



Planning Models for Mass Dispensing and Vaccination Clinics

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Motivation: Emergency Preparedness Planning

In the event of an epidemic or bioterrorism attack, local public health officials may need to treat a large number of people in a short period of time (many thousands per day). To prepare for this event, health officials around the country have created plans for mass dispensing and vaccination clinics, also known as points of dispensing (PODs). These clinics would be set up in schools, churches, and community centers.

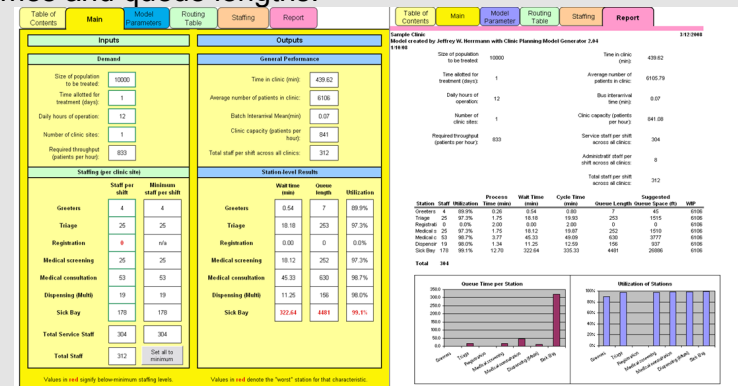


Volunteer "patients" wait in line at smallpox clinic exercise (June 2004).

Project web site:
www.isr.umd.edu/Labs/CIM/projects/clinic

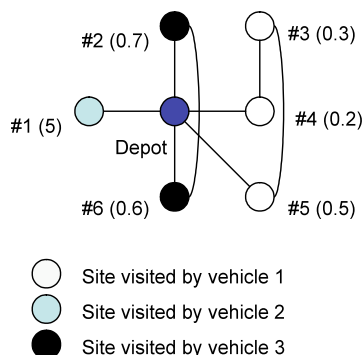
Clinic Planning Model Generator

Using the Clinic Planning Model Generator, public health officials can quickly create a model to estimate the capacity and congestion of a POD. The model is created using Microsoft Excel and uses novel queueing network approximations for predicting wait times and queue lengths.



Continuous-Replenishment Inventory Routing Problem

The CRIRP is motivated by the problem of resupplying PODs continuously from a central depot that has a stockpile of medication. Each vehicle repeatedly follows the same route, starting out as soon as it can after returning to the depot. At each site, the vehicle delivers enough medication to replace what was consumed since the last visit.



Each vehicle has a finite capacity. The problem is to find a feasible solution with the smallest number of vehicles.

We have developed heuristics that find good solutions and are now developing enumerative techniques to find optimal solutions efficiently.

eMedCheck: medication screening on a PDA

eMedCheck is an electronic medication screening form that can be run on a PDA. Using this software, POD staff record basic information about each family member. The software uses decision rules to determine which medication each person should receive. It also records the results for later analysis.

1		2		FOR EACH MEMBER OF YOUR HOUSEHOLD, ANSWER ALL THREE QUESTIONS BELOW.				DECISION MATRIX - STAFF USE ONLY			
LIST ALL HOUSEHOLD MEMBERS FOR WHOM YOU ARE PICKING UP MEDICATIONS TODAY, INCLUDING YOURSELF		A	B	C	Answer A	Answer B	Answer C	Provide			
		Is household member?	Is household member allergic to or shouldn't take any of these?	Is household member allergic to or shouldn't take any of these?	No	No / Dir	No / Dir	Dox	Cipro	Refer	
		Pregnant			Yes / Dir	No / Dir	No / Dir	Dox <td>Cipro <td>Refer <td></td> </td></td>	Cipro <td>Refer <td></td> </td>	Refer <td></td>	
		Breast feeding			Yes / Dir	No / Dir	No / Dir	Dox <td>Cipro <td>Refer <td></td> </td></td>	Cipro <td>Refer <td></td> </td>	Refer <td></td>	
		Under 8 years of age			Yes / Dir	No / Dir	No / Dir	Dox <td>Cipro <td>Refer <td></td> </td></td>	Cipro <td>Refer <td></td> </td>	Refer <td></td>	
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