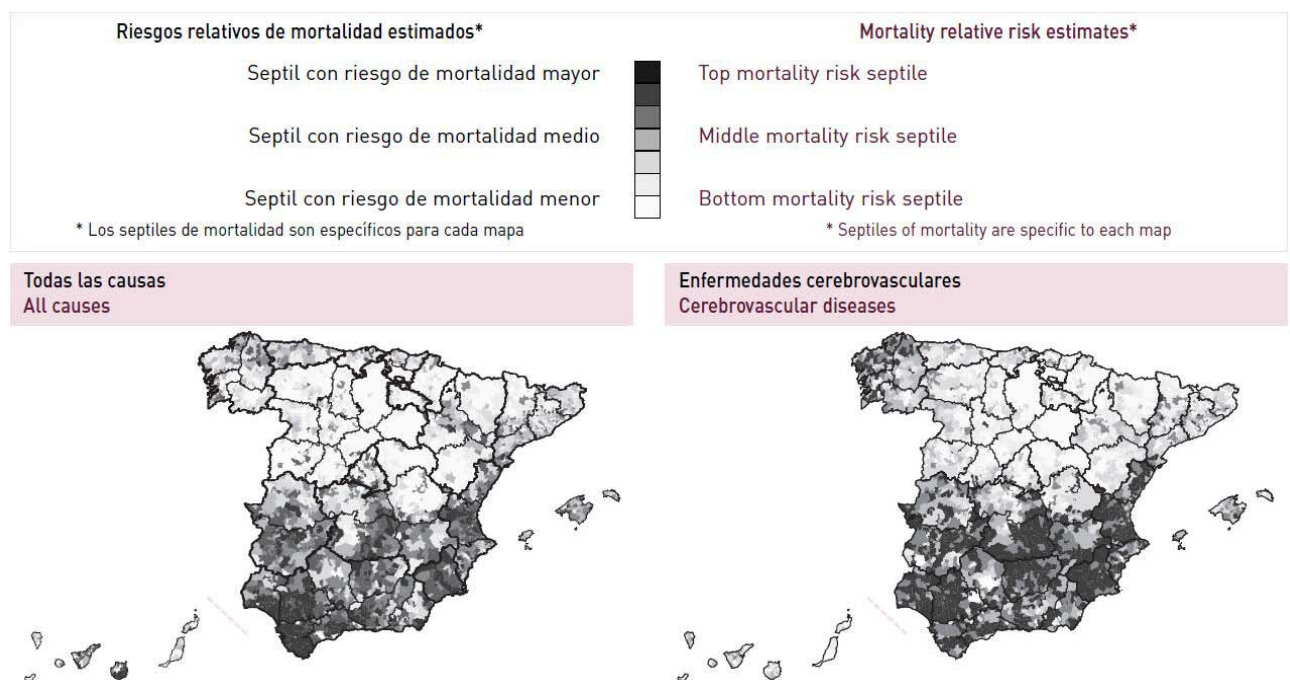# HOW TO READ THIS BOOK

The atlas of mortality in small areas in Spain is a compendium of texts, choropleth maps and graphs, structured into three main sections.

Section 1 summarizes the main methods and results of the atlas. It includes information about the geographical units, data sources, statistical analyses, geographical methods and graphic design, and descriptions of the main findings for each cause of death, sex and age group. In addition, for the two sexes separately, small area maps for the 17 causes of death are presented together in a double-page layout. The main purpose of these maps is to compare broad geographical patterns, emphasizing the high-risk areas, through the use of a sequential black and white gradient. Each map shows, for each specific cause of death, the corresponding distribution in septiles of mortality risk.

An example may be observed in Figure 1. It should be noted that an empirical Bayesian method has been used to obtain the relative mortality risks of the small areas and to quantify their temporal evolution over the study period. This method yields smoothed standardised mortality ratios (SMR) as the estimator for the age-adjusted relative risk of death.

Figura 1. Ejemplo de los mapas comparativos de mortalidad.

Figure 1. Example of comparative mortality maps.

Riesgos relativos de mortalidad estimados*   Mortality relative risk estimates*

Septil con riesgo de mortalidad mayor   Top mortality risk septile

Septil con riesgo de mortalidad medio   Middle mortality risk septile

Septil con riesgo de mortalidad menor   Bottom mortality risk septile

* Los septiles de mortalidad son específicos para cada mapa   * Septiles of mortality are specific to each map

Todas las causas
All causes

Enfermedades cerebrovasculares
Cerebrovascular diseases

Section 2 presents maps, in a layout involving two double pages, of the 17 leading causes of death for each sex, representing Spain (1996-2004) and six cities (Barcelona, Bilbao, Madrid, Sevilla, Valencia, Zaragoza) in the period 1996-2003. For Spain, the first page includes: (a) a large map showing the estimated relative risk, (b) a graph of the estimated relative risk density function and (c) a small map showing the statistically significant high and low risk areas. The second page includes: (d) two maps of Spain of the relative risk estimate in the age groups under 64 years, and 65 years and over, and (e) a map which compares the trend in each area with respect to the trend for Spain as a whole, and indicates those areas where the trend was significantly different from that for Spain and (f) a graph of the general trend in relative risk for the cause of death in question over the study period (1984-2004). In addition, the map showing the behaviour of the trend in relative risk for each area also includes, next to the color scale for the groups of areas, the change in relative mortality risk for each three-year period. Thus in addition to classifying the evolution of the areas with respect to the global trend for Spain, one may observe what the global trend has been in the areas forming each group. For the cities, the first page includes a map showing the estimated relative risk in Spain and the cities of Barcelona and Bilbao. The second page includes the maps for the remaining cities.

Figura 2. Ejemplo de la primera página doble de los mapas de mortalidad para España.

Figure 2. Example of the first double page of the mortality maps for Spain.
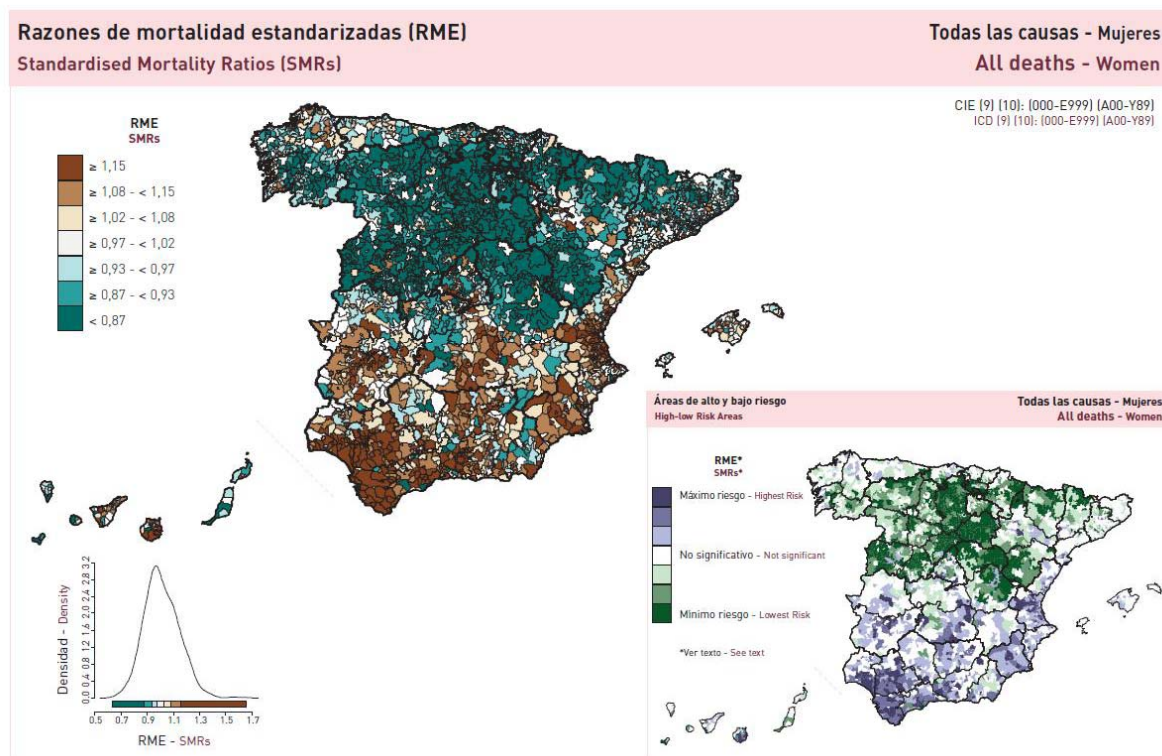
Figure 2 shows an example of the first of each double page for the case of ischaemic heart disease in men. The large map allows the reader to clearly appreciate the differing patterns of colour of the areas. In the upper left corner there is a legend of the septiles of smoothed SMRs, while the graph at the lower left shows the distribution of smoothed SMRs for the 2,218 areas, based on the estimated density function. This can be interpreted rather like a smoothed histogram. The right lower map shows the areas of high and low risk, in which the mortality risk relative to Spain as a whole is statistically significant.

Figure 3 is an example of the second of each double page, using the same cause of death. There are four maps. The top maps present the estimated relative risk for Spain in the two age groups (0-64 years, 65 and over). These are followed by a mapcomparing the behaviour of the trend for each area with respect to that for Spain as a whole, and a graph of the trends in relative risk during the period studied, for Spain as a whole. The comparison of the trend for each area with Spain as whole has been named DT while the change in the relative risk for each time period has been named SMR C (see statistical analyses).

Figura 3. Ejemplo de la segunda página doble de los mapas de mortalidad para España.

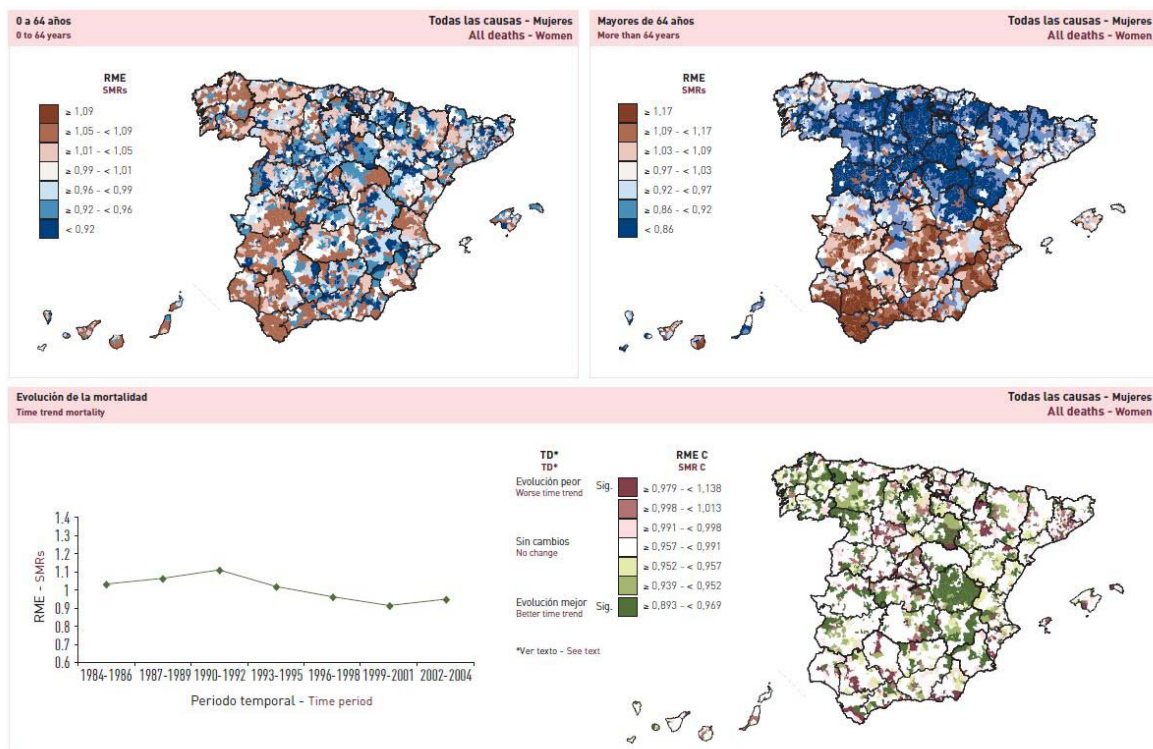*Figure 3. Example of the second double page of the mortality maps for Spain.*

Figure 4 shows and example of a double page where the cities are integrated. This double page includes: (a) a map showing the relative risk for Spain (b) six maps showing the relative risk distribution of each city relative to Spain, and (c) six maps of the relative risk distribution of each city relative to the average level of risk of the city.

The first map of the city compares the mortality risk of each census tract with respect to the mortality rate for Spain grouping by the same septiles of relative risk used in the map of Spain. The second map of the city reflects mortality risks relative to the average level of risk of the city grouping by septiles of risk.

Figura 4. Ejemplo de página doble de los mapas de mortalidad para España con las ciudades.
Figure 4. Example of the double page of the mortality maps for Spain with the cities.
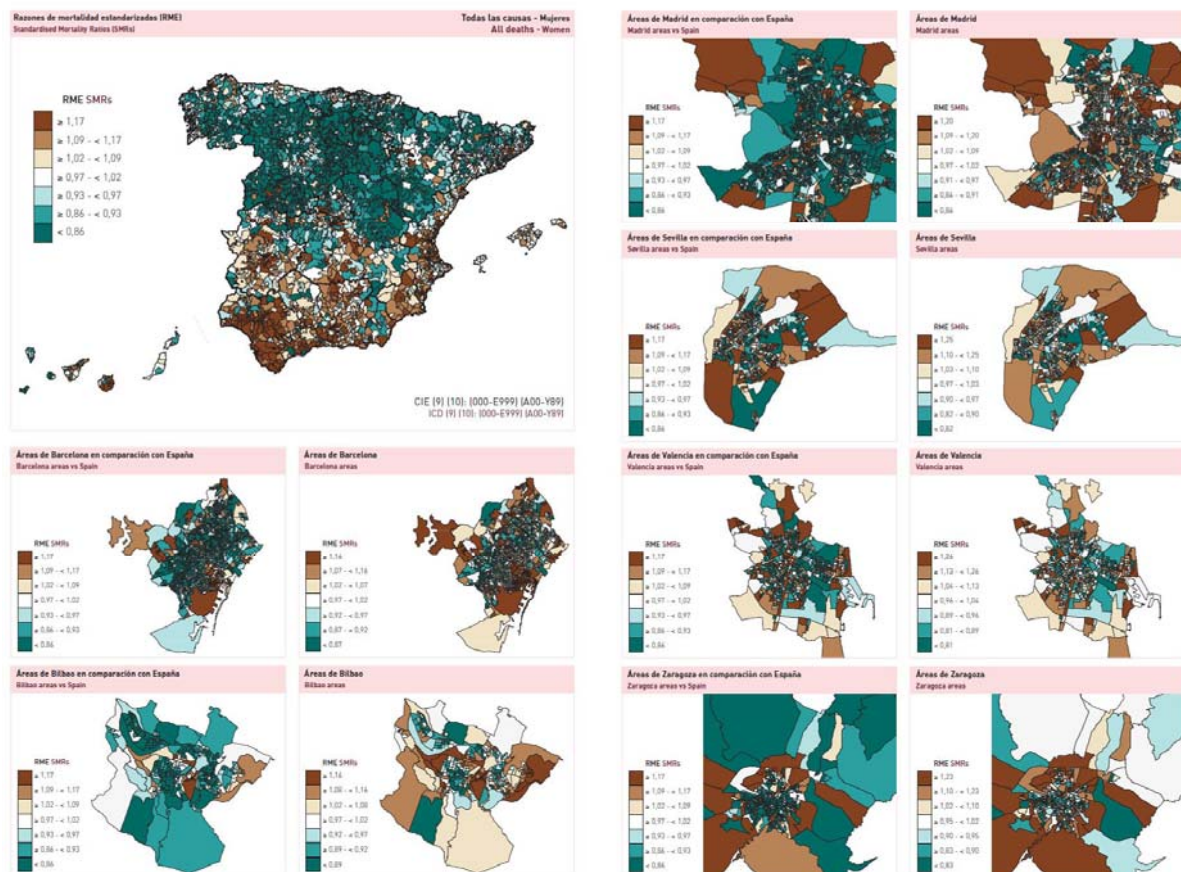
Finally, Section 3 provides in the Appendices detailed information on the geographical units of analysis and the statistical methods.