the pathways between

disadvantage and the human biological processes which culminate in ESRD, and to propose prevention strategies across the life-course of Indigenous Australians to reduce their ESRD risk.

Our hypothesis is likely to be relevant to an understanding of patterns of renal disease in other high-risk populations, particularly indigenous people in the developed world and people in developing countries. Furthermore, analogous pathways might be relevant to other chronic diseases, such as diabetes and cardiovascular disease. If we are able to confirm the various pathways from disadvantage to human biology, we will be better placed to advocate evidence-based interventions, both within and beyond the scope of the healthcare system, to address the excess burden of renal and other chronic diseases among affected populations.