The software COMPREV 3.0: a tool to quantify cancer burden by means of Complete Prevalence estimation

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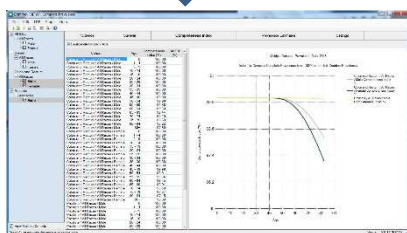
Introduction

Complete Prevalence (CP) is the proportion of people alive on a certain date who have been previously diagnosed, regardless of how long ago the diagnosis was. For more recently established cancer registries, with data over a limited time span, CP is not easily estimated.

Methods and Output Examples

Statistical methods have been developed and implemented in the COMPREV software by the US National Cancer Institute in collaboration with Italian researchers, including the authors of the present abstract. The software estimates CP from cancer registry observed prevalence (Limited Duration Prevalence -LDP). The software includes the following sessions:
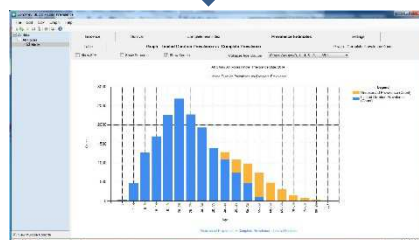
Completeness Index (CI) and Complete Prevalence

Estimates the proportion of non-observed prevalence (CI) and the complete prevalence of people diagnosed at any age (CP), using LDP data for any age and parameters of incidence and survival models estimated for a combination of cancer sites, sex and races (Capocaccia, 1997, Gigli, 2006).

Childprev

Estimates the complete prevalence of people diagnosed at childhood, using LDP data for any age and for child ages and parameters of incidence and survival models estimated for a combination of cancer sites, sex and races (Simonetti, 2008).

Phase of Care Prevalence

Estimates the complete prevalence by phase of care (initial care, monitoring and end of life), using LDP data for any age in two subsequent years and parameters of incidence and survival models estimated for a combination of cancer sites, sex and races.

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Figure 1: Completeness index curve by age for colorectal cancer males (grey line), colorectal cancer females (black line), prostate cancer (yellow line)
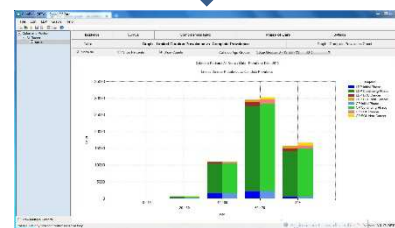

Figure 2: Prevalence rates (per 100,000) by age of cases diagnosed at childhood. Unobserved (yellow bars) and Limited duration prevalence (blue bars).

Figure 3: LDP (dark bars) and CP (light bars) by age and phase of care: Initial (blue), Continuing (green), End-Of-Life cancer (red), End-Of-Life non cancer (yellow)

Discussion

Complete Prevalence is important to evaluate the cancer burden and survivorship. CP includes people with a range of health service needs: recently diagnosed patients requiring initial treatment; people who require extensive care in their end of life; long-term survivors who need only minimal care. Therefore, estimating prevalence by phase of care is useful to provide evidence-based guidance for health service planners and policy makers and for resource allocation (Mariotto, 2006; Francisci, 2013). CP includes also people who were diagnosed in their childhood and are still alive and require special surveillance for late effects of their cancer treatments (Francisci, 2015). These indicators are based on complex ad hoc statistical methods and are integrated in a unified tool. A restyled interface makes the software user-friendly.

Conclusions

Comprev was originally addressed to US SEER program data. It can be easily used for the analysis of population-based cancer registry data in Europe. The software is freely downloadable on https://surveillance.cancer.gov/help/comprev and contains various tutorials.

For further information, including the possibility of a course on the use of Comprev, please contact us: **anna.gigli@cnr.it, silvia.francisci@iss.it**

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