

# 用語の説明

## Explanation of terms

### (1) 年齢調整死亡率 Age-adjusted death rate

$$\text{年齢調整死亡率 (旧訂正死亡率)} = \frac{\left\{ \left[ \begin{array}{l} \text{観察集団の各年齢} \\ \text{(年齢階級) の死亡率} \end{array} \right] \times \left[ \begin{array}{l} \text{基準人口集団のその年齢} \\ \text{(年齢階級) の人口} \end{array} \right] \right\} \text{の各年齢 (年齢階級) の総和}}{\text{基準人口集団の総人口}}$$

年齢構成が著しく異なる人口集団の間での死亡率や、特定の年齢層に偏在する死因別死亡率などについて、年齢構成を基準人口に合わせることでその年齢構成の差を取り除いて比較する方法である。これを標準化死亡率という場合もある。基準人口としては昭和60年モデル人口（昭和60年人口をベースに作られた仮想人口モデル）を用いている。死因別死亡率は、通常人口100,000当たりで表現する。

$$\text{Age-adjusted death rate} = \frac{\sum_i [\text{Observed DR in } i\text{th age category}] \times [\text{Population of } i\text{th age category in SP}]}{[\text{Total Population in SP}]}$$

where DR and SP denote death rate and standard population, respectively.

The age-adjusted death rate is a weighted average of age-specific death rates in the observed population. The weight for each age category is the proportion of people in the age category in the standard population. The 1985 model population of Japan is used as the standard population throughout this book (See table below). The age adjustment is used to adjust the difference in age distribution in comparing death rates of two or more populations. By convention, the death rate is expressed per 100,000 per year.

基準人口（昭和60年モデル人口）

#### Standard Population (1985)

年齢 (Age)	基準人口	年齢 (Age)	基準人口	年齢 (Age)	基準人口
0 ~ 4	8,180,000	35 ~ 39	9,289,000	70 ~ 74	3,476,000
5 ~ 9	8,338,000	40 ~ 44	9,400,000	75 ~ 79	2,441,000
10 ~ 14	8,497,000	45 ~ 49	8,651,000	80 ~ 84	1,406,000
15 ~ 19	8,655,000	50 ~ 54	7,616,000	85 ~	784,000
20 ~ 24	8,814,000	55 ~ 59	6,581,000	総数 (Total)	120,287,000
25 ~ 29	8,972,000	60 ~ 64	5,546,000		
30 ~ 34	9,130,000	65 ~ 69	4,511,000		

## (2) 標準化死亡比 Standardied mortality ratio (SMR)

$$\text{SMR} = \frac{\text{観察集団の現実の死亡数}}{\text{(基準となる人口集団の年齢別死亡率} \times \text{観察集団の年齢別人口) の総和}} \times 100$$

年齢構成の差異を基準の死亡率で調整し、調整した値の現実の死亡率に対する比である。

$$\text{SMR} = \frac{[\text{Observed number of deaths}]}{\sum_i [\text{DR in } i\text{th age category of SP}] \times [\text{Population of } i\text{th age category in OP}]}$$

where DR, SP, and OP denote death rate, standard population and observed population, respectively.

The standardized mortality ratio (SMR) is a ratio of the observed to the expected number of deaths. The expected number of deaths is calculated by summing over all age categories of age-category-specific numbers of deaths expected in the observed population under age-category-specific death rates in the standard population.

## (3) 累積罹患率 Cumulative incidence rate (CIR)

累積罹患率 = 各歳の罹患率を65歳あるいは75歳まで加えた総和

ある年齢（65歳または75歳）までの年齢別の罹患率を加えた数値。がんのように罹患率が小さい場合は、他の死因で死亡しないと仮定した場合の、その年齢までの罹患確率と近似的に等しい。年齢分布の異なる2つ以上の地域の罹患率を比較する際に用いられる。

$$\text{CIR} = \sum \text{[Age-specific incidence rate]} \\ \text{up to age 65 or 75}$$

The cumulative incidence rate (CIR) can be obtained by summing age-specific incidence rates up to age 65 or 75. If incidence rate is small, as in the case of cancer, CIR approximates the probability of incidence up to the chosen age, conditional on not dying of other causes. The CIR is used to compare cancer incidence in two or more regions with different age distributions.

#### (4) 5年生存率 5-year survival

ある疾患と診断されてから5年後に生存している確率。予後の指標として用いられる。

$$\text{5年生存率} = (\text{ある疾患に新たに罹患した人数} - \text{そのうち5年以内に死亡した人数}) / \text{ある疾患に新たに罹患した人数}$$

The probability of remaining alive for 5 years after diagnosis of a particular disease. This is used as an indicator of prognosis.

$$\text{5-year survival} = (\text{the number of newly diagnosed patients under observation} - \text{the number of deaths observed in 5 years}) / \text{the number of newly diagnosed patients under observation}$$

#### (5) 5年相対生存率 5-year relative survival

5年生存率と同じく予後の指標で、ある集団のある疾患に関して算出した5年生存率（実測生存率）を、その集団と同じ性・年齢・出生年分布をもつ日本人の期待5年生存確率で割ったもの。対象疾患以外の死亡の影響を調整した5年生存率であり、異なる集団間の生存率の比較に用いられる。

Five-year relative survival is also an indicator of prognosis, which is defined as the ratio of the proportion of observed survivors in a group of a specific disease patients to the proportion of expected survivors in a set of general Japanese individuals comparable in terms of sex, age, and birth year. This indicator is a net 5-year survival measure representing survival of the target disease in the absence of other causes of death, and it is used for comparisons of survival among different populations.

#### (6) 相対危険度（リスク比） relative risk (risk ratio)

ある疾患の罹患（または死亡）について、ある要因の暴露群（例：喫煙者）のリスクを非暴露群（例：非喫煙者）のリスクで割った値。暴露群が非暴露群に比べてその疾患のリスクが何倍高いかを表す。例えば、がん罹患についての喫煙の相対危険度は

$$\text{がん罹患についての喫煙の相対危険度} = \text{喫煙者のがん罹患率} / \text{非喫煙者のがん罹患率}$$

The likelihood of a particular disease occurrence or death among persons exposed to a given risk factor, divided by the corresponding likelihood among unexposed persons. It represents how many times higher the risk of the disease among exposed persons is, compared with unexposed persons. For example, the relative risk of cancer occurrence among smokers to un-smokers is;

$$\text{Relative risk of cancer occurrence among smokers to un-smokers} = \text{the likelihood of cancer occurrence among smokers} / \text{the corresponding likelihood among un-smokers.}$$

## (7) 人口寄与危険割合 **population attributable risk proportion**

集団の罹患（または死亡）のうち、ある要因の曝露を取り除くことによって減少できる部分の割合。ある疾患のある曝露要因のリスク比をRR、その曝露要因の曝露割合をPeとすると、

$$\text{人口寄与危険割合} = [P_e \times (RR - 1)] / [P_e \times (RR - 1) + 1]$$

The proportion of the disease cases (or death) in a population that would be prevented if the exposure were eliminated.

$$\text{Population attributable risk proportion} = [P_e \times (RR - 1)] / [P_e \times (RR - 1) + 1]$$

where  $P_e$  is the proportion of exposure in the population and RR is the risk ratio associated with that risk factor.

