University Medical Center Case Study

Reducing turnover by 12% strengthens staff spirit, improves patient care, and saves $1.27M annually

THE HEALTH SYSTEM

As the flagship medical center of a state-wide university medical system, this center is comprised of 2 urban campuses containing a total of 1,100 beds. The center admits ~35,000 patients annually and performs over 400,000 outpatient visits. At the forefront of innovations in critical care across numerous specialties, this center has won awards for both its patient care and its workforce operations. It is in the top 10% of hospitals nationwide in achieving the prestigious Magnet designation for nursing excellence, as recognized by the American Nurses Credentialing Center.

CHALLENGE

Despite the center's implementation of best practices in training and supporting the nursing and frontline staff, **42% of these essential staff members were leaving or terminated within the first year of hire.**

The financial cost of this turnover varied from over **$40,000 for nurse positions to $10,000 for medical technician positions to under $5,000 for dining service, administration, and housekeeping roles**. The impact of turnover, especially as it began increasing year-over-year, concerned the medical center's leadership. Multiple research studies and anecdotal evidence indicated that turnover leads to increased employee fatigue and burn-out as staff members struggle to provide quality care in the face of vacancies, over-time, and longer shifts.*

$1.27M
SAVED ANNUALLY
applying Arena's predictive analytics to 1,300 hires/year

COST OF TURNOVER

JOB TITLE	COST
Nurse (RN)	$40,000+
Medical Technician	$10,000
Dining, administration, housekeeping, etc.	$5,000

SOLUTION

The medical center decided to address turnover at the source – by investing in data analysis that would identify the job candidates who were most likely to thrive in specific departments, teams, roles, and shifts. As a busy health system with limited available resources to develop an internal predictive analytics engine, the medical center opted to partner with Arena Analytics. Scores of Green-Yellow-Red for each job candidate would appear within their Applicant Tracking System (ATS). This would help recruiters and hiring managers understand the likely retention of each applicant with

respect to a specified open position. All the technical work and integration was done by the team at Arena, in communication with a contact at the health system's ATS.

As a seamless part of the application process, job candidates completed Arena's 7-minute questionnaire. This technology analyzed the job candidate along with the local labor market. Algorithms that continually improved in response to data feeds from the health system generated retention predictions for each applicant aligned to different open positions.

*Perry, S., Richter, J., & Beauvais, B. (2018). The Effects of Nursing Satisfaction and Turnover Cognitions on Patient Attitudes and Outcomes: A Three Level Multisource Study. Health Services Research, 53(6), 4943–4969.

RESULTS

Arena Analytics measured the impact of its predictive analytics platform on worker turnover by comparing two metrics:

1) PRE/POST

The percentage of *all** new hires turning over (in a given timeframe) pre-Arena and post-Arena implementation.

360–Day turnover rates are calculated by analyzing all the staff who were hired at least a year ago for roles scored by Arena's platform:

360–DAY (1 year) **TURNOVER** $=$ $\dfrac{\text{\# of resignations and terminations, of workers hired 12–18 months ago}}{\text{Total \# of workers hired 12–18 months ago}}$
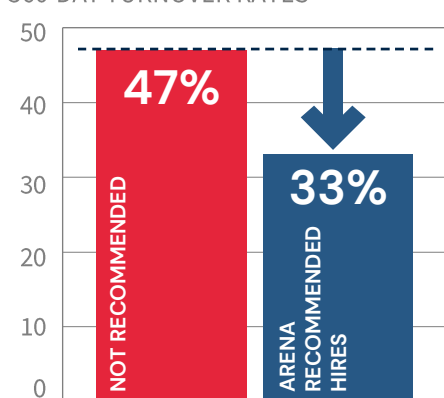
POST ARENA
↓ **12%**

360-day turnover rates declined from **42% pre-Arena implementation to 37% post-Arena implementation.**

2) RECOMMENDED/NOT RECOMMENDED

360-DAY TURNOVER RATES

47% — NOT RECOMMENDED

33% — ARENA RECOMMENDED HIRES

POWER OF PREDICTIONS

14

Percentage Point Difference

Arena's Efficacy of Predicting for Retention

Comparing the 360-Day Turnover rates of the new hires who Arena recommended as Likely-to-be-retained with the turnover rates of the new hires who Arena predicted as Unlikely to-be-retained

'All' refers to all the hires made into positions for which Arena is evaluating candidates. In this case, All refers to roles in nursing, clinical/pharmacy technician roles, patient care aides, food services, housekeeping, administration, and security services.

3) CALCULATING SAVINGS

Taking a milestone such as '360 day turnover' provides a clear number of replacement hires needed to fill the same position twice within a year. In this case, a 42% '360 day turnover' translates to replacing 42% of staff within 12 months of their hire date. Looking back 12 months from today, 1,267 people were hired at the medical center into roles that Arena scores for retention. Using this number as a baseline, savings are calculated below.

PRE–ARENA
42%
TURNOVER

POST–ARENA

708
REPEATED HIRES

X

$15K/hire
AVERAGE REPLACEMENT COST

=

$10.62M
TURNOVER COSTS

12%
REDUCTION

+$1.27M
SAVED ANNUALLY