

RESEARCH

# SCHEDULING RESILIENCY



OUTCOMES OF SUBMITTING  
BALANCED NURSE SCHEDULES

## Scheduling Resiliency: Outcomes of Submitting Balanced Nurse Schedules

What effect does the schedule balance at time of submission have on outcomes?

### Volume Forecasting

Building nurse schedules can be a complex and time-consuming process. With a lot of moving parts and circumstances to take into consideration, determining the right amount and types of staff needed can change up until the start of a shift.

Healthcare organizations have turned to advanced technology to improve and streamline the process. Predictive analytics can greatly improve the accuracy of nurse scheduling through volume forecasting if it is used correctly.

For example, in the Avantas methodology, 60 days out from a shift the prediction is within one staff member that is actually needed 96 percent of the time. By 24 hours in advance this increases to 98 percent. This degree of accuracy greatly improves nurse managers' resource planning efforts.

### Volume-Based Scheduling

The value derived from beginning a multiple-week work period with a balanced schedule cannot be overstated. Establishing the correct number of core staff in a facility relative to each unit's forecasted demand and then scheduling staff in correlation with that demand reduces instances of over or under staffing.

Aligning schedules according to predicted demand helps reduce instances of cancellations, which is a known staff dissatisfier.

Balancing a schedule involves aligning resources according to projected volume, reaching the maximum fill rate possible on each shift. A balanced schedule also includes scheduling staff to their FTE and any other commitments such as weekends and holidays.

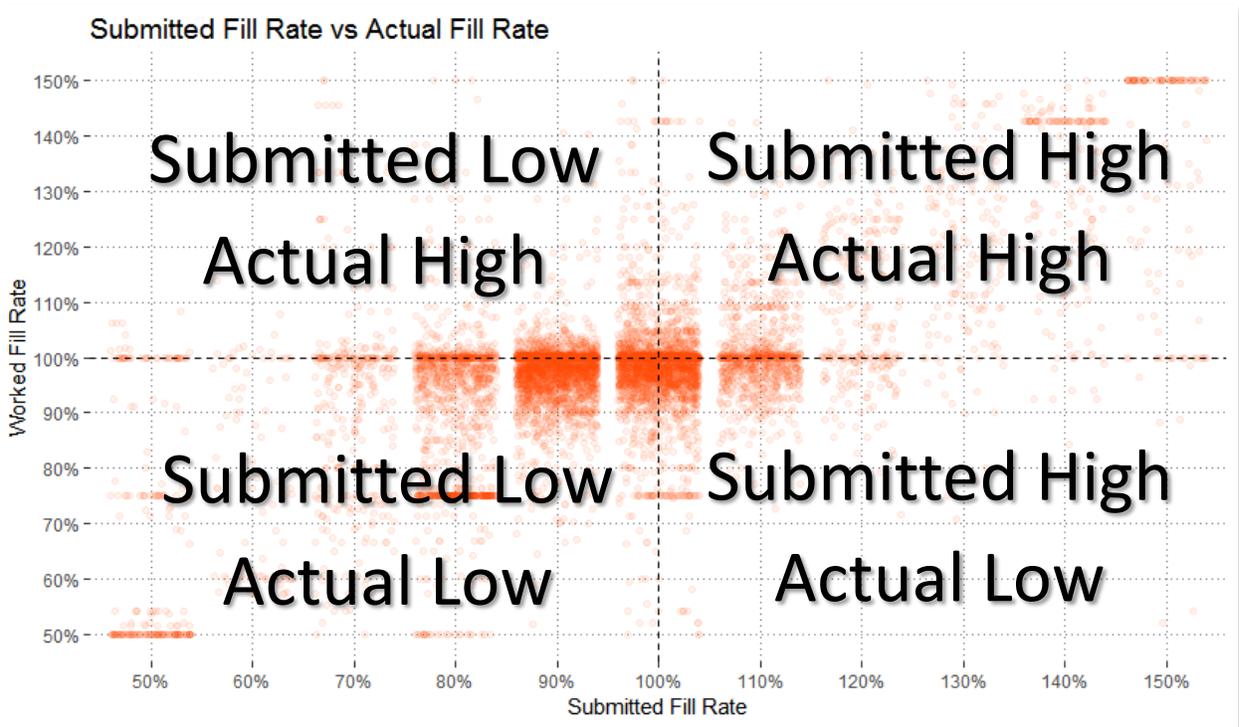
Avantas thinks of fill rate simply as the staff you have versus the staff you need for a shift.

### Submitted Fill Rate vs. Actual Fill Rate

In 2018, Avantas conducted a study of three healthcare clients to analyze the outcomes of balanced scheduling at the time of submission. Data was collected from inpatient nursing units (focus only on licensed nursing staff). The study found that while all organizations try to schedule the right amount and type of staff needed for demand, each have their own strategies to get there.

Initial findings are straightforward: poorly submitted schedules tend to result in poor fill rates, more core employees in overtime and extra hours, more cancellations, and more schedule changes.

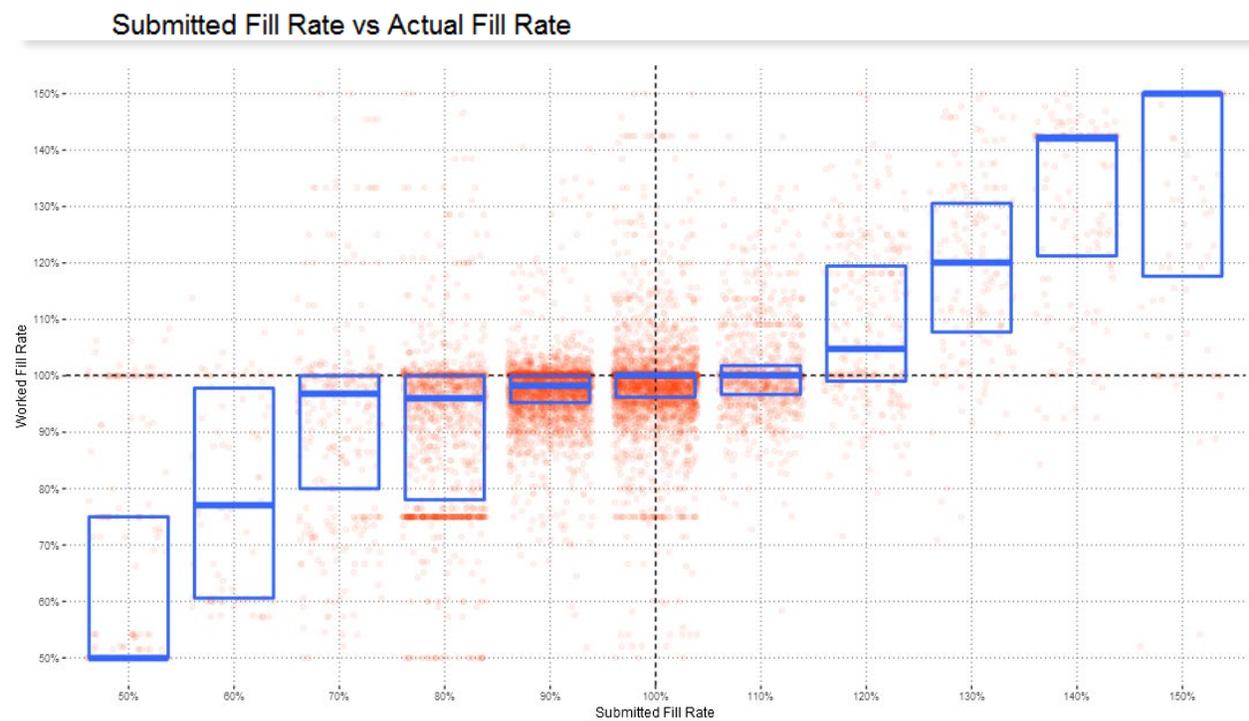
## How to interpret the charts on the following pages



The chart above represents submitted fill rate versus actual fill rate. The top left quadrant shows the instances of schedules submitted with a low fill rate, when the actual worked fill rate was high – this occurrence would indicate they understaffed and needed to call in resources. The top right quadrant shows instances of submitted high fill rates, and actual high fill rates – indicating overstaffing. The bottom left quadrant displays a low submitted fill rate, with

instances of an actual low fill rate (understaffed at time of submission and actual shift). And, the bottom right quadrant shows submitted high fill rates, and actual low worked fill rates – initially overstaffed then called off at time of shift. In the example above, the majority of instances hover around the intersection of 100% submitted fill rate and 100% worked fill rate, which would represent a perfectly staffed schedule.

## Client A



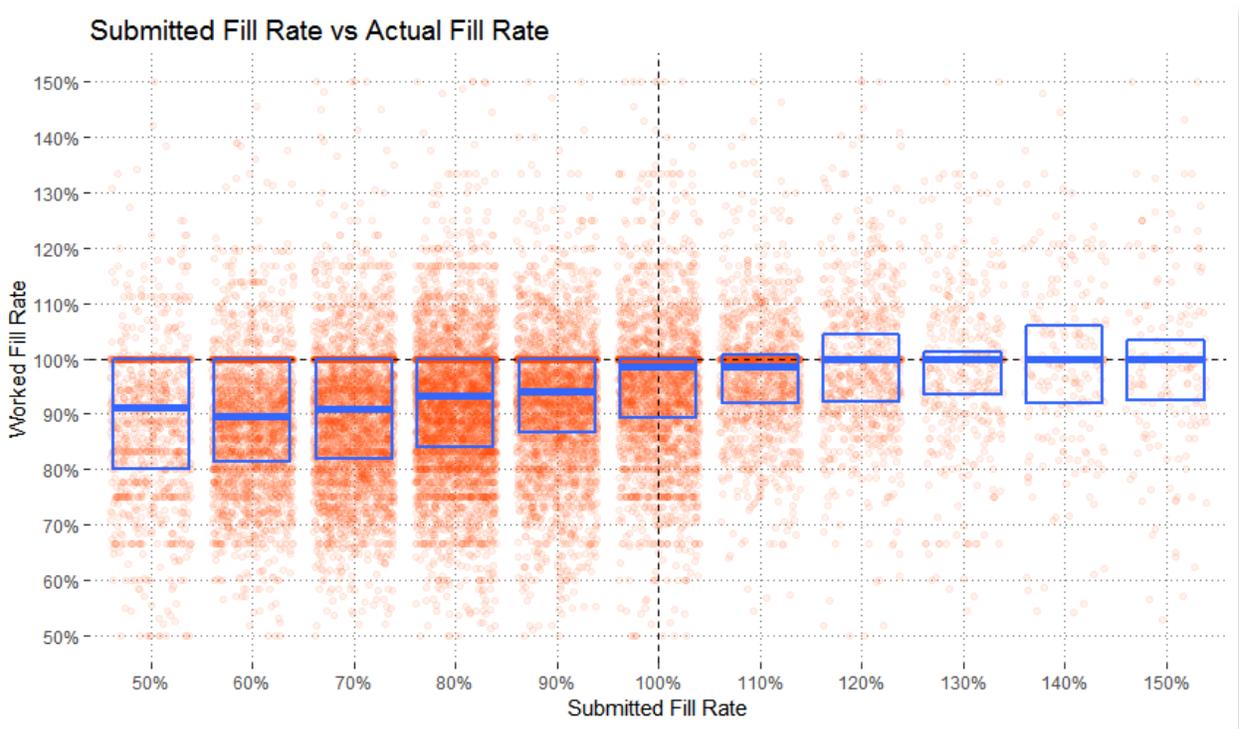
Client A does a good job of scheduling to demand, but often needs to call on overtime to make up the gap when they under schedule. Their average submitted fill rate is 95.2%, with their actual fill rate averaging 97.7%.

Most of the time, this client is able to end up near 100% fill rate. But what about those days they do not balance, or are unable to due to staffing constraints? When they under schedule

up front they end up short staffed on the day of the shift. Or, if they initially over schedule, they end up with more staff than what is needed. They average 7.2% shifts in overtime while trying to fill those gaps they did not initially schedule to.

In general, Avantas considers overtime above 3% of total scheduled hours to be of concern.

## Client B



Client B is more resilient. This client often under schedules to the predicted need, but is able to recover by the start of the shift. Their average submitted fill rate is 84.7%, with 93.7% as their actual fill rate.

If they submit lower balanced schedules, they are typically able to recover by the day of the shift. How do they do this? They have a large

float pool and open shift utilization, which is likely why they do not rely much on core staff in overtime and extra hours. Their overtime rate was the lowest of the three clients, averaging 4.9%. Over a quarter of their resource utilization is coming from their float pool, and of the three clients in this study they have the lowest reliance on agency staff.

## Client C

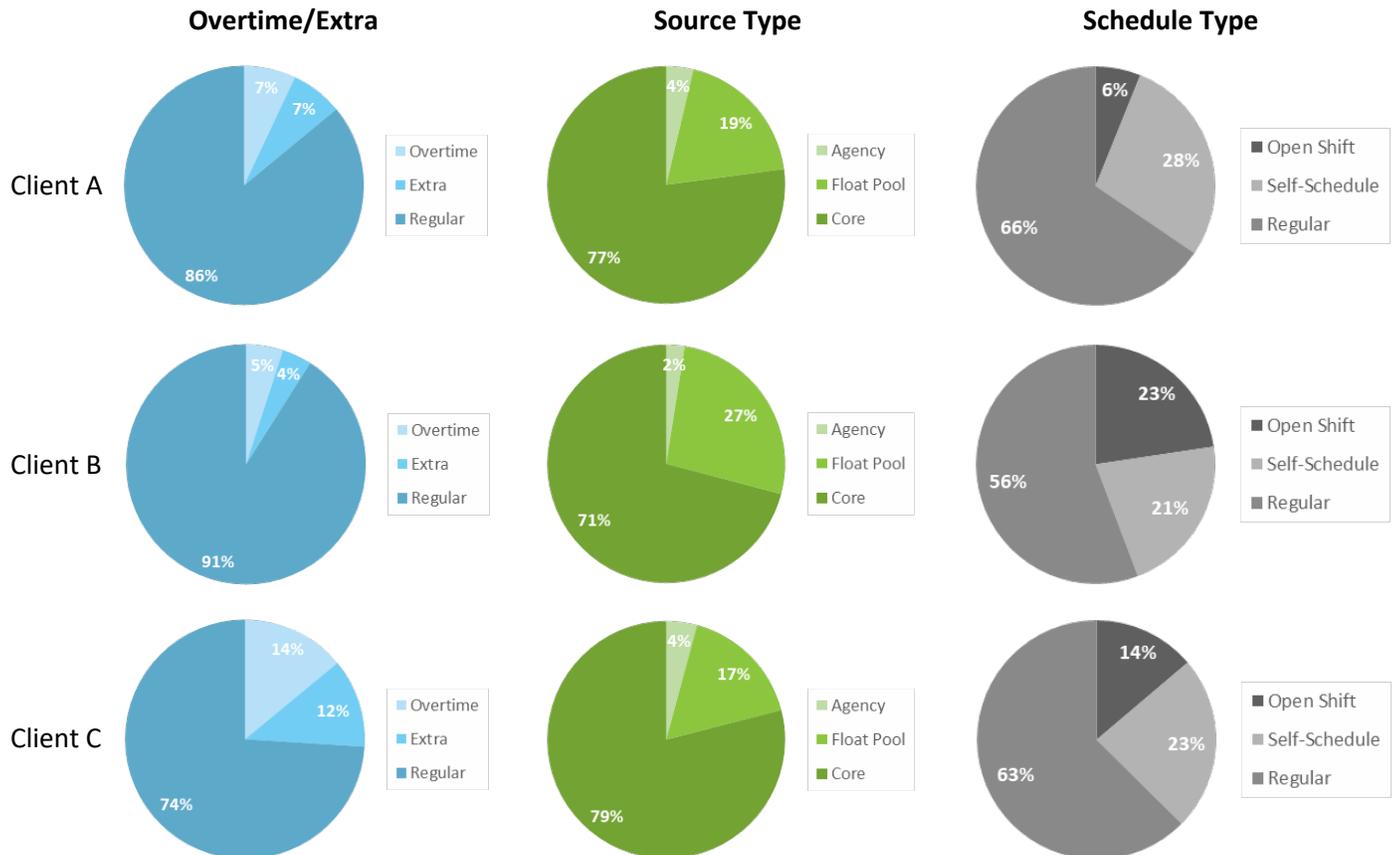


Client C has more varied outcomes and uses a lot of overtime (13.6%) to make up the difference when they submitted lower balanced schedules. Their average submitted fill rate is 89.4%, while their actual average fill rate is 96.2%. They are fairly resilient except when

they extremely over schedule. Their outcomes are less consistent. This client has some open shift utilization, but relies heavily on traditional scheduling and on core staff in overtime and extra hours.

## Reasons for Resiliency

The study found that when organizations under-scheduled to the predicted need, some were more resilient than others when it came to the actual worked shift. More resilient clients tend to have good schedule oversight and accountability, high utilization of float pool resources and open shift management, and utilize centralized resource management.



Having good schedule oversight means ensuring commitments are consistently met. Staff members should be scheduled to their FTE and working the expected holiday and weekend commitments. Employees who are not scheduled to their FTE – termed “FTE leakage” – create a unit’s own staffing shortage. These lost hours are costly to the organization and completely preventable with effective oversight.

## Solutions

Organizations that are more resilient to poor scheduling have centralized staffing and placement, a high utilization of float pool resources, and participation in open shift management programs.

### Float Pools

A float pool is designed to flex up and down with patient volume to fill those needs after core staff has met their FTE. Advanced resource pool strategies of today are very different from the recent past, as they have changed dramatically in their design, functionality, and administration, driving down costs and ensuring the flexibility to meet fluctuating patient demand and staff behaviors.

### Open Shift Management

Open shift management programs empower staff to pick up additional shifts that fit their lifestyle. Implementing an open shift program that automatically posts vacancies based on predicted demand beginning a month in advance of a shift solidifies staffing plans sooner. This strategy can be used with or without incentives.

### Centralized Resource Management

Utilization of a resource management center (RMC) is a valuable solution to deliver time and cost savings to an organization. Think of it like “air traffic control” for the placing and movement of care staff. Collaborating with clinical decision makers and having a holistic

view of what is happening at an organizational level allows for a more productive and efficient staffing process. Centralized resource management is one of the most effective ways of controlling costs through economies of scale, consistent application of policies, and proactive identification of needs and improved coordination of resources against real-time demand across a health system.

### Trust in Tech and Your Workforce Management Solutions Partner

Any schedule balancing must include faith in the predictions at time of schedule creation. Managers must trust the technology to do what it is designed to do.

Along with this, having good schedule oversight and ensuring commitments are met, submitting schedules on time, making sure there is a competency mix of resources (charge nurses, experienced RNs, etc.), and utilizing contingency resources such as float pools are steps to take to ensure a properly balanced schedule.

Finding the right solutions partner and committing to taking the journey with them is the first step toward workforce optimization.

## About Avantas

We provide the tools and education to help you manage your workforce more efficiently. Our solutions will help you develop more accurate schedules, spend less time in staffing and scheduling, and align resources for better care and cost savings.

FORECASTING | ANALYTICS  
volume prediction & staff planning

OPERATIONAL GUIDANCE  
consulting and education

SMART SQUARE®  
healthcare scheduling software

Learn more at [Avantas.com](https://www.avantas.com)