Health studies and cartography: an old story
The map shown on the left is famous for being one of the first epidemiology maps. It was published in 1855 by Dr John Snow, a medical doctor working on the mode of propagation of the cholera. The map shows occurrences of death by cholera in an area of London during the severe outbreak of 1854. Each death is displayed as a black bar, deaths in the same house being piled up perpendicularly to the street in which the house is situated. Water pumps are also shown.

The map shows that a big number of deaths occurred close to the Broad Street water pump. This is because cholera is indeed transmitted by drinking water (which was not acknowledged at this time), and because the water of this pump had been contaminated by cholera at the beginning of the outbreak. [1] [2]

Level of detail matters – Two illustrative case studies
Medical care in Germany - change in number of doctors between 2007 and 2012 in %
The three different maps show the development of the number of general practitioners between 2007 and 2012 in percent. All three maps are based on the same statistical data, but they look different since they are using different administrative units. The resulting patterns do not look the same, which might cause different interpretations and decisions. This effect is called the “modifiable areal unit problem” (MAUP). Only the map on the right uses areal units which are proportional to the number of population. [3]

Historical demography – investigating correlation between proximity to wetlands and child mortality
Studies in historical demography aim at finding relationships between living conditions and demographic variables (fertility, mortality, etc.). To include the geographic conditions into these studies it is required to geocode the population and quantify the geographic context.

In an ongoing project at Lund University, Sweden 57,000 individuals from the Scanian Economic Demographic Database (SEDD) (during 1813-1914) have been geocoded. Studies using the geocoded SEDD database have revealed that the soil conditions (on micro-level) affected child mortality. Since malaria was a threat in Sweden during the 19th century it was investigated if closeness to wetlands affected child mortality. Such relationship was found when population is geocoded on property unit level, but not if it is geocoded on the coarser address level. The figure illustrates the variation of the geographic context into these studies it is required to geocode the population and quantify the geographic context.

The ICA Commission on Generalisation and Multiple Representation works on the modelling and management of geographic information at different levels of details, and the automated transformation of the information from one level of details to coarser levels of details by means of simplification and caricature – an operation called generalisation.


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