

Paptawan Layaromp 2010: Comparison between Agent-based Simulation and System Dynamics Models for AIDS Infection. Modeling. Master of Engineering (Industrial Engineering), Major Field: Industrial Engineering, Department of Industrial Engineering. Thesis Advisor: Assistant Professor Juta Pichitlamken, Ph.D. 69 pages.

AIDS is an important health and social problem for which many infection control policies exist. Policy assessment and evaluation require historical data and forecasts on the number of AIDS patients. We develop two types of simulation models: System Dynamics (SD) and Agent-Based Simulation (ABS), to forecast the number of AIDS patients during 1997-2005. We compare its forecasting accuracy, benefits and drawbacks. We find that the SD models are more accurate than the ABS ones; with the maximum percentage error of 23%. We show how SD models can be used to evaluate healthcare policies by implementing different AIDS prevention and control policies and compare their effectiveness.

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Thesis Advisor's signature