

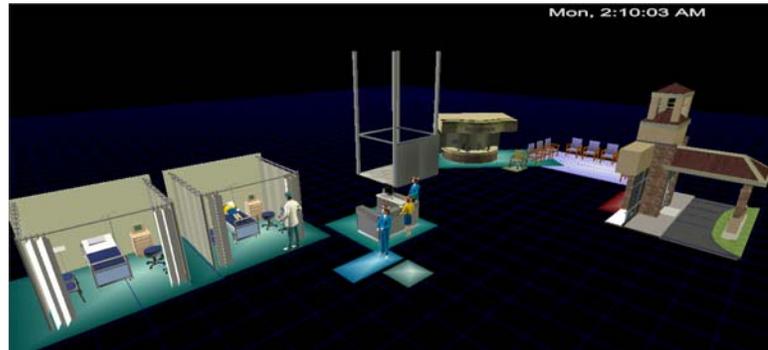


CHOT Summer Healthcare IE Internship Program Summer 2011



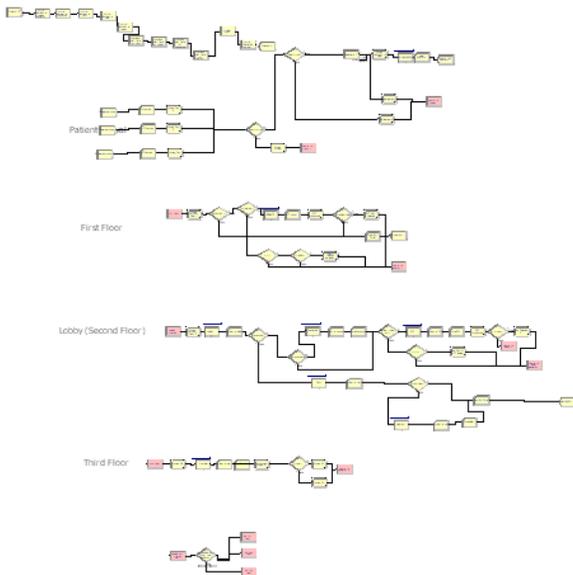
Title: Simulation

Student name: Corey Balint
Organization: CHOT
Project Dates: May - August 2011



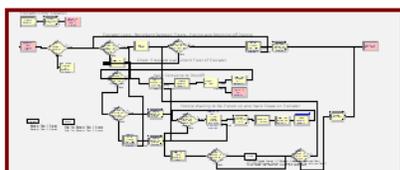
Project focus

Corey Balint began his work in the center in May 2011 working with a focus on a facility that Massachusetts Eye and Ear Infirmary (MEEI) would be building. The focus of the project was to determine if the facility design that MEEI had created would provide optimal flow for their patients through their lobby area as well as monitoring potential areas for bottlenecks in queues. The summer started with learning a new simulation software, Flexsim HC, that would be used to verify an Arena simulation that analyzed the lobby and parking area. While doing this, Corey also updated the Arena model, generated from a queuing network created by other members on the team, to the numbers that most accurately represented the predicted staffing and patient schedules. Over the course of two months he ran numerous variations of the models to generate potential outcomes based off of a few various decision points. Corey also worked on two other projects during the summer. The first had him assisting an undergraduate student with development of a simulation model to study oncology paired with plastic surgery scheduling. The goal of the project was to attempt to create potential scheduling systems where all patients would go through the system in a timely manner and overtime would be reduced significantly. The final project Corey worked on was just in its beginning stages at the end of the summer. A paper on the selection of organ transplant donors had been started previously and Corey is now continuing with its analysis.



Results

Corey's initial flexsim model helped validate the Arena model's findings for Phase 1 of the MEEI project. The additional runs of the Arena model gave MEEI a strong answer that their planned layout should flow well for almost all circumstances and never see a large build-up of patients. The undergraduate student successfully finished his independent study and his work will be used in further studies.



Congestion in lobby at any time

Monday

Time of Day	Best				Moderate				Worst			
	Avg	StdDev	95%	5%	Avg	StdDev	95%	5%	Avg	StdDev	95%	5%
06:00-08:00	0.39	0.91	2.00	0.00	0.41	0.94	2.00	0.00	0.47	1.01	2.00	0.00
08:00-10:00	3.54	2.78	8.00	0.00	3.64	2.81	8.00	0.00	4.28	3.03	10.00	0.00
10:00-12:00	6.51	4.92	16.00	0.00	6.56	4.89	16.00	0.00	7.02	5.13	16.00	0.00
12:00-14:00	4.38	4.19	12.00	0.00	4.48	4.26	12.00	0.00	4.76	4.53	12.00	0.00
14:00-16:00	2.75	2.52	8.00	0.00	2.89	3.15	8.00	0.00	3.01	2.65	8.00	0.00
16:00-18:00	1.64	2.18	6.00	0.00	1.63	2.12	6.00	0.00	1.73	2.34	6.00	0.00

