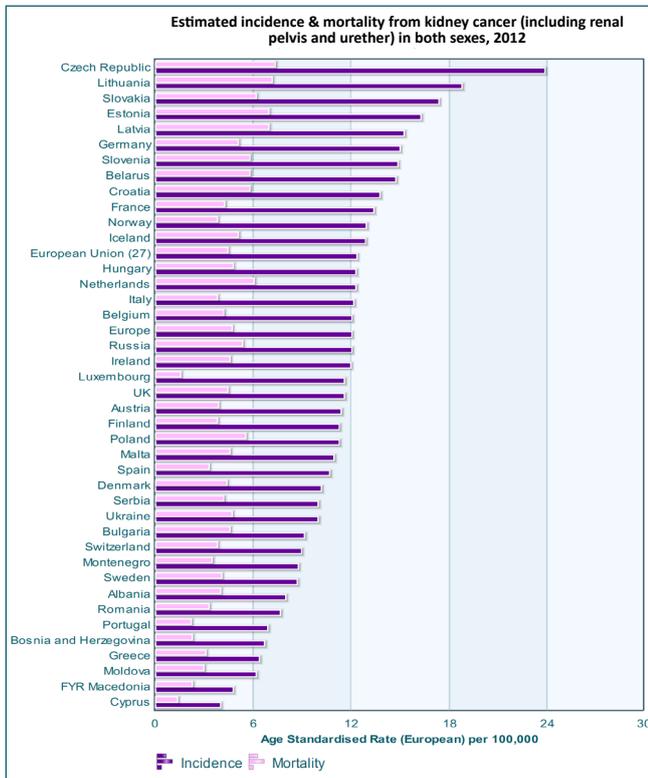
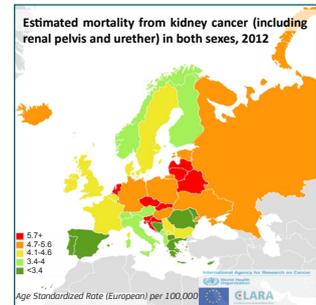
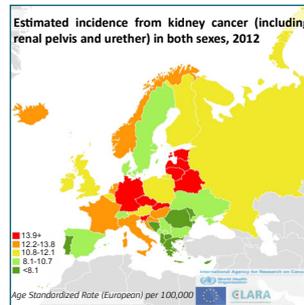


Kidney cancer (KC) Factsheet



- KC forms in the kidneys, two bean-shaped organs located behind the abdomen, on each side of the spine. The kidneys clean the blood by removing waste through urine. The kidneys also make hormones that help control blood pressure and signal the bone marrow to produce red blood cells when needed.^{1,2}
- There are three main types of KC: Renal cell cancer is the most common type in adults and Wilms tumour is the most common type in children. These types form in the tissues of the kidney that make urine. Transitional cell cancer forms in the renal pelvis and ureter in adults.²
- The incidence of KC has been increasing, potentially due to more frequent use of imaging techniques, which may lead to accidental discovery of KC.
- In 2012, an estimated 115 174 cancers of the kidney, renal pelvis and the ureter were newly diagnosed and these accounted for 3.9% of all new cancer cases in Europe.³
- In the same year, an estimated 48 991 Europeans died of KC, accounting for 3.2% of all cancer deaths in Europe.³

The European Cancer Observatory (ECO) estimates refer to European countries (plus Cyprus), as defined by the United Nations.



- In 2012, KC was ranked as the 13th most frequently diagnosed cancer worldwide with an estimated 337 860 new cases and it was ranked as the 16th cause of cancer death, with 143 406 KC deaths.⁴
- Europe has among the highest incidence rates of KC in the world, with Eastern Europe having the highest rates.^{4,5}

Gender differences in Europe in 2012

Estimated incidence and mortality.⁴

- Men have a higher estimated age standardized rate (ASR-E)* of incidence than women, with 17.2 and 8.1 cases per 100 000 person-years respectively.
- In terms of mortality, men also have a higher ASR-E than women, with 8.1 and 2.8 cases per 100 000 person-years respectively.

Regional differences in Europe in 2012

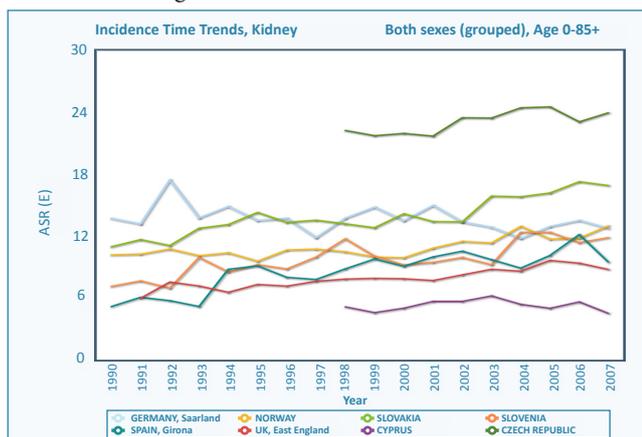
Estimated incidence and mortality.⁴

- There is variability in the incidence and mortality of KC across Europe, with the highest rates observed in Eastern Europe.⁵
- The average European estimated incidence and mortality ASR-E were 12.1 and 4.7 cases per 100 000 person-years.
- The countries with the highest estimated incidence ASR-E were mainly the countries with the highest mortality ASR-Es. Czech Republic showed the highest values (23.9 and 7.4 incidence and mortality respectively), followed by Lithuania (18.8 and 7.2), Slovakia (16.3 and 6.2), Estonia (16.3 and 7) and Latvia (15.3 and 7).
- The countries with the lowest estimated incidence and mortality ASR-Es were Bosnia & Herzegovina (6.7 and 2.3), FYR Macedonia (4.8 and 2.3) and Cyprus (4 and 1.4). Greece (6.4) and Moldova (6.2) showed low incidence, and Portugal (2.2) and Luxembourg (1.6) low mortality.

* ASR-E: age-adjusted rate to the old standard European population (Doll & Cook, Int J Cancer, 1967) to account for different age structures in various countries.

Temporal trends in selected European countries^{5,6,7}

- The incidence rates of KC have been slightly increasing over time in some countries and have remained stable in others.
- In the high-incidence area of Eastern Europe, the rates have stabilized.
- The mortality rates have been slightly decreasing over time across Europe, more sharply in Western and Northern Europe.
- The slight rise in incidence and the slight decline in mortality trends could be partly explained by an increase in the use of imaging techniques which can result in incidental findings of small renal masses.



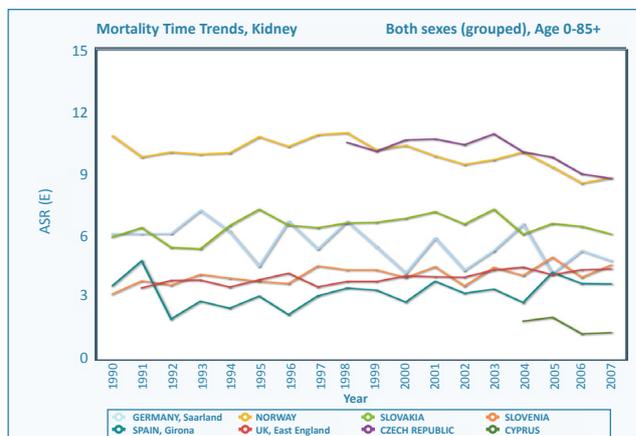
Kidney cancer aetiology^{8,9}

- Several studies have demonstrated that smokers have an increased risk of KC.
- A positive association has been described between KC and protein and fat consumption and a negative association with vegetable and antioxidant intake.
- Overweight or obesity, as measured by BMI, are strongly associated with an increased risk of KC.
- Acquired cystic kidney disease, which occurs in end-stage renal disease, increases the risk of developing KC.
- Hypertension, kidney stones and kidney infections have also been positively associated with KC.
- Renal cell carcinoma has been associated with some hereditary syndromes such as von Hippel-Lindau syndrome (VHL), hereditary leiomyomatosis or Birt-Hogg-Dubé syndrome (BHD).

Screening and prevention

- Currently, there is no standard routine screening test recommended for KC.
- Screening for KC is only advised for patients and their families that have genetic conditions such as VHL.
- Avoiding smoking and maintaining normal weight can reduce the risk of KC.

A list of references is available (in PDF) at: http://www.enccr.eu/images/docs/factsheets/ENCR_Factsheet_Kidney_2017_References.pdf.



Kidney cancer survival¹⁰

- The survival for KC has steadily improved in all European countries.
- Overall in Europe, the 5-year relative survival (RS) for KC was greater than 60%, based on cases diagnosed in 2000-2007 in adults.
- Women have a slightly better prognosis than men (61.3% vs 60.8% 5-year RS).
- The 5-year RS varied geographically and with age, with the elderly having significantly lower survival than patients diagnosed at younger ages.
- Tumours arising in the renal pelvis are mostly urothelial and have a different prognosis than renal cell carcinomas, arising in the parenchyma, which have a better prognosis.⁹
- Wilms tumours and other paediatric kidney tumours have a better prognosis than adult tumours: the 5-year RS of paediatric KCs has been improving over time, with the latest studies estimating survival to be over 85%.¹¹

Conclusions

- Adult patients with KC have a moderate prognosis, and this prognosis is not as good as for those patients with paediatric kidney malignant tumours.
- The differential use of imaging techniques needs to be taken into account when comparing the incidence of KC among countries or over time as overall trends observed in incidence and survival of KC seem to reflect the diagnostic investigations for abdominal conditions and increased use of imaging methods.
- Tobacco cessation, weight control as well as maintaining a normal blood pressure could contribute to reducing KC incidence and mortality.

The European Cancer Observatory data (<http://eco.iarc.fr>) were used for the production of this factsheet.