

Evaluating Dental School Faculty Staffing and Clinical Supervision Using Simulation

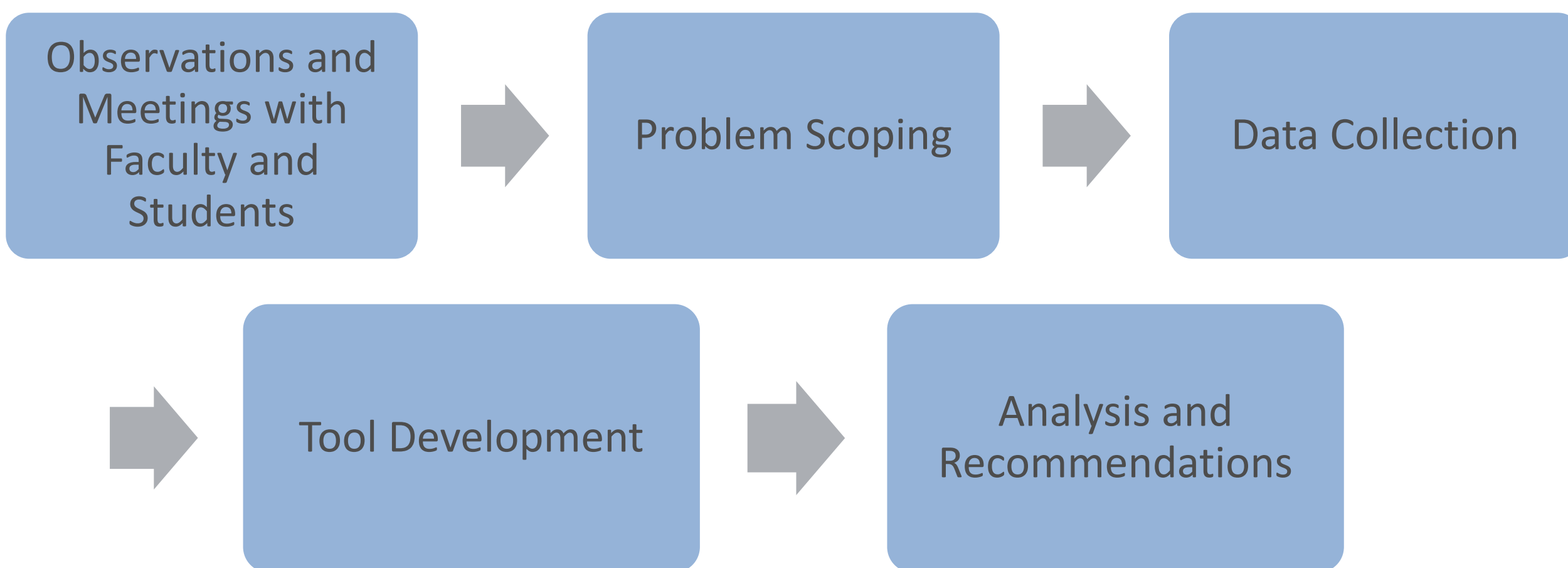
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Problem Statement

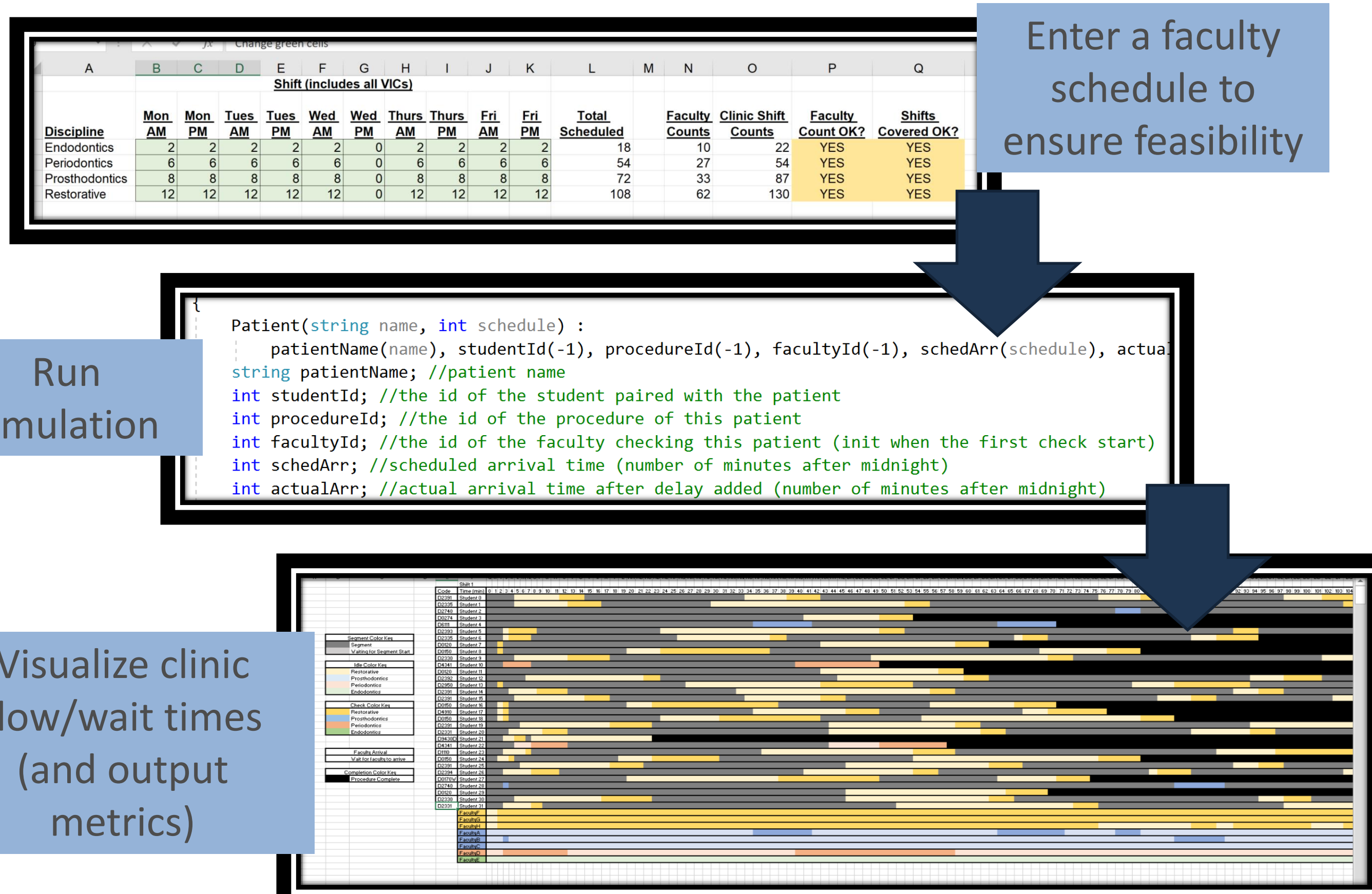
CHEPS engaged with the University of Michigan School of Dentistry (the “dental school”) to develop innovative methods for evaluating faculty staffing decisions. Our analyses intends to better understand how changes in clinic policy affect overall staffing needs in the school. Examples of such changes include number of each discipline type for a shift or how students can request faculty members for checks during visits.

The focus of this analysis is the dental school’s vertically-integrated clinics (VICs), which involve dental students providing care to patients under the supervision of faculty. Faculty members check students’ work periodically throughout the visit, but the way students request faculty members can change. Our simulation models how those request policies impact metrics including patient wait time and faculty utilization.

Methods



Simulation Process



Results

Scenario	Metric	Median
Scenario 1 3 Resto, 2 Prostho, 1 Perio, 1 Endo 0% Faculty Absence FCFS By Discipline	Patient wait time (min)	30
	# Patients per faculty	2
	Patients complete in less than 3 hours	32
	Completed Runs	100%
Scenario 2 – Combine Perio/Endo 3 Resto, 2 Prostho, 2 PeriEndo 0% Faculty Absence FCFS By Discipline	Patient wait time (min)	29
	# Patients per faculty	2
	Patients complete in less than 3 hours	32
	Completed Runs	100%
Scenario 3 – Faculty Absence 3 Resto, 2 Prostho, 2 PeriEndo 16% Faculty Absence FCFS By Discipline	Patient wait time (min)	40
	# Patients per faculty	3
	Patients complete in less than 3 hours	30
	Completed Runs	95.6%
Scenario 4 – Student Pref 3 Resto, 2 Prostho, 2 PeriEndo 16% Faculty Absence Student Preference Requests	Patient wait time (min)	59
	# Patients per faculty	3
	Patients complete in less than 3 hours	22
	Completed Runs	93.9%
Scenario 5A – Staffing Change 3 Resto, 1 Prostho, 1 PeriEndo 16% Faculty Absence FCFS By Discipline	Patient wait time (min)	40
	# Patients per faculty	7
	Patients complete in less than 3 hours	30
	Completed Runs	71.3%
Scenario 5B – Staffing Change 2 Resto, 2 Prostho, 2 PeriEndo 16% Faculty Absence FCFS By Discipline	Patient wait time (min)	81
	# Patients per faculty	2
	Patients complete in less than 3 hours	22
	Completed Runs	92.0%
Scenario 6 – Staggered Start 3 Resto, 2 Prostho, 2 PeriEndo 16% Faculty Absence FCFS By Discipline Apts at 15-min intervals	Patient wait time (min)	28
	# Patients per faculty	3
	Patients complete in less than 3 hours	27
	Completed Runs	94.9%
Scenario 7 – Discipline Deregulate 7 Faculty 16% Faculty Absence FCFS, No Discipline Requirements	Patient wait time (min)	11
	# Patients per faculty	5
	Patients complete in less than 3 hours	32
	Completed Runs	100%

Conclusions and Implications

We demonstrate how changes to faculty checks can have impact on key metrics like patient wait time and faculty utilization. We also provided dental school leadership with visualization tools to better understand how changes to faculty request policies or other clinical assumptions can impact VIC operations. This simulation is one component of multi-faceted decisions that dental school leadership make regarding how to select and schedule faculty members. Other considerations include didactic teaching responsibilities, research, and clinical care that faculty provide to their own patients.

Acknowledgements

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