Responsive Staffing and Scheduling in Aging Services: A Systems RETHinking Approach

An Aging Services White Paper

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and that respond to the organization's needs,

as determined through analysis and critical thinking,

over a 24-hour day and a 365-day year.

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Responsive Staffing and Scheduling in Aging Services: A Systems RETHinking Approach

By Victor Lane Rose, MBA, NHA, CPASRM, Operations Manager, Aging Services
Josi Wergin, CPASRM, ELS, Risk Management Analyst

In recent years, issues like wages, overtime, employee turnover, and recruitment have made frequent headlines in the aging services news—and with good reason. They play vital roles in safety, risk, and quality of care and services. As is often the case with such issues, they have caught the attention of regulators, who have responded by mandating or requiring the public reporting of staffing measures, which may help to better understand the scope of the problems, without offering much advice for achieving sustained improvement. Although some providers spend a great deal of resources chasing these individual high-profile issues, they all can be manifestations of deeper problems found within mission-critical organizational processes.

Like the issues listed above, staffing and scheduling also profoundly influence risk, quality, and safety. Problems in staffing and scheduling can lead to a multitude of potentially dangerous conditions including poor morale, diminished job satisfaction, a lack of team cohesion, and mismatches between workload and available staff—all of which can lead to performance gaps in the delivery of care and services. Furthermore, by creating care and service delivery environments that either inhibit or foster the occurrence of adverse events and quality problems, staffing and scheduling directly affect an organization's ability to fulfill its mission, as well as its reputation and bottom line. In an industry that is dependent upon people caring for people, these issues are fundamental.

However, in many instances current staffing approaches are not designed to fully respond to changes in residents' needs and organization workloads throughout the day—not just from shift to shift but during shifts as well. For example, workload often peaks at mealtimes and during morning periods when staff are assisting residents with activities of daily living (ADLs), but organizations often have difficulty managing even these recurring, predictable peak workloads. And when systems operate at their limits under "normal" conditions, non-routine or unpredictable events, such as an employee call-out, an unusual spike in admissions, or a snowstorm, can push the system past the breaking point.

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To better address these issues, organizations need to take a systems thinking approach to staffing and scheduling. This white paper presents an example of such an approach, called responsive staffing. Responsive staffing is staffing and scheduling that are both stable and flexible and that respond to the organization's needs, as determined through analysis and critical thinking, over a 24-hour day and a 365-day year. As described in this white paper, responsive staffing involves the following:

- Mapping peaks and valleys of workloads on every shift
- Determining what skills are needed and when and where they are needed
- Designing the system to respond to those needs
- Building in both stability and flexibility
- Continually monitoring performance indicators
- Redesigning the system when things change (and change they will)

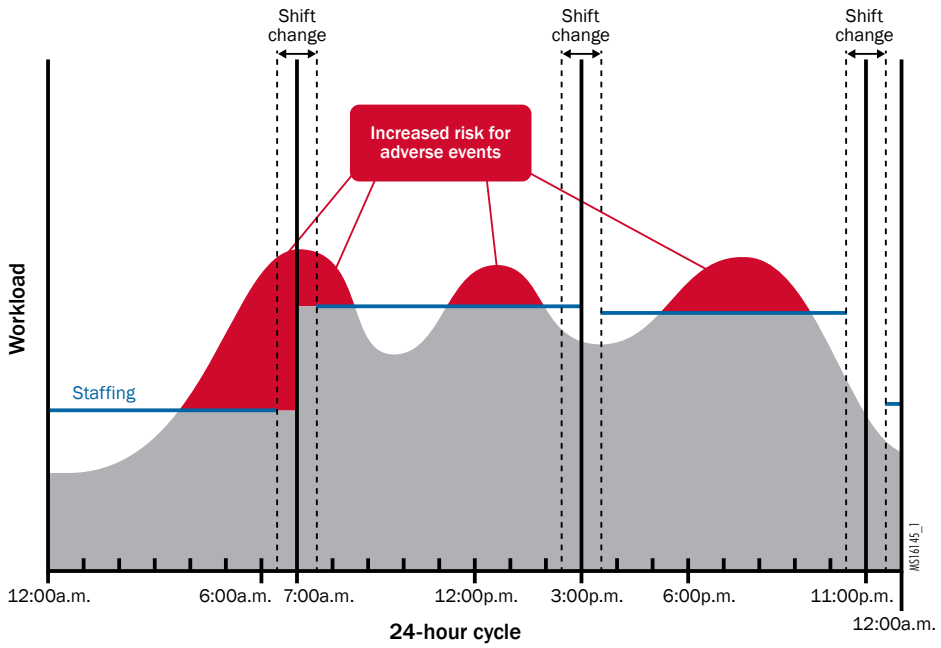
Effective staffing and scheduling programs go far beyond staffing ratios. Elements that organizations might examine include master schedules, scheduling coordinator positions and their authority, employee status mix, work design and structure, and shift change and weekend coverage.

A systems approach to staffing and scheduling is one that is custom designed. This white paper helps organizations understand how to evaluate their needs and the needs of their residents, patients, and staff and how to design the system to respond to those unique needs.

When Staffing and Workload Conflict

Common approaches to staffing and scheduling may lead to periods in which workload demands can safely be accomplished by staff on duty, but

Figure 1. Workload and Staffing over 24 Hours, as Imagined



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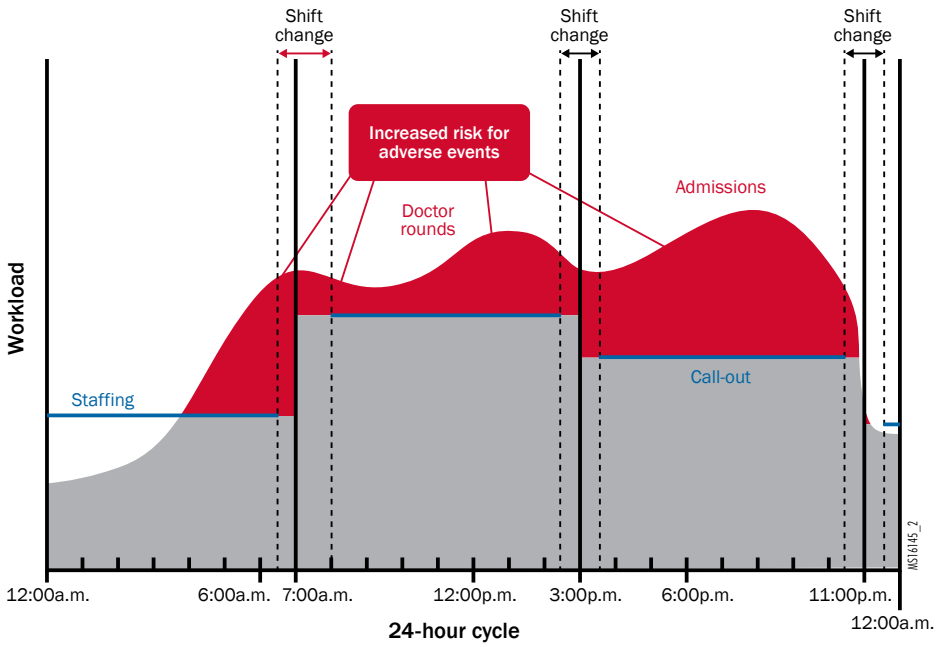
they also often lead to periods in which workload demands exceed the capacity of staff on duty or vice versa.

Figure 1. Workload and Staffing over 24 Hours, as Imagined represents an idealized 24-hour care cycle. This is what organizations often imagine as representing a typical day when planning, budgeting, and establishing staffing. But even this idealized model shows that peaks in workload for recurring, predictable tasks, such as those surrounding morning ADL care and mealtimes, can increase the risk of adverse events if staffing and scheduling do not flex to meet workload fluctuations.

Figure 2. Workload and Staffing over 24 Hours, in Reality, on a Particular Day



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When systems operate at their limits under normal conditions, nonroutine or unpredictable events can push the system past the crisis point. Figure 2. Workload and Staffing over 24 Hours, in Reality, on a Particular Day represents a more realistic 24-hour care cycle on a given day. On this particular day, a poorly executed shift change from third to first shift increased nonproductive time and pulled care-critical human resources into other administrative tasks; doctor rounds during the first shift increased workload as a result of new orders or changes in orders; and a staff member call-out and multiple admissions increased the workload on the second shift.

As a result, workload substantially exceeded staff capacity for most of the day, greatly increasing the risk for adverse events. This example illustrates just a few of the realities that scheduling and staffing programs must be designed to react to each day, shift by shift.

Far-Reaching Impact

Higher levels of staffing have been linked to a reduction in adverse events, better quality indicators, fewer deficiency citations, more help with feeding, more resident time out of bed, more frequent resident engagement with staff, more help with toileting, and more frequent repositioning (Page; Kim et al.; Schnelle et al.).

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These findings are important, but even they tell only part of the story. A literature review of the relationship between nurse staffing (including both registered nurses and support workers) and quality of care concluded that "a focus on numbers of nurses fails to address the influence of other staffing factors (e.g. turnover, agency staff use), training and experience of staff, and care organisation and management" (Spilsbury et al.). Staffing and scheduling programs that do not respond to the real needs of residents and the organization can spur a host of interrelated problems, which can in turn lead to adverse events, quality problems, or other challenges. Examples of these interrelated problems include the following:

No-win situations. Mismatches between workload and staffing can lead to no-win situations. These conflicts can take various forms, such as the following:

- *Staffing–workload conflicts:* Periods in which the amount of staffing, the type of skills needed, or both do not meet the volume and types of workload.
- *Task–timing conflicts:* Situations in which two or more tasks are assigned but time does not allow for completion of all tasks.
- *Task–priority conflicts:* Situations in which assigned tasks are given equally high importance and must be done simultaneously. This often occurs with tasks associated with policy-based rules (e.g., "Never leave a resident alone when toileting" and "Answer all call bells within a specific period").

For example, pulling a staff member from the memory care unit to help with an influx of admissions on a short-stay unit might be considered an efficient decision in regard to time and the needs of the short-stay unit. However, if the staffing shortage on the memory care unit is not filled, the decision is ineffective for the organization as a whole. And if the staff member has limited familiarity with the short-stay unit, the decision may also be ineffective for the short-stay unit in regard to team capabilities and maintenance of an environment that inhibits adverse events. These types of conflicts force difficult and often no-win decisions about which tasks get completed and which do not.

Strain on employees. Staff in environments with poor staffing may experience burnout, fatigue, frustration, poor morale, job dissatisfaction, and turnover. In turn, these can affect not just finances and operations but safety and quality as well. For example, a literature review examining nurse staffing patterns and fatigue, burnout, and medical errors concluded that "inadequate nurse staffing leads to adverse patient outcomes and increased nurse burnout" (Garrett). Another study found that nurses experiencing emotional exhaustion are more likely to use workarounds during the medication administration process (Halbesleben et al.). Yet another study found that nursing homes that did

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better at retaining licensed nurses had significantly lower rates of rehospitalization within 30 days (Thomas et al.). Conversely, when staff have periods of insufficient workload, they may get bored and become inattentive.

Disruptions and distractions. Even routine workload peaks, such as those surrounding mealtimes and morning ADLs, can lead to dangerous distractions and interruptions if staffing is inadequate or cannot flex to meet workload needs. Nonroutine occurrences can greatly exacerbate these problems.

Poor team cohesiveness. Several manifestations of poor staffing—for example, heavy reliance on agency or per diem staff, particularly on weekends—can stifle team cohesiveness and inhibit development of a shared mental model. This in turn can adversely affect decision making, communication, problem solving, completion of tasks, and organizational learning. Poor team cohesiveness can also make it difficult to implement and sustain changes within the organization or unit.

Fragmentation of care and services. Fragmentation can lead to gaps in the delivery and coordination of care and services. For example, disorganized shift changes and habitual lateness, failure to give adequate notice of call-out, or absences can undermine continuity of care and foster incident-prone environments. One study found that high levels of nurse aide absenteeism in nursing homes were linked to poorer organizational performance in regard to use of physical restraints, use of urinary catheters, pain management, and pressure ulcers (Castle and Ferguson-Rome).

Rigidity. As previously mentioned, when systems operate at their limits under normal conditions, nonroutine or unpredictable events can overextend the system. For example, heavy reliance on permanent full-time employees can sometimes mean the organization lacks the flexibility needed when nonroutine events occur because available staff are already working a full schedule of hours.

Instability. Poor staffing and scheduling can also cause dangerous degrees and types of instability. For example, some organizations struggle to keep per diem staff up to date with ongoing training. Agency staff do not go through the organization's hiring and screening procedures and are less integrated into the organization's policies, procedures, culture, and teams. A study conducted in nursing homes found that use of more than 14 full-time agency staff per 100 residents was associated with lower quality of care (Castle et al.). Both agency and per diem staff may work so infrequently that they are unfamiliar with residents or, especially, short-stay patients.

Erosion of organizational staffing goals and policies. Scheduling coordinators often act as a liaison between departmental staff and the organization's personnel policies and procedures, and they also help monitor employee performance related to attendance.

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However, they often have little to no positional authority. This can put a scheduler in difficult situations steeped in organizational politics and peer pressures. As a result, scheduling often does not respond to organizational and resident needs as a whole, and scheduling coordinators may bend organizational policies just to get the schedule filled.

Redirection of resources. Poor staffing and scheduling programs can increase the spending of human and financial resources on recruiting, hiring, orienting, training, creating schedules, evaluating performance, managing scheduling gaps, and coordinating time off. A conservative estimate of the cost of turnover per direct care employee in long-term care is between $4,200 and $5,200, based on 2003 earnings (Seavey). This equates to $5,500 to $6,800 in 2016 dollars when adjusted for inflation based on the Consumer Price Index (U.S. BLS). In addition, heavy use of inappropriate overtime can cost the organization greatly.

Redirection of resources can also adversely affect care in a more direct and immediate way. For example, prolonged or disorganized shift changes can increase nonproductive time during the beginning of the shift and pull care-critical human resources into other administrative tasks. The third-to-first shift change in Figure 2. Workload and Staffing over 24 Hours, in Reality, on a Particular Day demonstrates how a poorly executed shift change can cause this diversion of resources from resident care to persist further into the shift.

Poor staffing and scheduling programs can increase the spending of human and financial resources on recruiting, hiring, orienting, training, creating schedules, evaluating performance, managing scheduling gaps, and coordinating time off.

Adverse Events: When the Efficient Decision Is a Dangerous One

Ultimately, when staffing and scheduling programs are not designed to ebb and flow with the fluctuations in care and service workloads, conflicts can emerge, creating times of greater risk for resident or patient harm, as seen in Figure 2. Workload and Staffing over 24 Hours, in Reality, on a Particular Day. During these times of higher risk, clusters of incidents can be more apt to appear. The following are just a few examples:

- Falls that occur because a resident tires of waiting for help and decides to go to the bathroom without assistance
- Development of pressure ulcers because treatment regimens and bathing routines cannot be completed consistently

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- Resident abuse, including negligence, resident-to-resident abuse, and employee-to-resident abuse
- Elopement and hazardous wandering events because the staffing and scheduling program does not allow for adequate supervision or assistance
- Medication administration errors
- Delays in treatment
- Delays in recognizing change in resident's or patient's condition

In addition to contributing to adverse events, the interrelated problems discussed in "Far-Reaching Impact" can cause quality problems and financial and operational woes.

The Limitations of Staffing Ratios and "Hours Per Resident-Day" Calculations

Effective staffing and scheduling programs go beyond staffing ratios. Budgets and staffing ratios are important. But they represent planning efforts, not day-to-day operations. Additionally, staffing ratios must be established in relation to many factors, such as resident or patient acuity, census, scope of service, and even physical design of the care delivery setting. Because these factors tend to differ between organizations, service lines, levels of care, and even shifts, they are highly individualized between environments. At least as important are the ability and means used to put those staffing ratios on the floor consistently, week by week, day by day, and shift by shift.

The aging services industry has shifted from measuring employee full-time equivalents (FTEs) to measuring staffing in hours per resident-day (PRD). PRD staffing is calculated by dividing the number of resident-days in a 24-hour period by the aggregate number of staffing hours that were provided during the same timeframe.

PRD calculations are useful but have important limitations. Because they evaluate resident census and employee hours during a 24-hour cycle, PRD calculations hide variations in staffing and workload from shift to shift and within shifts. Hence, there may be periods when workload far exceeds staffing capabilities even when the aggregate level of staffing over the course of 24 hours seems acceptable. PRD calculations do not account for differences in resident acuity or workload fluctuations that result from differing resident needs. PRD calculations also fail to recognize a myriad of other matters that can influence workload during a shift, such as admissions work, discharge work, physician interactions, and changes in resident condition, among many others.

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Nor do they account for varying team capabilities that can result from variations in employee status mix from shift to shift.

PRD calculations may have their uses, but organizations may wish to calculate staffing per resident per shift for the purposes of staffing and scheduling. In any event, a low staffing threshold should not be used to send staff home. Any financial benefit may be quickly overridden by unintended consequences that arise because of how assignments are organized. For example, empty beds are seldom clustered but are instead located throughout the whole of the service line, potentially spreading the remaining staff too thin and inhibiting their ability to summon help.

Organizations need to take a systems approach to staffing and scheduling.

Environments That Inhibit Events: Systems-Based Staffing and Scheduling

Quality and continuity of care are nearly impossible to achieve without

- continuity in staffing, which involves having the right number of people with the right skills to match patient and resident workload, and
- continuity in scheduling, which involves having those people consistently at work or available for backup at the right time of the day, week, and year.

Therefore, organizations need to take a systems approach to staffing and scheduling. To begin thinking about this problem, organizational leaders can ask the following questions:

- Does my organization's staffing and scheduling program contribute to an internal environment that inhibits or fosters the occurrence of incidents?
- To that end, does my organization's staffing and scheduling program organize our human resources in a way that puts the right people, in the right numbers, where and when they are needed as workloads ebb and flow throughout the day?

In answering these questions, organizations should consider how internal environments relate to efforts to prevent incidents and respond when things do go wrong. Given the role that staffing and scheduling play, the amount and capabilities of staff correlate directly to the organization's internal environment—unit by unit, department by department, team by team, and shift by shift.

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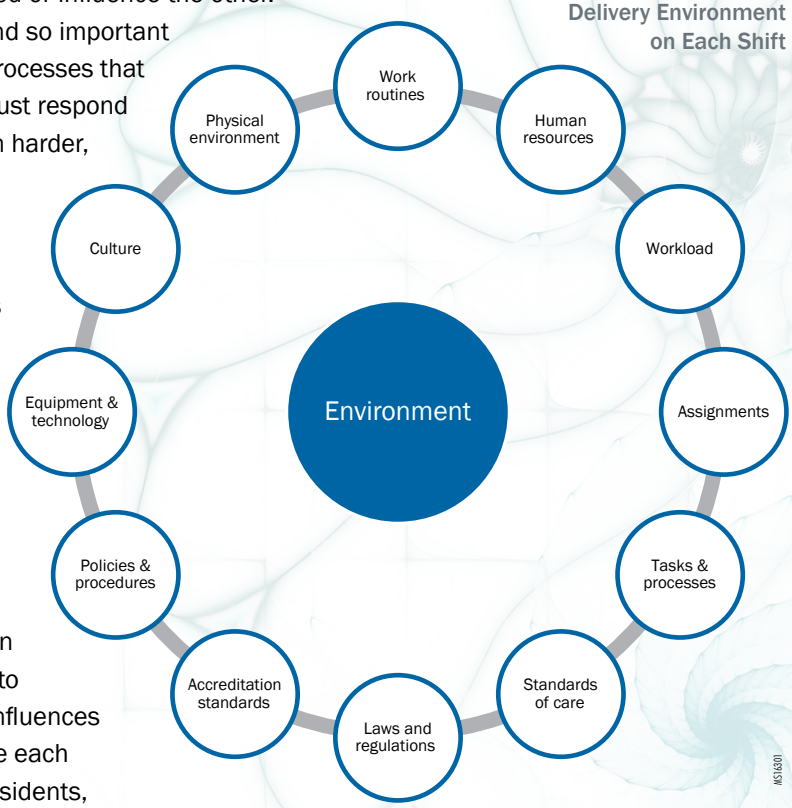
In aging services, the process of staffing and scheduling can be a powerful force that brings stability and resilience into care and service delivery environments when it is done effectively, or instability and rigidity when it is not. Each shift, in each service line, creates its own environment with different structures and varied processes. Workloads, tasks, and routines often differ between shifts throughout the organization; a first-shift environment differs from a second-shift environment, which differs from a third-shift environment. Together, these shift environments form the 24-hour care cycle. However, the variation does not end there. Tasks and routines can differ between days, and environments differ between weekdays and weekends; a first-shift environment on Tuesday is not the same as a first-shift environment on Saturday.

Why is this important? Because problems occur in the context of environments and the elements that constitute those environments. A staffing and scheduling solution that addresses a problem in one shift environment might not address a problem that occurs in another shift environment—although it may be related or influence the other. Staffing and scheduling processes are so difficult and so important at the same time because they are organizational processes that cross through all of these environments, and they must respond to the dynamic needs of each. To make the task even harder, some needs are predictable and some, such as call-outs, are unpredictable, and staffing and scheduling programs must be able to address both.

To answer the question of whether the organization's staffing and scheduling program contributes to an internal environment that either inhibits or fosters the occurrence of incidents, organizations should consider what makes up a shift environment. Figure 3. Elements That Create the Care and Service Delivery Environment on Each Shift illustrates the many influences that staffing and scheduling exert on the shift environment and therefore the role that staffing and scheduling play in stabilizing or destabilizing it, which in turn can lead to opportunities for incidents to occur. Each element influences the environment, and the environment can influence each element. Within these environments, actors (e.g., residents, patients, staff, care professionals, visitors) fulfill the duty of care and deliver other services.

Figure 3. Elements That Create the Care and Service Delivery Environment on Each Shift



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Organizational Design

How do organizations begin to build a better staffing and scheduling program? One approach is through organizational design, which holds that systems behave as they are designed.

Organizational design refers to the process of analyzing the work that needs to be completed to achieve the goals and objectives of the team (tasks and routines) and organizing the workforce by positions and assignments to complete the workload. Components of organizational design are as follows (Cummings and Worley):

- *Organizational structure:* This refers to how the organization divides, assigns, and coordinates tasks across departments. It includes positional authority, including frontline supervisory and leadership responsibilities. It also includes position design and skill and competency levels necessary to complete positional responsibilities and duties.
- *Work design:* This specifies how tasks are performed and assigned to jobs or groups. In aging services, this addresses resident care and service needs, work routines and tasks (predictable and unpredictable), and care and service delivery schedules, such as mealtimes, recreational therapy or activities, medication administration, bathing schedules, charting, and care coordination.
- *Human resource practices:* This involves selecting people and training, developing, and rewarding them. It also includes policies and procedures that set behavioral expectations within the workforce.
- *Management and information systems:* This relates to how employees are led and the nature and kinds of information they are provided to guide their work. This factor often influences whether the culture is more authoritarian or more participatory.

Analyzing workloads, positions (types and number available), and team capabilities allows identification of periods when workload demands can safely be accomplished by staff on duty, periods when there may be more staff on duty than workload demands, and periods when workload demands may be greater than staff on duty. This information can help organizations problem solve and undertake changes, such as adjustments to workloads, organizational design, and staffing and scheduling.

Systems thinking goes beyond work design alone, however. It also accounts for other key organizational processes, such as communication, access to necessary information, decision making, problem solving, training and growth, and evaluation and rewards. It accounts for the reality that delivery of care and services is not consistent throughout

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the day. Mapping out and understanding how these key organizational processes and elements change each day, shift by shift, is also important. A systems approach acknowledges that there are changes in work design throughout the system over the course of the 24-hour care and service delivery cycle. It also considers the work of those who are directly responsible for the production and delivery of services as well as those who support the various departments, including fluctuations in availability of administrative and leadership support. The importance of staffing and scheduling is organization-wide; it extends to all service departments and does not start and stop with direct care. All parts of the system are important because of their interdependence; the whole is greater than the sum of its parts (Roth).

A corollary is that systems thinking concerns itself with how all parts of the system are integrated—the relationships among the parts. Systems thinking models also require a few other elements, such as the following (Roth):

- They are fully participative.
- They are fully integrated.
- They are ongoing.
- They provide for continuous learning, ongoing evaluation, and rewards that are tied back to the organization's purpose.

Each of these elements relates to feedback processes to help maintain the organization's awareness of changes in the internal and external environments and ability to fluidly adapt to such changes. Open feedback is crucial to gaining a truthful understanding about workload "behaviors," identifying the many types of conflicts discussed previously, and successfully adapting organizational design to resolve or mitigate associated risks.

Open feedback is crucial to gaining a truthful understanding about workload "behaviors," identifying the many types of conflicts discussed previously, and successfully adapting organizational design to resolve or mitigate associated risks.

Master Schedules and Scheduling Coordinators

Once the organization has evaluated its workflow and needs, it can begin creating a blueprint and laying the foundation for a staffing and scheduling program. To use a construction metaphor, a blueprint is made for a building before construction starts. Planning first, by developing blueprints, promotes consideration of design, function, and flow first. It also permits the many vested stakeholders in a building project, such as subcontractors, to evaluate and plan to meet their responsibilities to avoid, for example, having water supply lines run through electrical boxes and ductwork.

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The same principles can be applied to organizational processes in aging services, such as staffing and scheduling. Start by creating a master schedule (blueprint) that helps to identify workload needs and potential task conflicts. The master schedule should reflect the permanent full-time and permanent part-time positions needed to fully staff the unit or department shift by shift. See Do the Math: Quick Check to Determine Depth of Scheduling Capabilities. The master schedule should also reflect other aspects of staffing and scheduling, such as weekend work expectations (e.g., requirements to work every other weekend, if applicable) and holiday schedules.

Once the master schedule exists, supporting policies and procedures that help to bring the program to life can be amended (or created if they do not exist). These policies and procedures address start times, shift change and shift reporting, weekend and holiday scheduling, call-out procedures, time-off requests, authorization for overtime, mealtimes and breaks, and any other practices that set expectations, direct employee performance, and help to shape unit and departmental cultures. Defining permanent positions can also greatly facilitate employee recruiting efforts when positions are open, allowing clearly defined positional expectations to be discussed as part of the employment screening and hiring process.

The math of staffing and scheduling is important when designing for effectiveness. In 24 hours per day, 365 days per year, the FTE requirement is 1.4 people per position, not 1.0. The 1.4 FTE figure represents one person working full time (e.g., 5 eight-hour days in a 7-day pay period or 10 eight-hour days in a 14-day pay period) and one working less than full time (e.g., 2 eight-hour days in a 7-day pay period or 4 eight-hour days in a 14-day pay period). While many permutations of the 1.4 FTE concept are used throughout aging services, the fact remains that it takes two people to fill the work schedule—not one.

In addition to creating a departmental master schedule of positions, another important consideration is the use of scheduling positions (e.g., staffing coordinator) to assist in day-to-day-scheduling. It is important to remember that these positions derive positional authority from the unit or departmental manager's position through delegation and therefore are truly an *extension* of administration or management. Scheduling coordinators often act as a liaison between departmental staff and the organization's personnel policies and procedures. Often, they also play a role in monitoring and documenting employee performance related to attendance. This can put a scheduler in difficult situations involving organizational politics and peer pressures when managing time-off requests and filling open shifts. For these reasons, the supervising manager and the scheduling coordinator should maintain close connections in the execution of staffing and scheduling.

Ultimately, the use of master schedules and the integration of supporting policies and procedures can contribute greatly to the efficacy of a healthcare provider's delivery system and

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DO THE MATH:
Quick Check to Determine Depth of Scheduling Capabilities

Quick calculations that determine the total number of people needed to fill permanent positions (full- and part-time) versus the number currently employed can help organizations evaluate the health of their staffing and scheduling program. To achieve resilience and continuity of care, the organization must design the program with attention to the number of full- and part-time employees. Combining part-time positions into full-time positions (which often leaves weekends open or requires employees to work every weekend) can create a "house of cards" dependent on a handful of people working atypical and sometimes unrealistic schedules. Should even one of those people leave the organization, the impact on staffing could be devastating and could create significant difficulties in recruiting for the open position.

Monitoring the number of permanent employees needed versus those currently employed can provide a quick indicator of staffing and scheduling program health. Do so by calculating the total number of people needed for each 1.4 FTE position and comparing it with the number of people currently filling the positions. For example, if the first shift on a particular unit requires four certified nursing aides (CNAs) each day, the master schedule requires four 1.4 FTEs for the CNA positions. Remembering that each 1.4 FTE requires two people to fill it (one full-time and one part-time), a total of eight people are needed for CNA positions to staff and schedule consistently.

Table. FTE Position Breakdown for a Single Nursing Unit

Position	Number of People Needed and Status
CNA position 1	1 full time
CNA position 1A*	1 part time
CNA position 2	1 full time
CNA position 2A*	1 part time
CNA position 3	1 full time
CNA position 3A*	1 part time
CNA position 4	1 full time
CNA position 4A*	1 part time
Total CNA positions	*8 total people*

CNA = certified nursing aide; FTE = full-time equivalent.

*CNA position 1A is a part-time position that works off of full-time CNA position 1, part-time CNA position 2A works off of full-time CNA position 2, etc.

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to its success in accomplishing its goals. This approach provides the organization with the opportunity to intentionally design integrated personnel, staffing, and scheduling policies and procedures that support each other and reinforce important elements of the organization's culture based on the organization's services and team capability needs. The better the organization clearly defines and consistently upholds these policies and procedures, the less ambiguity exists for those tasked with daily scheduling responsibilities. In the end, such an approach allows the organization to intentionally build staffing patterns that take many things into consideration, including important factors such as employee status mix on various shifts and days of the week.

From a systems thinking perspective, all systems require some degree of "slack." Slack gives system components a degree of flexibility so that processes can stretch to meet changing needs without breaking.

Employee Status Mix

It is tempting to think that continuity of care can be optimized by relying heavily or exclusively on full-time employees. However, from a systems thinking perspective, all systems require some degree of "slack." Slack gives system components a degree of flexibility so that processes can stretch to meet changing needs without breaking—in this case, the ability to meet routine and nonroutine variations in resident care and service workloads.

Staffing and scheduling programs that rely heavily on permanent full-time employees can sometimes lack the flexibility needed for coverage when call-outs, staffing gaps, or unpredictable staffing–workload conflicts occur because available staff are already working a full schedule of hours. This can lead to other potential hazards, such as fatigue. It can also lead to reliance on the use of overtime to fill staffing and scheduling openings, which can be hazardous and expensive.

From this perspective, employees who work less than full time play a vital role by putting slack back into the system, while overreliance on full-time employees can make the system too rigid.

If staffing and scheduling programs can lose effectiveness by being too *rigid*, can an equal argument be made that too much flexibility, through extensive use of per diem and agency staff, can have its dangers as well? The answer is yes, because such flexibility can have unintended effects on overall team production capabilities. To better understand this issue, consider that different "less than part time" options behave in dissimilar ways. Permanent part-time positions are not synonymous with per diem and agency positions, especially from the perspective of team behavior, team culture, and resident or patient safety.

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For instance, the nature of the employer–employee relationship is often different. One difference between per diem status and agency status is that per diem employees go through the organization's hiring and screening procedures, unlike agency personnel. In addition, per diem staff often participate in employee orientation, helping to acclimate them to the organization's policies, procedures, and culture. Potential differences between permanent part-time status and per diem status relate to factors such as ease of ongoing training, in-servicing, and education.

Given these realities, poorly planned employee status mix is among the many factors that can make it harder for team cohesiveness to develop and that may inhibit development of a shared mental model. This in turn can adversely affect crucial team processes, such as decision making, communication, problem solving, completion of tasks, and organizational learning. A lack of team cohesiveness can also negatively affect performance improvement efforts, because the less stable an environment is, the harder change is to make and sustain (Lewin). It is important to note that these effects pertain to overall team capabilities, not individual capabilities. High individual competencies and skills do not always equate to high team capabilities during a specific shift. Team culture, trust between members, shared mental models, and team identity contribute to team capabilities owing to the high interdependence among team members when delivering care and services.

However, the mere presence of team cohesiveness does not guarantee high team capabilities either. The cohesiveness must be centered around the organization's purpose, mission, and values. To ensure overall organizational capabilities and effectiveness, the purpose and goals of the team must be aligned with those of other shifts, other teams and departments providing services in the environment, the larger service line, and the organization as a whole.

For all these reasons, organizations must intentionally manage employee status mix to achieve the right balance between continuity and flexibility and to cultivate team cohesiveness aligned with the organization's mission. Well-designed staffing and scheduling programs are designed taking into account both direct effects, such as ability to fill open shifts quickly and appropriately, and indirect effects, such as impact on team capabilities. They have other advantages as well—including allowing employees to access benefits such as sick time and vacation time, which in turn can create a better balanced and healthier workforce—and contribute to environmental stability in other ways.

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Work Design and Structure: Analyzing Work for Conflicts and Organizing Positions

By analyzing the way predictable workloads "behave," it is possible to identify periods when routines peak or when time-consuming tasks occur. These types of workload fluctuations can be particularly difficult to manage when other critical routines increase during the same timeframe. To help resolve such staffing–workload conflicts, one solution may be to develop specialized positions to handle that specific routine or time-consuming task.

One example is developing a position focused on bathing residents. Bathing tasks can pull a staff person off of the floor for an extended period, making it difficult to complete other tasks and activities that are scheduled to occur during that time. This issue can be further amplified if a majority of baths are completed during the morning and evening hours, when many other care-critical tasks often occur. By developing a part-time bath aide position that is scheduled during times when other workloads are high, necessary flexibility can be restored to the system, allowing for safer bathing and a better experience for residents who are having their baths during that period and safer and higher-quality care for residents who are receiving assistance with other ADLs during that time.

Another way to ease staffing–workload conflict might be starting the first shift at 6:00 a.m. rather than 7:00 a.m. This may increase the human resources available prior to typically heavy workload periods such as assisting residents with morning ADLs, administering medications, and preparing and serving breakfast. To give another example, if analysis shows that staffing exceeds workload on the third shift while the first shift struggles to complete all tasks even on a "normal" day, chart audits might be redistributed to staff on the third shift. However, bathing positions, 6:00 a.m. start times, and third-shift chart audits are just three examples of how organizations can reimagine work design, structure, and positions to reduce staffing–workload conflicts. Examine your own unique needs and circumstances to develop creative strategies.

Ultimately, these types of solutions do not automatically mean an increase in overall operational costs. Actually, operational inefficiencies often bring with them higher direct and indirect costs. By studying the overall workload and staffing needs on an ongoing basis, resources can often be reallocated between times when staffing is greater than workload to times when staffing needs are higher, assuming necessary skills and competencies are accounted for.

The organization's ability to hand off duty-of-care obligations from one team to the next contributes to an environment that either inhibits or fosters the occurrence of incidents.

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Other Scheduling Realities: Shift Changes, Mealtimes, and Weekend Coverage

Being fully staffed goes far beyond simply having all scheduled employees show up for work. For example, shift change is another key aspect of scheduling and staffing. The organization's ability to hand off duty-of-care obligations from one team to the next contributes to an environment that either inhibits or fosters the occurrence of incidents. Shift changes that are prolonged or disorganized, from a staffing and scheduling perspective, can increase nonproductive time during the beginning of the shift and pull care-critical human resources into other administrative tasks. Habitual behaviors such as lateness, failure to give adequate notice of call-out, or excessive absences can undermine continuity of care and create incident-prone environments. The third-to-first shift change in Figure 2. Workload and Staffing over 24 Hours, in Reality, on a Particular Day demonstrates how a poorly executed shift change can mean this diversion from resident care continues even later into the shift. Shift change processes must allow adequate time and shift overlap (shift staggering) for meaningful and interdisciplinary shift change reporting, as well as sufficient staff to manage care workloads consistently through these times.

Other shift-by-shift elements, such as employee mealtimes and breaks, must be managed in relation to workload. For example, resident mealtimes often create an upswing in workload that typically extends prior to and after the actual mealtime. Because employee mealtimes often diminish staffing on the floor, staffing–workload conflicts can arise if employee meal breaks are not coordinated around resident mealtimes. Staggered employee mealtimes and preestablished mealtime breaks that fall outside the resident mealtime can help staffing and scheduling programs flex during these times.

Finally, the weekends must also be managed carefully in an effective staffing and scheduling program. Staffing and scheduling programs that schedule full-time employees on weekdays but rely mostly on part-time, per diem, or agency staff for weekend coverage may increase the probability of incidents. Mixing the benefits of staffing with full-time employees and staffing with part-time employees optimizes balance and team capabilities (see "Employee Status Mix" for more discussion).

Employee status mix is not the only factor to consider when planning and staffing weekend coverage. Weekends "behave" differently in aging services. For example, on weekends, staff typically have less support from administrative staff, directors of nursing, social services, and environmental services. Weekend staffing and scheduling should account for these limited levels of support. Problems with weekend coverage can also have a synergistic effect. For example, staffing mainly with per diem and agency staff on the weekends can amplify the problems that may result from the limited support available at these times, and vice versa.

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Systems-Based Staffing and Scheduling Practices That Contribute to Incident-Averse Environments

So what does an effective staffing and scheduling program look like? Here are things to consider in designing, monitoring, and evaluating your organization's program:

- Craft the overall design of the staffing programs for each unit and department.
- Manage the mix of employee status by filling the shift schedule to achieve overall continuity of care.
- Evaluate the degree to which staffing patterns adapt to match changing workloads:
  - Peaks and valleys in workload on a given shift
  - Shift start times and predictable workload routines and fluctuations that surround shift changes
  - Variations in workload over the course of the 24-hour cycle
  - Changing patterns between weekdays and weekends
  - Seasonal or annual cycles, such as vacations, holidays, and weather-related service interruptions
- Assess scheduling flexibility and depth and the ability to meet unplanned needs effectively and safely.
- Design shift change processes to allow meaningful shift change reporting and sufficient staffing to meet care workloads consistently through these times.
- Monitor the efficacy of shift change practices, including punctuality and preparedness to begin each shift.
- Distinguish desirable overtime (e.g., staying late after a resident fall), which can provide flexibility, from undesirable overtime, which can lead to rigidity, wasted resources, burnout, and fatigue.

Sample Performance Indicators

Staffing and scheduling have their own key performance indicators that can assist in monitoring the environment and in identifying gaps between desired staffing performance (budget) and actual staffing performance (day-to-day hours) in relation to workload. These indicators of performance improvement opportunities should not be confused with measures. Potential indicators include the following:

- Census and resident acuity levels
- Turnover statistics (by department and position where indicated)
- Number of call-outs by shift and unit
- Number of partial shifts
- Overtime (hours at the end of shift and extra shifts picked up by employees)
- Use of agency staff
- Use of per diem staff
- Frequency of "pulling" staff from one service line or unit to another
- PRD calculations
- Staff burnout

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- Provide adequate cross-training so that employees who work in multiple units or service lines understand the needs, expectations, and delivery systems in each area.
- Ensure ability to safely meet special staffing needs, such as one-to-one supervision.
- Monitor effectiveness in providing the budgeted staffing patterns seven days per week, 24 hours per day (see Sample Performance Indicators).

The final piece that makes an approach like this a systems thinking approach is accounting for the reality that systems constantly change and therefore processes must be monitored, evaluated, and adapted in a continuous manner as well. Incorporating that review-and-revision process into the organization's management system allows for making adaptions in a more fluid manner, rather than letting processes and organizational needs drift apart over time and responding by making mass corrections.

Staffing and scheduling lie at the daily intersection between executive management and risk management, quality improvement, and safety. Effective staffing and scheduling require integrated and continuous time and attention from operations, human resources, finance, clinical administration, and departmental management.

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UNITED STATES
5200 Butler Pike,
Plymouth Meeting, PA
19462-1298, USA
Telephone +1 (610) 825-6000
Fax +1 (610) 834-1275

EUROPE
Suite 104, 29 Broadwater Road
Welwyn Garden City,
Hertfordshire, AL7 3BQ, UK
Telephone +44 (1707) 871 511
Fax +44 (1707) 393 138

ASIA PACIFIC
11-3-10, Jalan 3/109F,
Danau Business Centre,
Taman Danau Desa,
58100 Kuala Lumpur, Malaysia
Telephone +60 3 7988 1919
Fax +60 3 7988 1170

MIDDLE EAST/INTEGRA
Regal Tower, Business Bay,
Sheikh Zayed Road,
P.O. Box 128740
Dubai, United Arab Emirates
Telephone +971 4 4305750
Fax +971 4 4305750