AN AUTOMATED PLATFORM FOR RESIDENT SCHEDULING

Tejas S. Sathe, MD, Robert Crum, MD, Alexey Abramov, MD, Jake Prigoff, MD, Philip Kim, MD, Sophia Tam, MD, Frank E. Curtis, MD, Beth R. Hochman, MD

COLUMBIA SURGERY INNOVATION GROUP

BACKGROUND

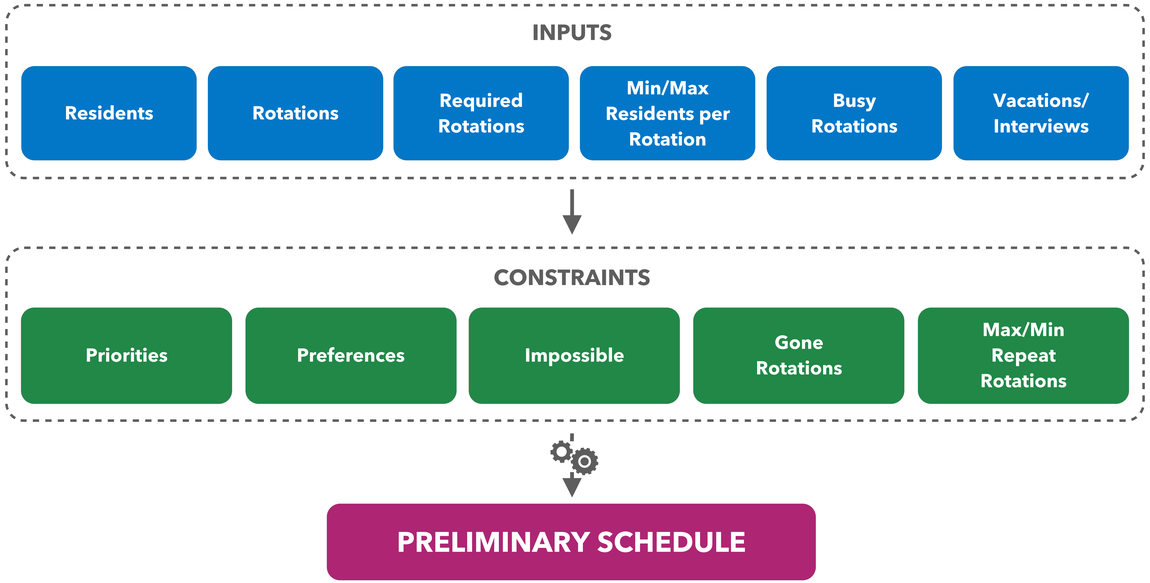
Residency is shift-based work. However, the creation of a residency schedule is far more complex given differences among institutions, the variability in shift length and frequency between residents of each year, and nationally imposed constraints. Currently available scheduling platforms are not user-friendly and cost more than $10,000/year. The job then falls to residents and faculty and is typically done without compensation. Here we describe a basic system for automating residency scheduling that was utilized at our program. We propose that this technology can be scaled into a commercializable platform usable for any shift-based healthcare work.

COLLABORATE

METHODS

We currently have a Microsoft Excel and AMPLE Solver based tool that takes as inputs the rotations specific to a particular residency program, list of residents by year, desired resident complement for each rotation, and dates for each block. Next, the algorithm takes into account program-specific constraints. This tool was applied to construct the 2021-2022 resident schedule for the Columbia University Department of Surgery.

CURRENT SOLUTION



FUTURE DIRECTIONS

User Interface

Our aim is to publish a Microsoft Excel based tool that allows for the automated creation of a residency rotation and call schedule after inputting program-specific information and constraints

Procedure Requirement Data

Incorporate data from case logs and historic volume to ensure equitable distribution of rotations and make adjustments to ensure all residents meet case volume requirements

Adjusting to Unexpected Circumstances

Automatic adjustment for unexpected abscences and changes in resident number as well as support for automatic shift-swaps

Freemium Model

Open-source version of our model with basic functionality that can help any training program and paid version with premium features at a price point significantly less than current offerings