



The imperative for an electronic nurse scheduling system

Prioritize the need and make a positive impact

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The evidence is in: Appropriate levels of nurse staffing are linked to lower infection rates, decreased readmissions, and reduced inpatient mortality. And because financial stewardship of nurse staffing is often a linchpin in a healthcare organization's financial success as alternative payment models shift healthcare's financial paradigm from volume to value, nurse leaders must make data-driven decisions to support and validate the staffing levels necessary to achieve optimal patient outcomes at the lowest possible cost. To accomplish this, all nurse leaders must have the necessary tools and systems to effectively plan, predict, and manage staffing. An electronic nurse scheduling system (ENSS) is one of those tools. (See *What an ENSS can do for your organization.*)

Predicting, planning, and adjusting staffing decisions

Generally, unit-based schedules are developed weeks in advance and are based on averages. A unit's personnel budget and staffing plan (schedule) are developed according to how it measures workload (most organizations use hours per patient day) and its average daily census.

Staffing, however, is done in the moment and is informed by the current patient demand, including census, acuity, and predicted shift turbulence (admissions, transfers, and discharges). All of these variables can change rapidly and either increase or decrease the personnel needs for that shift. In addition, units will experience sick calls and other disruptions to their normal staffing patterns, often with limited

notice. As both patient factors and resources change, staffing adjustments must be made across the organization to provide appropriate staffing levels in all clinical areas. An ENSS that's updated in real time can provide the information needed to inform and enhance staffing decisions when unexpected changes occur.

For example, a supplemental staffing RN trained to float to multiple areas, or other RNs with a specific set of competencies, may be available and agreeable to reassignment. But without a system that can identify their availability, that information might go unknown.

Alternative solutions may be possible, but frequently they come with trade-offs to quality, morale, or finances. For instance, floating unit-based or

What an ENSS can do for your organization

An electronic nurse scheduling system (ENSS):

- leverages the data from other systems, such as the electronic health record to inform and adjust staffing decisions in real time
- allows for input from staff nurses, which increases their satisfaction
- ensures that staff distribution is optimized to correct levels and skill sets
- serves as a diagnostic and analytical tool for nursing and financial administrators to understand and improve an individual unit's financial performance.

inexperienced nurses outside their area of competency may adversely affect care delivery and decrease job satisfaction and morale. Permitting the use of overtime may provide another quick solution, but will have a negative financial impact to the operating budget and increase the risk of errors in judgment that can occur when working an excessive number of hours. Eventually, consistent overtime can lead to team burn-out and turnover.

An ENSS can alleviate some of these issues by quickly helping managers find staff members with the time and skill set required. The ENSS provides immediate visibility to the data needed for staffing decisions that benefit both the patient

and staff. Patients receive the care they need, and nurses see more consistent logic to the changes in their daily routine.

Increasing staff input and ensuring optimized staff distribution

Many nursing organizations, including the American Nurses Association and the American Nurses Credentialing Center (as part of its Magnet Recognition® program), recommend unit-level staff involvement in scheduling and staffing. More importantly, nurses overwhelmingly voice the importance of having input into their personal schedules as well as organizational staffing and scheduling policies.

Without an ENSS, ensuring staff

nurse involvement and self-scheduling accountability can be challenging. Nurse managers can spend a significant amount of time creating and managing the schedule, and the voice of the staff nurse can get lost in cumbersome manual paper processes. Ensuring accountability with a manual system is difficult, and perceived lack of accountability may lead to perceptions of unfairness or inequity. Optional checks and balances that are part of an ENSS can remedy these issues and prevent nurses from scheduling themselves inappropriately.

The ENSS provides fair access to staffing and scheduling processes for all unit staff and takes a systematic approach to ensure appropriate distribution of nurses with a particular skill set across the organization. For example, the system can ensure that charge nurses are scheduled appropriately for all shifts and full-time nurses are working their full commitment of weekends and nights. More importantly, it can help managers keep track of the number of hours a nurse is working to ensure he or she isn't working too much.

The system can be tailored to reflect unit and organizational policies that have been agreed upon by unit-based staff, increasing perceptions of fairness, accountability, and adherence to union work rules. And because staff interact directly with the system, managerial oversight is minimized, decreasing the amount of time that unit leaders spend managing the schedule. Some organizations even allow self-directed floating, which not only saves administrative time, but also increases nurses' satisfaction when they have a say in the time and location of their shift.

Overall, this level of staffing control leads to higher retention rates, a statistic that benefits both quality and costs. Satisfaction with staffing is measured on the Magnet surveys and is often a part of employee surveys because of the correlation of staff satisfaction with staffing, quality, and turnover outcomes. ENSS's capability for nurses to interact directly with the system in real time creates active involvement with their schedules and staffing opportunities, increasing their chance to be satisfied with those changes.

Positive outcomes

When writing a proposal for an electronic nurse scheduling system (ENSS), note that you will measure effectiveness and subsequently report your results. At VCU Health, we found the following effects after implementing an ENSS:

- All units managed within their budgeted RN hours per patient day for FY2017 and YTD FY2018
- 2017 RN engagement score on "staffing and resource adequacy" in the Magnet survey was 3.53, exceeding the benchmark of 3.48.
- We also believe the ENSS was one of the factors that helped us improve patient safety (see example below).

Actions into outcomes

	FY11	FY17	% change
HAPI Stage II or greater	3.6%	1.09%	70% ↓
HAPI Stage II or greater	0.6%	0.15%	75% ↓
HAPI Stage II or greater	1.4%	0.7%	50% ↓
HAPI Stage II or greater	129%	78%	40% ↓
HAPI Stage II or greater	106%	28%	64% ↓

HAPI = Hospital acquired pressure injury



Selecting the optimal system

An electronic nurse scheduling system (ENSS) is a valuable tool for nurse leaders, but only if they consider front-line staff needs when selecting a system. Failure of front-line staff to adopt ENSS can result in redundant manual staffing and scheduling processes, an ENSS that doesn't contain up-to-date staffing information, and dissatisfied staff.

To avoid these pitfalls, consider the follow factors when selecting a system.

- Evaluate ease of use and functionality for front-line nursing staff. If a system isn't easy to use, staff will create workarounds that impede its effectiveness.
- Be sure the system has the ability for multiple levels of staff to make staffing changes in the system as they happen, while maintaining accountability and ensuring that unauthorized staffing changes don't occur.
- Check that the ENSS interfaces easily with the organization's human resources and payroll systems.
 - The human resources system should update the ENSS when new staff are hired or existing staff transition out of the department. If these updates are delayed, the ENSS won't accurately reflect staff who are available to schedule and will create extra work for front-line staff to track.
 - The payroll system interface is important to accurately record productive worked, nonproductive worked, and nonproductive nonworked hours. It analyzes overall workforce productivity and also helps front-line staff make staffing decisions when productivity should be considered.

Remember that leveraging the benefits of an ENSS depends on front-line nursing staff updating the system in real time and working directly in the system when creating schedules.

Improving unit financial performance

Because a unit's personnel budget and staffing plan are inherently linked, the data needed to effectively manage a unit's financial performance are embedded in an ENSS. The staffing plan should be built on the resources allocated in the personnel budget and account for a mix of staff and nonproductive and nonworked hours.

The ENSS uses the unit staffing plan as the foundation for creating the schedule, and then tracks in real time the unit's ability to effectively execute that plan. Unit financial success depends on its ability to determine when

additional resources are warranted and justifiable and to identify opportunities to reallocate resources based on decreased patient workload; in essence, a budget versus actual adjusted comparison. This comparison can trigger nurse leaders and financial administrators to act when short- and long-term interventions are needed to improve unit financial performance.

For example, if the need to extend orientation for a new employee results in excess nursing worked hours, this short-term expense may be justifiable and can be easily tracked in the ENSS. If, however, a unit is struggling with a highly variable census that creates is-

sues with matching resources and workload, this will be evident in the scheduling system and allow the team to create mitigation strategies. In addition, the system can note seasonal acuity and census variations to provide predictive forecasting when looking at long-term scheduling adjustments.

All of these advantages work together to allow managers and administrators to investigate and solve operational issues faster, making them better financial stewards of their operating budget. (See *Positive outcomes*.)

Prioritizing the investment

Investment in an ENSS can result in cost-effective delivery of high-quality patient care as well as staff satisfaction and retention. These systems support the decision making needed in complex delivery systems to ensure that resources are effectively allocated. They also provide the platform to leverage staff expertise and input, and provide accountability in staffing and scheduling policies. An ENSS also tracks real-time financial performance, allowing leaders to proactively respond to potential challenges. Organizations must prioritize the need for investment in an ENSS to positively impact patient care, staff engagement, and operational efficiencies. And when choosing a system, leaders need to keep front-line staff interests top of mind (See *Selecting the optimal system*.)

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