ISSN: 2574-1241
DOI: 10.26717/BJSTR.2018.10.001989
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Appendix:

Appendix 2: contains a flowchart describing main calculation steps. Initial population sample contains as many individuals as set by the user in the interface-window. This population is supposed to have a same quantity of 20-year old males and females, directly married. Among these young adults, mutation carriers are randomly assigned, according to the definition given to mutational parameters (cancer risk for males and/or females, peak of penetrance, possible synergy between mutations...). Other life parameters are also randomly determined, such as first wedding age, and for females the expected number of children and menopause age. These parameters are similarly calculated at each birth, except for the risk of miscarriage that does not concern the initial population and is assigned at each pregnancy. Then, the computer routine covers the global period of time, by 1-year steps, and calculates other randomly assigned events: cancer (if mutated) or sporadic ones and death from cancer, death of the spouse, new marriage with a possible and available partner. When events are exclusive, as for example a death from other cause happening before a death related to cancer or vice-versa, the first event is selected. The same kind of selection eliminates any pregnancy that would happen after cancer onset or menopause after death