

cidence rates. Feuer et al recently suggested a method for correcting these prevalent case
when calculating the life table cancer risk.\textsuperscript{6} They calculated the number of expected cancer
cases in the cohort as being the product of the age specific incidence rates and the number
of persons in the cohort alive and free from cancer. The correction for prevalent cancer cases was
performed by multiplication by the ratio R of the number alive at age x and the number alive
and free from a given type of cancer at age x. A reanalysis of our data using this correction
for prevalent cases did not, however, change our results significantly. This can be explained
by an inherent correction for prevalent cases with the life table method. The number of
expected cancer cases is calculated as the product
of the (underestimated) incidence rates and the
number of person years. In these person years,
the prevalent cancer cases are also in-
cluded.

It is possible to calculate the lifetime risk of developing cancer using the life table method
because the number of person years and the cancer incidence rates in the very elderly are
known. The lifetime risk represents the average risk at birth that a member of the cohort will
develop cancer during his or her lifetime.

It seems remarkable that the risk of de-
veloping cancer during an individual’s re-
mainng lifetime rises until a certain age (see
figs 3 and 4). This can be explained by the fact
that the number of cancer cases (the nu-
merator) decreases only slowly with increasing
age early in life (most of the cancer cases occur
at advanced ages), while the number of people
alive and free from cancer (the denominator)
decreases rapidly with increasing age. This phe-
onomenon is especially notable for prostate can-
cer, where the risk of developing cancer during
the remaining lifetime rises until the age of 60
years.

Although the life table method has clear
advantages over the cumulative risk method, it
cannot replace the other two epidemiological
measures.\textsuperscript{7} Firstly, life expectancy tables are not available for all populations. Secondly, age
adjusted incidence rates, the cumulative risk
and the cumulative rate, are better suited for
comparing the cancer incidence rates of differ-
ent populations in different time intervals and at
different locations. The fact that these measures
are not adjusted for life expectancy means that
they are more suitable for making direct com-
parisons of cancer occurrence between different
populations. For example, an increasing life
expectancy (fewer deaths from competing
causes) with stable age specific incidence rates
will result in a higher estimate of the lifetime risk calculated with the life table, but will not
influence the other risk estimates.\textsuperscript{7}

In conclusion, the life table method is a
convenient method for estimating the prob-
ability that a person will develop cancer during
a defined period or during his or her lifetime.
The life table method is based on the as-
sumption that the current death and cancer
incidence rates will be maintained in the future,
thus it shares this basic assumption with the
other risk estimates. Because the life table
methods include life expectancy, it is a good
method of estimating the ‘cancer burden’ in a
population. Other risk estimates overestimate
the risk of developing any given disease, es-
pecially at advanced ages. The life table method
cannot replace age standardised incidence
rates.

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Addendum
List of notations:
\(C_x\) = number of incident cancer cases in age group \(x\), obtained from the cancer registry.
\(C_h\) = number of persons who develop cancer in the hypothetical cohort in a defined life period.
\(l_x\) = life table population at age \(x\) alive and free from cancer.
\(n_x\) = number of inhabitants in the area of cancer registry in age group \(x\), obtained from the Bureau of Stat-
istics.
\(P_x\) = cumulative rate.
\(P_x\) = cumulative risk.
\(P_x\) = life table risk of developing cancer in a defined period.
\(y_x\) = total person years in the hypothetical cohort in age group \(x\).

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