



Cancer Pathway Simulator

Simulation tool for performance analysis of diagnostic cancer pathways

New version 1.7 (August 2025).

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Cancer Pathway Simulator is a tool for analysis of performance of diagnostic cancer services. Based on discrete-event simulation, it allows modelling of such systems as sequences of diagnostic steps (i.e. diagnostic pathway) and gives as output a set of performance metrics, including:

- Resource utilisation at different steps in the pathway
- Summaries of patient waiting times at different stages in their journey to diagnosis
- Validation of simulation results against historical data

Cancer Pathway Simulator is intended for use by analysts in hospitals. It is developed in Python and comes with an MS Excel interface for input specification where the user can specify features such as the structure of the diagnostic pathway, capacities at each step and the arrival rate of patients.

In comparison with existing, general purpose simulation software, Cancer Pathway Simulator is specifically developed to model cancer diagnostic pathways, therefore making modelling more intuitive for analysts in the field and producing output directly relevant to decision makers. It also includes unique features such as: stochastic repeated patient appointments, “do-not-attend” probabilities, continuity of care requirements, and tracking of waiting times across multiple pathway steps to account for appointments scheduled in advance.

The tool also supports “what-if” analysis through comparisons of an arbitrary set of model scenarios against a “baseline” version of the model of interest.

Category

Software/Clinical Data Modelling

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