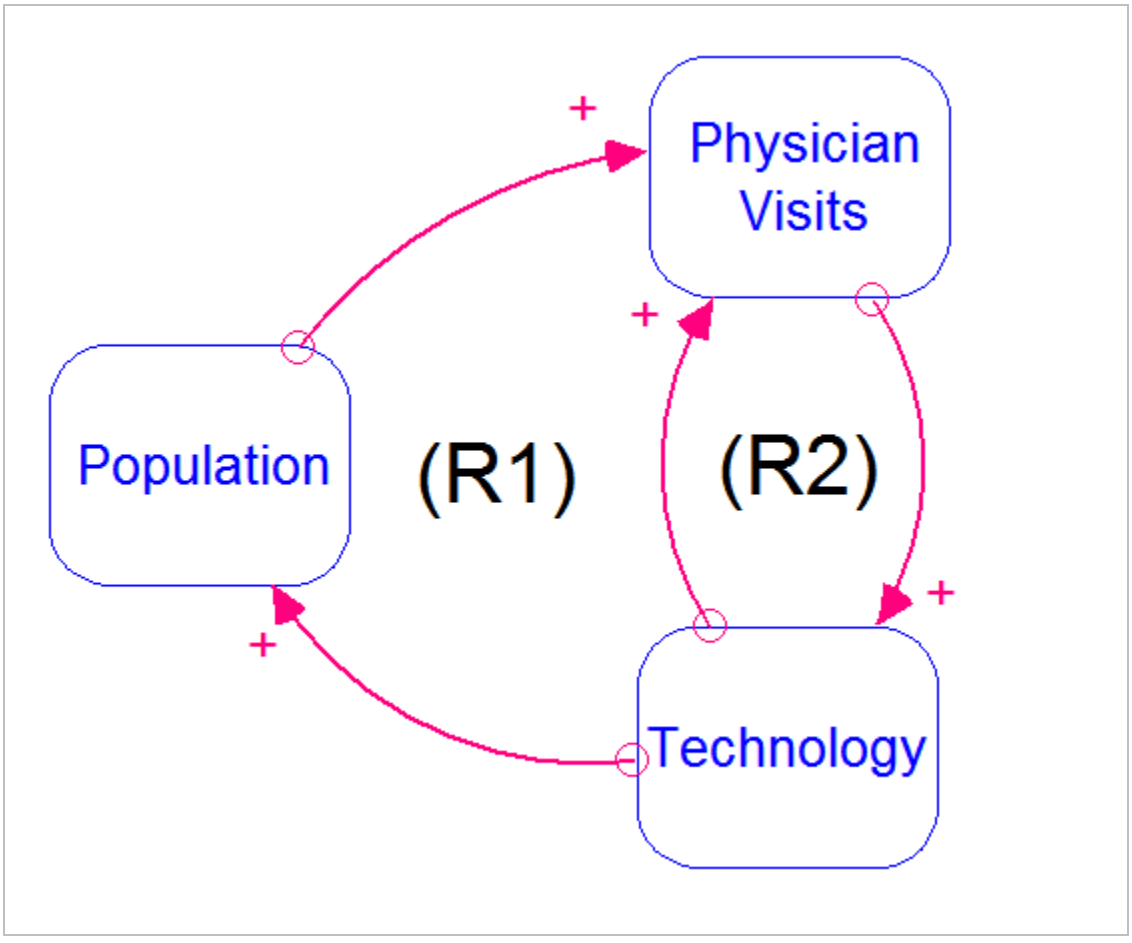
"Getting Started with STELLA and iThink"

International System Dynamics Conference

July 28, 2011

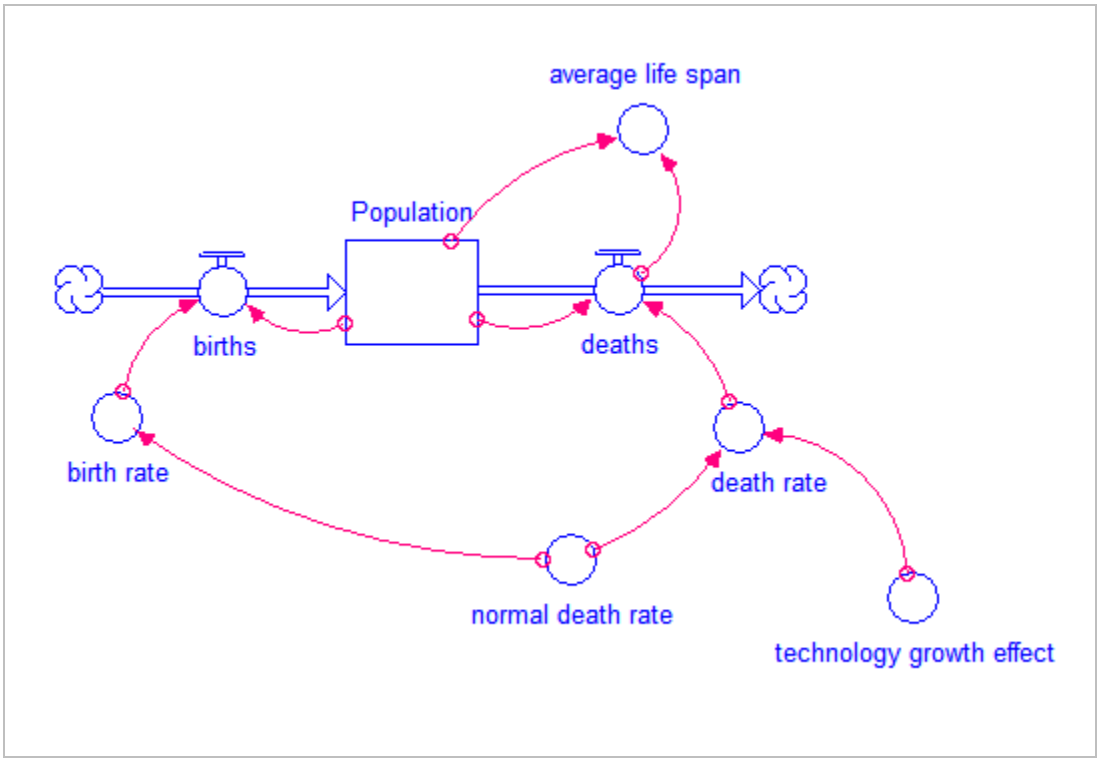
Health Care Dynamics Model 1

(Causal Loop Diagram)



Health Care Dynamics Model 2

(Population Module)



Population = 300000 { in thousands }

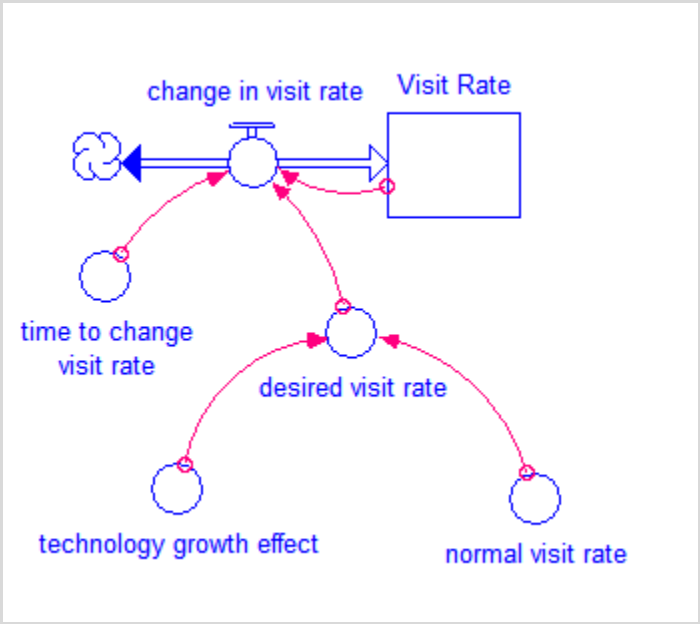
births = birth_rate*Population
deaths = death_rate*Population

normal_death_rate = 0.013 {1.3% per year}
birth_rate = INIT(normal_death_rate)
death_rate = INIT(normal_death_rate)/technology_growth_effect
technology_growth_effect = 1

average_life_span = Population/deaths

Health Care Dynamics Model 3

(Physician Visits Module – Part 1)



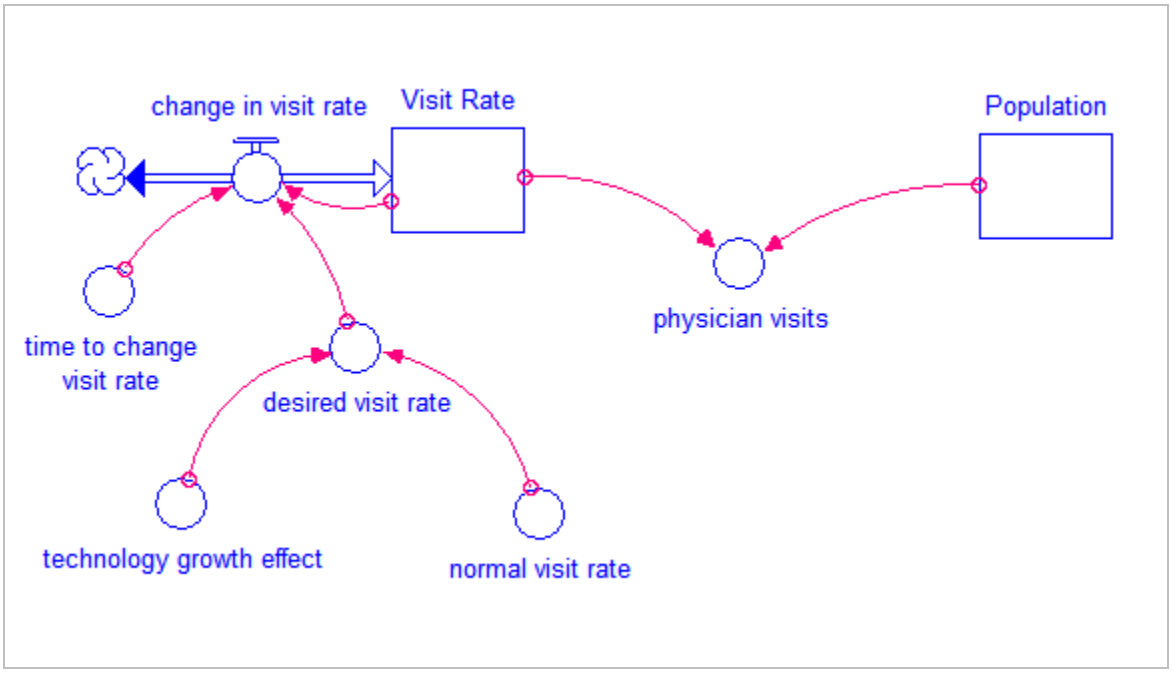
Visit_Rate = normal_visit_rate

change_in_visit_rate = (desired_visit_rate - Visit_Rate)/time_to_change_visit_rate
time_to_change_visit_rate = 1

desired_visit_rate = normal_visit_rate *technology_growth_effect
normal_visit_rate = 3.5
technology_growth_effect = 1

Health Care Dynamics Model 3

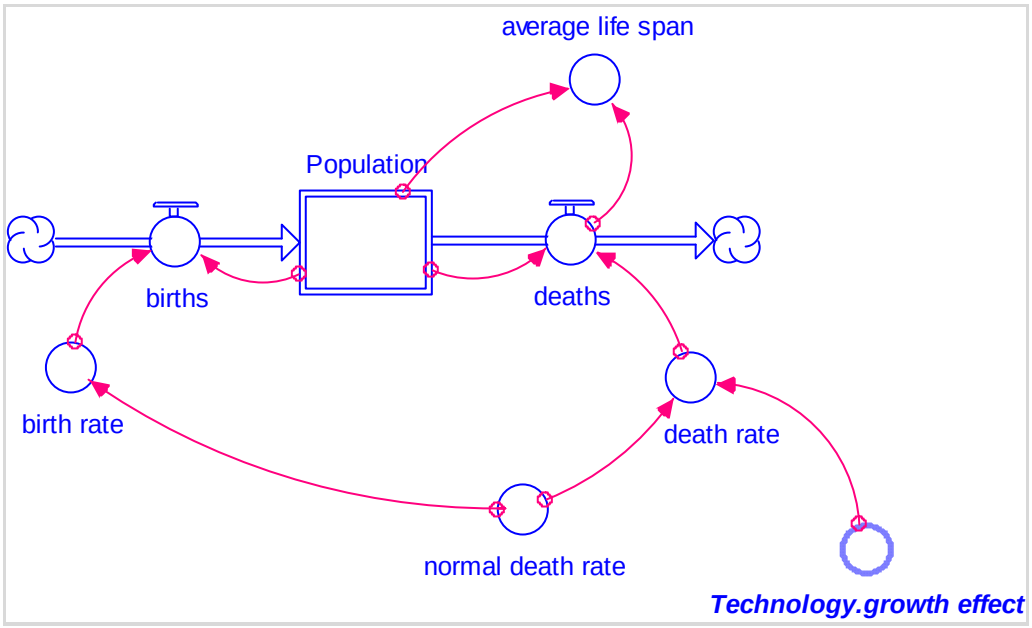
(Physician Visits Module – Part 2)



Population = 300000
physician_visits = Population*Visit_Rate

Health Care Dynamics Model 4

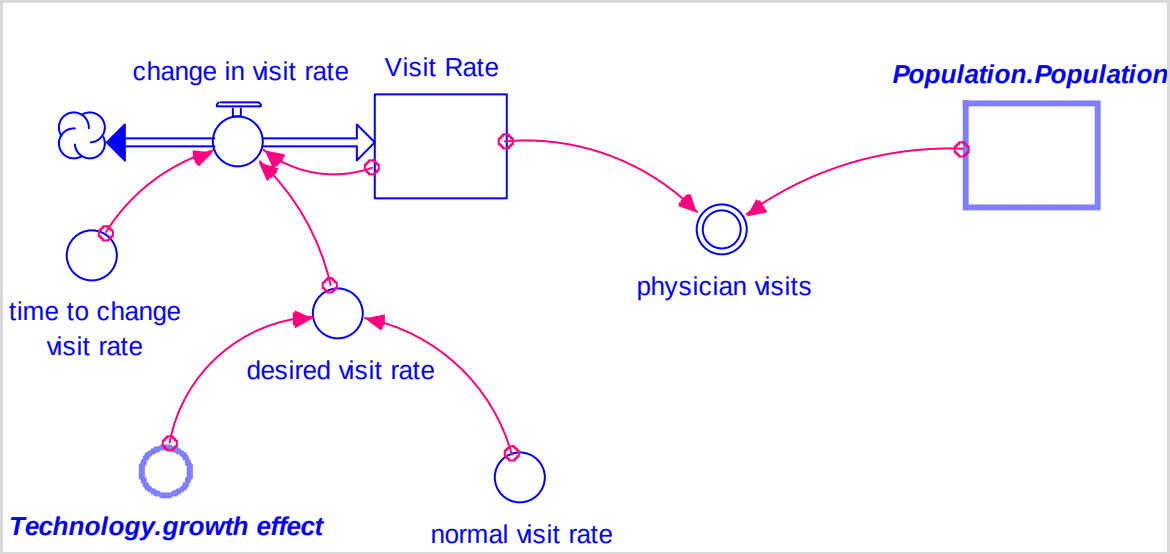
(Module Connections – Part 1: Population)



death_rate = INIT(normal_death_rate)/**Technology.growth_effect**

Health Care Dynamics Model 4

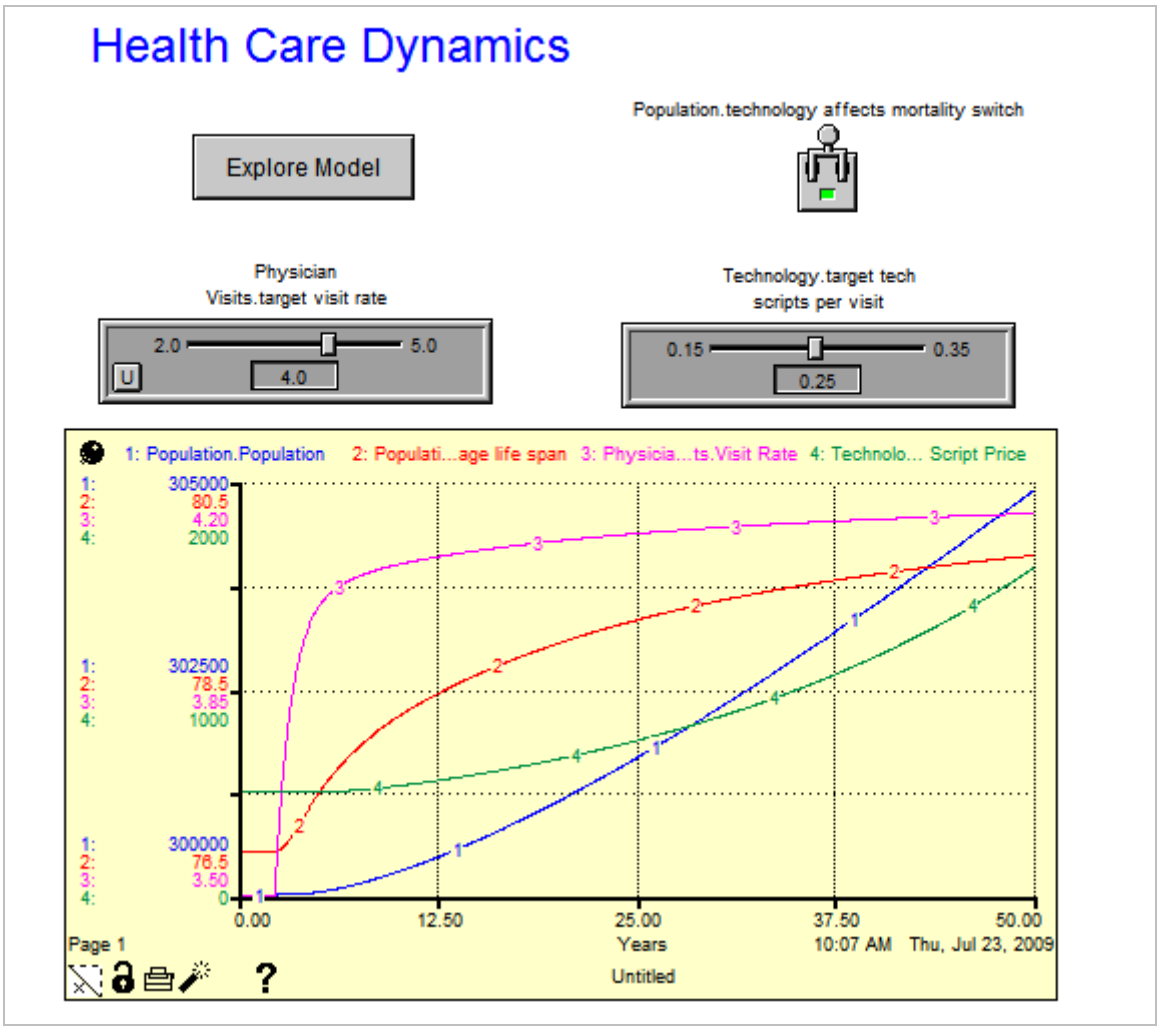
(Module Connections – Part 2: Physician Visits)



physician_visits = **Population.Population***Visit_Rate
desired_visit_rate = normal_visit_rate ***Technology.growth_effect**

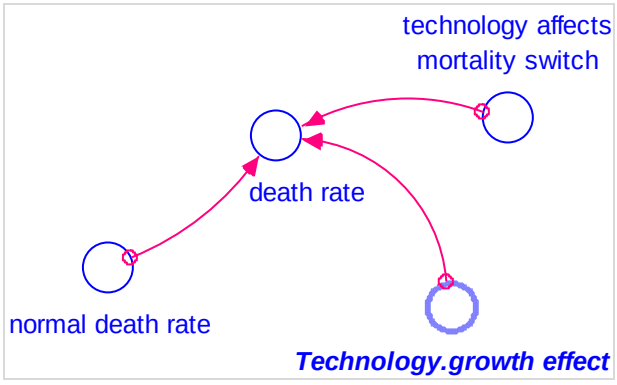
Health Care Dynamics Model 5

(Interface Layer)



Health Care Dynamics Model 5

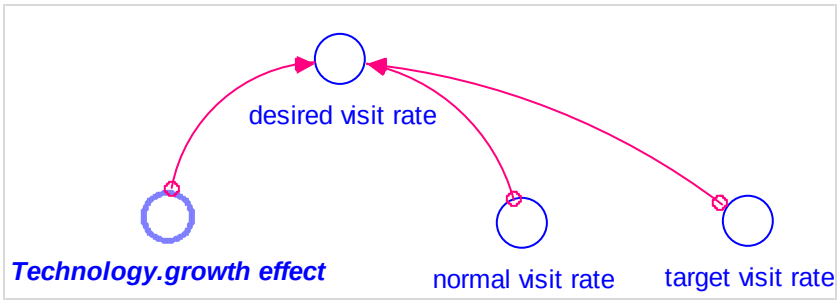
(Model Changes for Interface Layer)



Population module:

technology_affects_mortality_switch = 1

death_rate = INIT(normal_death_rate)/((1 - technology_affects_mortality_switch)
+ technology_affects_mortality_switch*Technology.growth_effect)



Physician Visits module:

target_visit_rate = 3.5

desired_visit_rate = (normal_visit_rate
+ STEP(target_visit_rate - normal_visit_rate, 2))*Technology.growth_effect