Objectives To characterise geographical distribution and time trends of chronic kidney disease (CKD) mortality in the context of the epidemic of Mesoamerican nephropathy (Men), likely related to occupational heat stress and other, unknown, factors. Method Vital statistics (1970–2012) provided deaths from CKD and unspecified renal failure. Data of four censuses were extrapolated to derive person-years by sex and 10-year age groups for the seven provinces and 81 counties. SMRs were compared for three time periods between provinces and between counties, with national rates as reference. To assess time trends, age-specific and age-standardised mortality rates were computed for 5-year periods.

Results During 1970–2012, 3843 men and 2452 women died from CKD. In the Guanacaste province, the SMR for 1997–2012 was four-fold in men and two-fold in women. In Guanacaste, CKD mortality increased from the mid-1970s in men, and mid-1980s in women. Age-standardised rates per 100,000 in men aged ≥30 increased from 5.8 in the early seventies to 75.0 in 2007–2012, compared to 5.9 to 16.2 in the rest of Costa Rica. For women, rates increased from 4.5 to 20.7 in Guanacaste versus 4.2 to 9.7 in the rest of the country. Within Guanacaste, there was marked spatial variation in mortality between counties, with patterns being consistent between time periods but different for men and women.

Conclusions Guanacaste is a heterogeneous CKD “hot spot,” affecting mostly men, but to lesser extent also women. CKD seemed high already four decades ago in the province. These findings are pertinent for etiologic research.