



Cancer of the prostate

Incidence trends

Prostate cancer incidence increased by 4% annually between 1994 and 1998, but then increased sharply between 1998 and 2004 (Figure 1), by 11% for case numbers and 9% for age-standardised rate. Since then, the age-standardised rate has increased by only 1% a year, although case numbers are increasing slightly more rapidly (3%) due to demographic change (population ageing).

Cancer incidence increased in all age groups but the oldest (85 and over), although the increase in the 75-84 year age group was small. The largest absolute change in case numbers between 1994 and 2009 was in the 55-64 year age group, from 134 cases in 1994 to 859 in 2009 (15% annually), but the largest relative increase (19% annually) was in men aged under 55. (Figure 2).

Trends in stage

The percentage of diagnosed cases which were T1 (as clinically assessed) increased from 18% to 35% between 1994 and 2007, and the percentage of T2 cancers increased from 14% to 34% (Figure 3). Most of the increase in T1 tumours was in T1c cases (diagnosed by PSA test and biopsy). Although T3 and T4 tumours made up a lower fraction of the cancers in 2007 than in 1994, their numbers increased, from 47 to 212 for T3 and from 38 to 55 for T4. While T1 and T1c cancers have continued to increase in number since 2004, T2 cancer cases, in line with the overall levelling-off in incidence, have decreased, as have cancers of unknown stage (Tx).

Prostate cancer facts at a glance

Number of prostate cancer cases 2007	2720
Number of prostate cancer deaths 2006 ¹	543
Age-standardised incidence rate 2007	142 cases per 100,000 per year
Age-standardised mortality rate 2006 ¹	29 deaths per 100,000 per year
Risk of developing prostate cancer before age 75	1.3%
Risk of dying of prostate cancer before age 75 ¹	0.9%

¹ Source: Central Statistics Office "Annual Report on Vital Statistics 2006".

Figure 1. Time trends in prostate cancer incidence

(EASR=age-standardised incidence rate, European standard population)

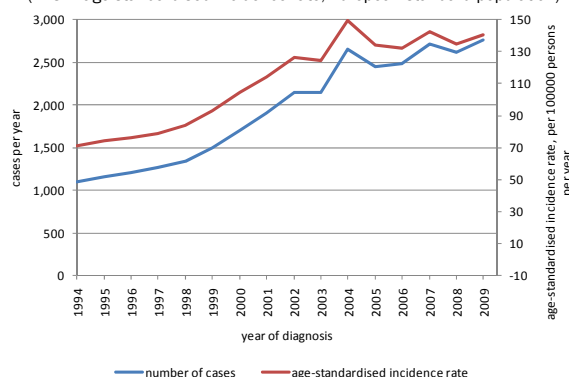


Figure 2. Time trends in prostate cancer, by age at diagnosis

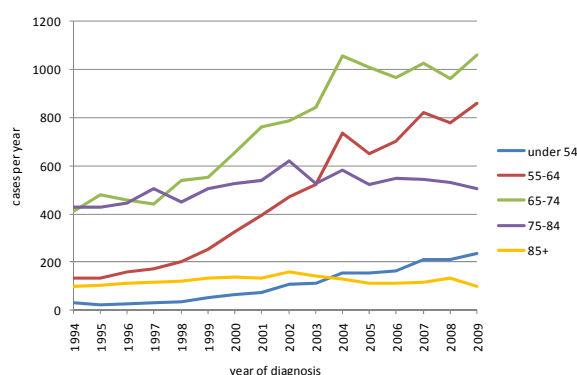
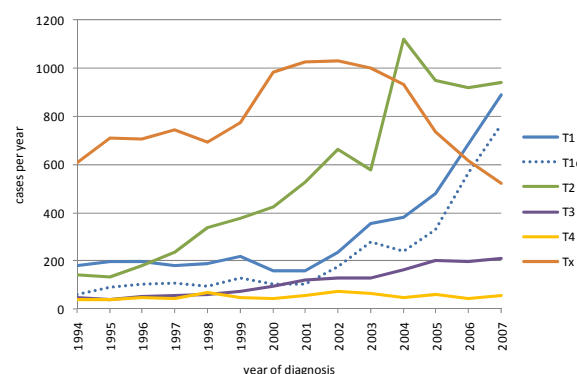


Figure 3. Time trends in prostate cancer stage



Treatment

During the period 1996-2007, the percentage of cancer patients having definitive treatment remained close to 80% (Figure 4). The percentage having surgery fell from 57% to 27%, radiotherapy treatments increased from 19% to 41% while hormone therapy increased from 36% to 41% while hormone therapy increased from 36% in 1996 to 46% in 2000 and declined slowly thereafter, to 35% in 2007. Some of this apparent fall may be due to a shift from in-patient/day case treatment to out-patient/community treatment. The latter is less likely to have been completely ascertained by the Registry.

Why are prostate cancer incidence rates increasing?

The increase in prostate cancer rates in younger men, and in stage T1c and T2 cancer, suggests a central role for PSA testing of asymptomatic men ("screening"). The number of PSA tests carried out increased five-fold between 1995 and 2004 (Figure 5). This phenomenon has been reported in most developed countries, although the rate of increase in Ireland was more than twice that in Northern Ireland¹, suggesting that health service factors have had some influence.

Prostate cancer mortality

The number of deaths and the mortality rate from prostate cancer have increased from the 1950s (Figure 6) to 1995. The death rate has been decreasing by 1.4% annually since then, but the number of deaths is not falling, because of ageing of the population. This fall in mortality, which preceded the widespread use of PSA, cannot be attributed to PSA "screening". Similar patterns in mortality rates (increases followed by falls) have been seen in many other countries (Figure 7).

Further information about PSA testing and prostate cancer in Ireland can be found in:

Trends in prostate specific antigen testing in Ireland: lessons from a country without guidelines. Drummond FJ, Carsin AE, Sharp L, Comber H. *Ir J Med Sci.* 2010 179(1):43-9

and in the reference cited in footnote 1.

¹ *Impact of PSA testing and prostatic biopsy on cancer incidence and mortality: comparative study between the Republic of Ireland and Northern-Ireland.* A-E Carsin, F J Drummond, A Black, P.J van Leeuwen, L Sharp, LJ Murray, D Connolly, L Egevad, M Boniol, P Autier, H Comber, A Gavin. *Cancer Causes and Control*, in press.

Figure 4. Time trends in prostate cancer treatment 1996-2007

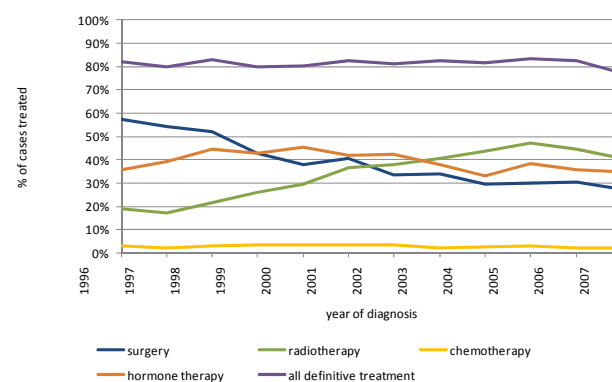


Figure 5. Annual number of PSA tests 1994-2005

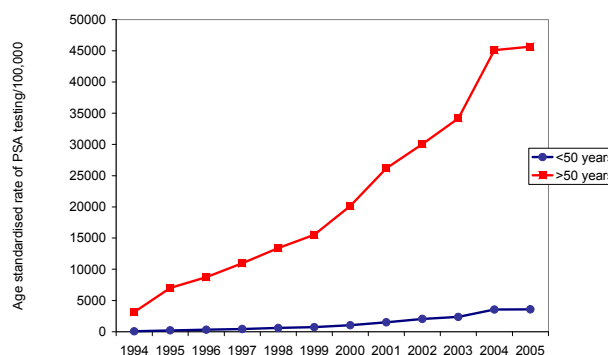


Figure 6. Prostate cancer mortality, Ireland 1950-2006

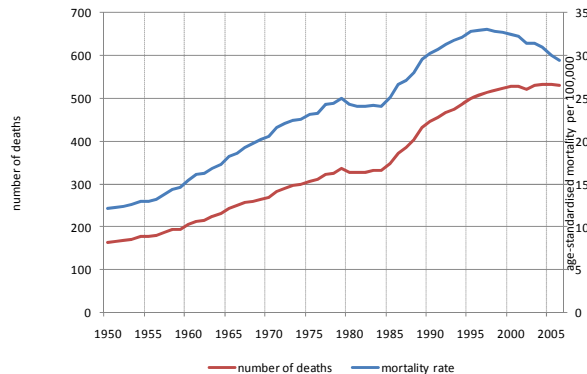


Figure 7. Prostate cancer mortality 1990-2005

