Software Takes the Guesswork Out of Process Improvements and Staffing for UnityPoint Health

**Challenge**
- Reduce the amount of time spent on administrative tasks, while meeting increasing insurance-provider demands and changing staff roles
- Maintain consistently high results in patient satisfaction and Great Places to Work survey

**Solutions**

**Simulation Software**
- Simulated four staffing and floor-plan models to determine best approach for the clinic
- Implemented modified administrative processes and floor-plan layout throughout the clinic based on Arena simulation and modeling software findings
- Altered staffing plan to optimize schedules and maximize budget allocation

**Results**

**Identified Annual Cost-savings**
- Located consistent over budgeting of staff
- Reallocation of resources saved $42,000 annually

**Process and Work-flow Improvements**
- Added improved work-flow processes to optimize staff and resources
- Eliminated unnecessary time spent on repetitive administrative tasks

**Background**

UnityPoint Health is well-known in the health care industry for its commitment to outstanding patient care and for providing an award-winning workplace for its employees. UnityPoint Health is the fifth largest non-denominational healthcare system consisting of nine regions of affiliated hospitals within Iowa, Illinois, and Wisconsin. Located in central Iowa, Blank Child and Adolescent Psychiatry Clinic, specializes in the treatment of adolescents who suffer from anxiety, autism and other mental health conditions.
**Challenge**

One primary factor of Blank Psychiatry’s success is its ability to minimize patient wait times – despite the fact that the clinic continued to utilize paper charts to track patient care. More than 2,000 charts were kept down the hall from the administrative team in a locked chart room and were housed in three dual-sided cabinets. The administrative team and nursing staff typically worked together to prepare and complete the charts.

By 2012, Blank Psychiatry’s patient list expanded and the clinic’s staff struggled to complete even basic administrative tasks. When a new insurance provider signed on to the clinic, workloads continued to increase and added one more step to the administrative process.

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The need for refreshed and optimized administrative processes, modified staffing and an updated floor plan was evident.

Blank Psychiatry needed to reduce the time spent on administrative work and increase the amount of time staff was available for live phone calls and real-time patient interaction. Management wanted to more efficiently use resources without sacrificing the quality of the working environment. Blank Psychiatry consistently received exemplary results in the Great Places to Work survey, so it was imperative that patient wait times and staff utilization were maintained in order to avoid any regression.

**Solutions**

Based on UnityPoint Health’s previous use of and success with Rockwell Software® Arena® simulation software from Rockwell Automation, Blank Psychiatry decided to simulate and test different environments using the software to identify the most efficient for operations in its clinic. Arena software could analyze the impact of new, “what-if” business ideas, rules and strategies prior to their implementation, which enabled UnityPoint Health to test different environments before physically implementing any changes.

In order to properly use the software, Blank Psychiatry staff needed to gather all of the resources, schedules, process modules and rules to build a realistic virtual environment. The team began by identifying four potential models that they wanted to test.

1. **Keep as is** – This environment tested the current state of things, without making any changes to the processes or procedures.

2. **Change how processes were managed/No changes to staff** – This model was designed to eliminate the occurrence of miscellaneous work and redundant tasks. The processes to be tested were identified through a series of small group meetings where specific processes and suggestions for improvement were discussed, and then incorporated into the model. No modifications to staffing were implemented.

3. **Add one physician** – This simulation was modified to include the addition of another doctor and their proposed schedule with no other changes to processes or staffing. Staffing and resource utilization was analyzed to determine how team members were strained by the addition of another doctor without the addition of another administrative staff member.

4. **Add one physician and two part-time staff** – This model was again modified to include the addition of another doctor and their proposed schedule, but also included the addition of a part-time administrative staff member and a part-time nurse. Each of the part-time staff members’ schedules were adjusted in the simulation to find a balanced solution that reduced and smoothed out utilization of all staffing resources.

Once Blank Psychiatry had mapped out the four potential scenarios, the team identified and mapped the seven processes to test within each of the models.

1. **“Beginning of the day” work** – These activities include checking the Televox for a log of patients who accepted appointments; checking phone lines for refill requests, referrals and messages; refiling charts and loose papers; collecting any necessary documents for the doctors; checking emails; and ordering supplies.

2. **Refills and referrals** – In the case of a refill, an administrative team member will pull a patient’s chart and a refill sheet for the nurse, who then completes the prescription for the doctor to review. The doctor then reviews and signs the prescription, and returns the patient’s chart to the administrative team to refile and submit where necessary. In the case of a referral, the administrative team begins by pulling a patient’s chart for a nurse to review. The nurse then hands the referral to a doctor for a final review. The doctor chooses to accept or reject the referral, and hands the file back to the administrative team to either schedule an appointment or issue a rejection letter.
3. **Chart preparation** – This begins 10 days prior to a scheduled appointment. The administrative staff pulls a patient’s chart to verify insurance and then gives it to the nurse for review and completion of the necessary forms. Lastly, the chart is handed back to the administrative staff to file for the upcoming appointment.

4. **New patient visit** – A new patient arrives and checks in at the front desk where they are given general information and insurance forms to complete. The patient then visits with a nurse to walk through their information, after which the nurse briefs the doctor on the patient while the patient waits. The doctor then spends some time with the new patient until the appointment concludes. The patient will then check out at the front desk, and a nurse is expected to complete a follow-up phone call within a week and half of the first visit.

5. **Established patient visit** – A patient arrives and checks in at the front desk, where they complete any necessary paperwork. The patient then visits with the nurse, and eventually the doctor. When their appointment concludes, they check out at the front desk.

6. **Posting charges** – Charges are entered by administrative staff into a software program based on the type of service that the provider has indicated were given to the patient.

7. **Processing edits and denials** – A front-end user system with a “queue” or work is maintained by front-office staff. They must provide documentation to detail cases in which the clinic was denied payment by an insurer.

By assessing these processes and work flows within a simulated environment, the clinic’s team could identify opportunities for improvement without disrupting the actual work environment with a trial-and-error approach.

The basic process module within the Arena software estimated time ranges and necessary resources (staff required, rooms, etc.) for each step in the process. These time ranges were evaluated to determine the average time spent in each area and to identify areas where long shifts were occasionally needed to complete a task. Real schedules of patients for a typical five-day week were added, and variations in patient arrival time were mapped out to build a realistic scenario.

Each individual model was tested over 10 times with each replication spanning a five-day week. The software produced output reports with patient wait times, patient time in the system, scheduled utilization of resources and other key indicators. The 10 replications were then averaged to provide a realistic point of comparison for each task between the four models.

By employing Arena software, Blank Psychiatry was able to streamline staffing decisions and optimize patient care.
Results

The simulation data found that Model #4 – Additional Physician and Changes to Staff, created the most efficient system by adding two additional part-time staff to the clinic in a challenging financial environment. The scenario recommended adding a full-time physician and part-time positions for a nurse and administrative staff member whose schedules would be coordinated with current staff. It was found that this would maintain or reduce patient wait times, balance current staff schedules, and earn the clinic an annual $42,000 cost savings by identifying times in which staff was over-budgeted and not necessary to maintain the patient experience.

Through a series of short “lunch-and-learn” meetings with small groups of administrative staff and nurses, the Arena team uncovered the need for additional floor space. Armed with data from the Arena simulation, the team was able to work with administration and constructions teams to create a plan to modify the clinic layout. Updates included the addition of a chart room behind the administrative office, eliminating travel time to and from the old chart room, and a quiet waiting room for anxious or aggressive patients.

The time commitment in conducting the Arena simulation could be weighed against the cost for the hourly rate of the process improvement work, but the strategic benefit of creating a culture of improvement far outweighed the small hourly commitments given to the project. Additionally, the Arena simulation models were created to be easily modified and will be used in other areas of the UnityPoint Health system to simulate change processes in the future.

The results mentioned above are specific to UnityPoint Health’s use of Rockwell Automation products and services in conjunction with other products. Specific results may vary for other customers.

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