

Increasing Access to Autism Services with Simulation

A Leading Children's Hospital

Success Story

Healthcare

Process Simulator



CHALLENGES

Center for Disease Control (CDC) statistics now show that 1 out of every 110 children have conditions that fall within the autism spectrum. Given that fact and their own trends, a leading children's hospital wanted to increase capacity to care for autism patients. Their autism services consist of a multidisciplinary team of psychiatry, psychology, developmental behavior specialists, OT, PT social work and other resources.

They determined that this situation would be best analyzed with simulation, so based on prior success with ProModel's predictive analytic tools; they decided to deploy the technology again.

OBJECTIVES

Determine the number of additional autism providers needed to have a wait time of 1 month, 2 months, or 3 months, assuming unmet demand for services is 1,500 patients waiting.

RESULTS

Simulation offered the precise quantitative data needed to move forward in the decision making process. It provided a better understanding of the relationship between:

1. Demand of new autism patients and families
2. Predetermined wait time for new patients and their families
3. Availability of a fixed number of appointment slots for autism services

Accurately identifying the relationship among these three factors was pivotal in understanding the impact on patient wait times for an available appointment and establishing the future direction of this institution's autism services.

Analysis of the model output revealed:

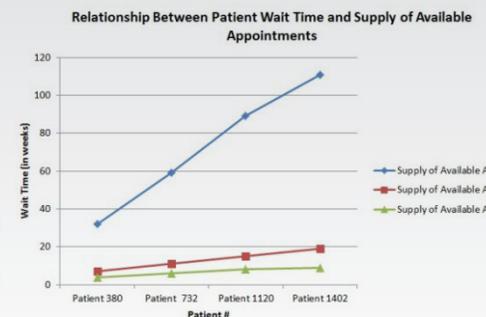
- That wait time for an appointment was based on the relationship between demand, built in wait time, supply of appointments and the point in time when the patient requested the appointment.
- The number of additional appointment slots required to increase access to Autism services.
- Patient access time could be contained by reducing the built in wait time for appointments and adjusting the supply of available appointments as closely as possible to meet the demand volume of new autism patients.

Autism Integrated Capacity Simulation

Findings:
3 Factors influence wait time

*Demand Volume
*Built in wait time for an appointment due to administrative functions or family availability
*Supply of Available Appointments

Reducing built in wait time for appointments and adjusting the supply of available appointments as close as possible to the demand volume, will go a long way toward decreasing patient wait times.



Assumptions for Above Graph: *Demand = 30 patients per week *Built in wait time of 2 weeks per patient

*NOTE: This is generic data, applicable to any institution. The analysis is for the supply of new patient available appointments only. It does not take into account slots for patients already scheduled, patients on waitlist, or patients in process.

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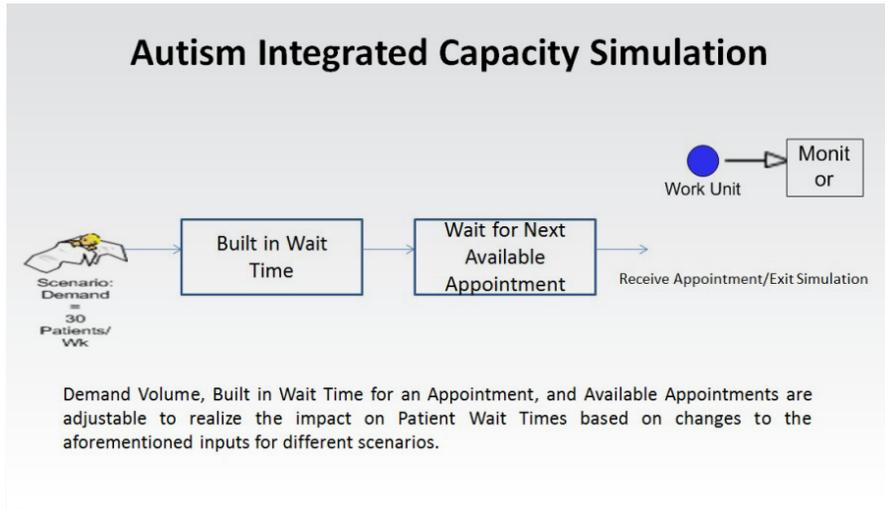
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SOLUTION

A predictive analytic model was built in ProModel's Process Simulator. Multiple scenarios were created and run to assist decision makers in visualizing how to best schedule new patients entering the system. Key output reports of each scenario enabled the autism leadership team to accurately predict the impact of simultaneously changing 3 key variables that were influencing patient wait times:

1. Patient demand
2. Length of 'built-in' wait time for appointments
3. Supply of available appointment slots



The model allowed them to:

- Test various strategies by changing the values of the aforementioned variables with the resultant effect on wait times
- Determine how to compress any built in wait time for administrative tasks & increase the number of appointment slots for Autism patients

By running various scenarios through the model, the leadership team was able to understand how each of these variables interacted and allowed them to quickly narrow their options down to one verifiable solution. The model clearly illustrated the impact of patient demand, appointment slots and built in wait time for an appointment on patient access wait time by creating a visual and data driven representation.

The objective data helped the Autism Services Management Team come to a consensus on the plan to be presented to the hospital leadership team. This quantitative solution gave senior administrators the confidence to approve the proposed changes so they can meet their defined goals of providing increased access to high quality and timely autism care for their patients and families.

Additionally, the simulation model was designed such that it can be easily adapted for solving other clinical access to service challenges throughout the institution.

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