Army Behavioral Health Shortens Patient Wait Times and Improves Facility Utilization

Army Behavioral Health

Success Story

Healthcare

MedModel

CHALLENGES

With an increase in behavioral health injuries and stress-related disorders due to war-related experience post deployment, a medical facility for the US Army wished to improve the treatment and health of soldiers and have them return to full duty more efficiently and effectively. However, wait time for walk-in patients often exceeded 120 minutes resulting in patients leaving the facility without being seen. In addition, patients with appointments were seen once every three months, on average. Complicated patients were treated in-house due to the potential for a Medical Evaluation Board (MEB), while uncomplicated patients were directed to the network so that they may be returned to full duty sooner. Before a MEB decision can be made, patients require 5-7 therapeutic sessions over a period of 8-10 weeks. The existing MEB time line averaged about 18 weeks. Space constraints also limited the number of providers able to see patients. The facility needed to find a method to improve its system in a non-disruptive, low-risk manner.

OBJECTIVES

- Ensure no patient leaves without being seen (early departures)
- Shorten time between appointments for individual patients
- Reduce patient waiting time
- Arrive at an MEB decision earlier than 18 weeks

Department of Behavioral Health Innovation Study --- Psychiatry/Psychology Services
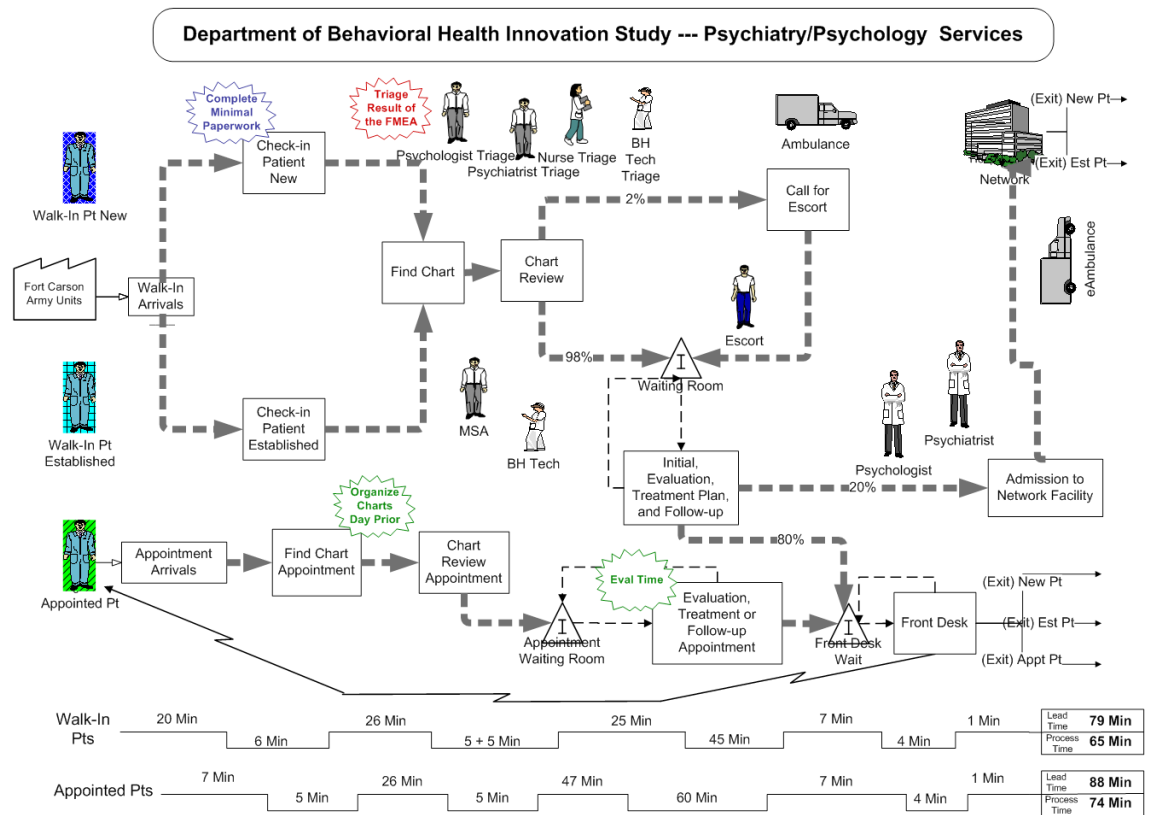
SOLUTION

Value stream maps in ProModel's Process Simulator modeled the current treatment process at the facility. The team ran several Virtual Kaizens to identify issues and test opportunities. A study of the patient treatment process revealed key metrics about walk-in and appointment patients and was presented to leadership as a visualization of the process. The process included testing 10 scenarios concurrently involving increased resources as well as increased demand.

Major Data Inputs	
# Psychiatrists (Base Case)	4 Providers (not included in Triage Team)
Psychiatrists Utilization Rates (88%)	63% Direct Pt Care, 25 % Required Tasks, 12% Available
# Psychologists (Base Case)	5 Providers (not included in Triage Team)
Psychologists Utilization Rates (86%)	62% Direct Pt Care, 24 % Required Tasks, 14% Available
# Walk In Patients per Day	Poison Distribution w/Avg of 22 (New & Established)
# Appointments per Hour	9 Soldiers (Base Case Demand) Normally Distributed
Duration of Appointments (in minutes)	Triangular Distribution (30, 60, 75)
Time Between Appointments	3 Weeks Normally Distributed
Triage Team Members	1 Psychiatrist, 1 Psychologist, 1 Nurse Practitioner, & 1 Behavioral Health Specialist

The base case scenario demonstrated that provider utilization rates of 88% and 86% allowed for no reconfiguration of imbedded processes. Ten scenarios were created and simultaneously run to identify optimum capacity (see Average Simulation Cycle Times table). The unconstrained and two or few resource scenarios were included to encompass a range of perspectives. Any scenario taking longer than 118 minutes was not considered. Five selected scenarios were compared, with Scenario 7 being the optimum considering both cycle time and cost.

Scenario	Average Simulation Cycle Times (20 weeks with 10 scenarios for 200 runs)	
1	Base Case (9 Pts/Hr & 9 Resources) --- white bars	118 Minutes
2	Unchanged Patients & Subtracting 1 Resource --- yellow bars	141 Minutes
3	Adding 1 Patient & 1 Resource	119 Minutes (Not Shown in Chart)
4	Adding 1 Patient & 2 Resource	111 Minutes (Not Shown in Chart)
5	Adding 1 Patient & 3 Resources	103 Minutes (Not Cost Effective, Not Shown)
6	Adding 2 Patients & 2 Resources	120 Minutes (Not Shown in Chart)
7	**Adding 2 Patients & 3 Resources** --- green bars	**110 Minutes**
8	Adding 3 Patients & 3 Resources	120 Minutes (Not Shown in Chart)
9	Adding 3 Patients & 4 Resources --- blue bars	113 Minutes
10	Unconstrained Res (30) & Base Case Demand --- pink bars	96 Minutes

VALUE PROVIDED

The simulation proved to be an accurate, low risk representation of the current state of the Behavioral Health Facility. The facility established a triage team (three more resources) from current staffing. This team enabled the treatment of two more patients per hour without hindering current work flow. In addition, patient waiting time has been reduced to less than 30 minutes and there are no patients leaving without being seen.

Further objectives were met, including reducing patient cycle time by an average of eight minutes per hour, thereby saving 64 minutes per day. Time between appointments was also reduced and patients may now be seen every two and a half weeks rather than every three, thus achieving a 14 week MEB decision point, considerably less than the 18 week previous timeline. This scenario also proved to be the best cost alternative option given space constraints within the facility. Finally, implementing this change revealed better controlled provider utilization times, allowing for the future study, potential reconfiguration, and optimization of the embedded treatment processes in Behavioral Health.