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The risk of being diagnosed with cancer

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There is widespread interest in cancer statistics. The following statement appeared recently: "In Australia in 2007, the risk of being diagnosed with cancer before the age of 85 was 1 in 2 for males and 1 in 3 for females."¹ Similar reports appear in publications from some cancer organisations and in the media.

How do policy makers use these reports, and how does the general public interpret these statistics?

The method for calculating these risks can be summarised as follows.^{2,3,4} The incidence of cancer in a particular region and year is the number of new cases of cancer diagnosed in that region and year. The incidence rate is the incidence per 100,000 head of population.

The concept of cumulative risk was developed to be a simple measure that can be used to compare incidence rates in different populations, or in the same population at different times. It is an alternative to the more common age-standardised incidence rate.³

The cumulative rate (R) up to age 85 is defined to be five times the sum of the age-specific incidence rates divided by 100,000. The factor – five – stems from the fact that, usually, data are collated in five-year age groups 0–4, 5–9, etc. This cumulative rate is normally expressed as a percentage.

If all causes of death other than cancer are ignored, then the estimated probability that a person in this population will be diagnosed with cancer by age 85 (or cumulative risk) is given by $1 - \exp(-R)$. A mathematical justification of this result can be found elsewhere.^{3,4}

The point of this letter is to draw attention to the fact that the calculation is based on the assumption that "no other cause of death [was] in operation"³. In other words, it is assumed that everyone will be diagnosed with cancer at some stage during their lifetime.

When estimates of cumulative risks are presented, the general reader may be better informed if this assumption were stated explicitly.

Cumulative risk is not only an epidemiological measure; it can be a persuasive tool. It is a measure that may be used by the public (in interpreting advertising about the risk of cancer) and by oncology decision makers (in making policies or allocating resources). For example, at the policy level, different regions will have different cumulative risks. Assessing regional variation requires a sound understanding before cumulative risk is used to inform decisions. This is due to implicit value judgements concerning people's welfare in measures of disparities that are age-related. Hence, it is important that all assumptions that underpin the calculations are clear. Williams and Doessel⁵ offer further discussion of measurement issues in health care.

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Community pharmacy influenza immunisation increases vaccine uptake and gains public approval

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Influenza is a viral disease of the respiratory tract that can cause severe illness or death, particularly in the very young or elderly, or in individuals with pre-existing medical conditions such as heart disease, diabetes and asthma.¹ Influenza immunisation is the main strategy for preventing influenza and influenza-related complications and is recommended for seasonal influenza in many countries. In Australia and New Zealand, it is provided free of charge to individuals 65 years of age or older or to those with high-risk chronic medical conditions.^{2,3} In New Zealand, the 2001 Ministry of Health report evaluating influenza immunisation uptake acknowledged that coverage targets were not being met, particularly in the under 65 high-risk group, and that uptake by Māori was low. The report made a number of recommendations on how to improve coverage, including the use of pharmacists as advocates and vaccinators.⁴ It has been suggested that providing an additional community-based location for accessing influenza immunisation would contribute to increased immunisation uptake. Some indirect evidence to support this has been reported by studies carried out in the US where an increase in influenza immunisation rates was found in states where pharmacists could immunise.⁵ Additionally, having pharmacists trained as independent immunisers could be of benefit in disease epidemics and pandemics, as healthy at-risk individuals will be able to be immunised at a pharmacy, enabling GPs and hospitals to concentrate resources on treating those already sick.

Influenza immunisation by pharmacists in New Zealand has been carried out in one independent pharmacy (Pharmacy 547) since 2010. In 2012, Pharmacy Brands Limited (PBL) – the parent company for Life, Unichem, Amcal, Radius and Care Chemist Pharmacies in New Zealand – introduced influenza immunisation in around 50 pharmacies throughout New Zealand. From March to September 2012, these pharmacies were supplied with questionnaires and asked to give them to all individuals who were immunised. The instructions to the respondents were that they complete the anonymous audit and mail it to the researchers in a pre-paid envelope.