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Implementation of the WIN Workforce Stability Tool Kit

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Abstract

Precise and accurate staffing is vital to healthcare organizations. Comprehensive workforce planning is the foundation for successful staffing. Healthcare leaders need workforce data and tools that provide visibility and actionable intelligence to drive the best possible resource decisions. A workforce tool kit that nurse leaders can use to maintain visibility into their overall workforce picture can drive cost savings and provide operational wins. Lack of visibility into workforce metrics and tools drove the development of a tool kit that would aid in addressing some of these issues. The tools included provided real-time, market-specific data that was used to drive decisions on how best to use contingent resources to fill gap times in the core schedule. Other tools aided the leadership in tracking contingent resources and using flexible contract terms to more efficiently use the resources, rather than being committed to longer assignments. In addition, applications allowed staff nurses to communicate with each other regarding their schedules and receive instant notifications about open shifts, increasing their ability to step in and pick up shifts, preventing reliance on expensive contract labor resources. This application also provided staff with easy access to scheduling information, creating an online environment in which to propose shift trades in lieu of calling in sick and negatively affecting the organization. Testing of the tool kit took place in an inner-city Level II Trauma Center validated that the use of these tools had a positive impact on reducing and avoiding costs and reducing sick calls on two different units reporting to the same department director.

Keywords: *Workforce planning, contingent labor, time-to-fill metrics, contract labor, vacancies, turnover, retention*

Section II. Introduction

Workforce planning is the very foundation on which health systems and facilities are built. Without the necessary resources, care cannot be delivered. Every organization needs to assess and plan for current and future workforce needs. In healthcare, workforce supply and demand fluctuate regionally, requiring leaders to understand their market and how it affects their ability to acquire and retain needed resources (HRSA, 2017). Using contingent labor to fill gaps in schedules and last-minute shifts requires strategy and data monitoring. The very real need for better healthcare workforce data continues to be a focus in the industry. When leaders are developing staffing strategies and demand data is unknown it creates challenges and uncertainty (Griffiths et al., 2016). Patient care resources are essential for good patient outcomes, and nurse leaders have an ethical obligation to plan for these resources (Code of Ethics for Nurses, 2017). Leaders of facilities struggling with turnover and vacancies in key positions often turn to contingent labor to fill the holes. Without tight controls, dependency on contingent resources may develop, and it can be costly and detrimental to the overall well-being of the organization. Assessing when and how to use the contingent resources efficiently is a challenge. Nurse leaders must be acutely aware of their use of this type of staff and have a strategic plan to use them as efficiently as possible. Often, unit managers and directors will fall into the trap of committing to the resources for longer than required and continue to renew them past the time that they are needed. Workforce demands, and supplies vary, so data should be part of the strategy department leadership uses to drive decisions on when and how to commit to contingent labor. Although facilities usually track how long it takes to fill open positions, this data is provided retrospectively, which may not be helpful in making real-time decisions. Using market-specific

real-time trends on fill times for specialty areas in a hospital can be a valuable tool for leaders to have. By combining this knowledge, along with tracking tools and flexible contracts, unit leadership can be effective in achieving cost savings, reduce dependence on contingent labor and provide some cost avoidance.

Departments already challenged with filling vacancies and core gaps in scheduling need tools to enhance communication among staff. Leadership must be able to quickly notify staff of open shifts and provide a platform whereby staff can easily see whom they are working with and where holes may exist. Better communication may enhance staff collaboration and potentially reduce the impact of last minute sick calls and filling shifts when census demands fluctuate. Using all these tools together, unit leaders can accurately plan for their workforce needs, heighten staff satisfaction, and be more effective stewards of their facility's financial resources.

Problem Description

Precise and accurate staffing is an accomplishment all healthcare organizations strive for. Comprehensive workforce planning is at the very core of this issue and is the foundation for overall long-term strategy but also encompasses the day-by-day, shift-by-shift forecasting at the care delivery level. Being unable to strategize beyond the daily staffing challenges sets leadership up for difficulties in meeting overall strategic organizational objectives. Healthcare leaders need workforce data that not only gives them intelligence on national market trends but also provides a regional perspective. Variable nurse staffing demands have always presented challenges for nursing leaders. Developing and implementing tools that aid in this decision-making process is essential to the overall success of the organization (Bryce & Christensen, 2011). As population health strategies and the drive for value-based care increase in demand, innovative approaches to on-demand staffing must be applied across the healthcare system. At

every level of an organization, a calculated approach to staffing, including the use of supplemental labor and a just-in-time approach brings value and efficiency. Many tools and studies over the years have explored this challenge. As modern healthcare moves into the new era of value-based care, do proven tools from the past still hold up, providing nurse leaders with the key to unlock the door of total staffing effectiveness? Nurse leaders need to have data at their fingertips that can provide guidance and benchmarking when it comes to the best possible staffing decisions and solutions. Studies show that an integrated approach to staffing across an enterprise is beneficial to overall efficiency and effectiveness (Bryce & Christensen, 2011).

PICOT Question

A PICOT (population, intervention, comparison, outcome, timeframe) was developed to guide the search criteria and provide a framework for critical appraisal of the available evidence and research. PICOT- Can the implementation of a workforce stability tool kit aide in reducing the cost and utilization of contingent labor, when compared to no tool kit, over a 6-month period?

Summary of Evidence

A comprehensive literature search was performed using the key words: *Workforce planning, contingent labor, time-to-fill metrics, contract labor, vacancies, turnover, retention*. The initial search in the databases, CINAHL, Cochrane, Fusion and PubMed, yielded 183 articles, and subsequently the search was refined based on references from the initial articles and the additional use of the words *healthcare workforce data*. The search was continually refined as articles accessed provided further references to consider. Evidence found in the literature was evaluated using the Johns Hopkins *Non-Research Evidence Appraisal Tool* (See Appendix A). (Dearholt & Dang, 2012). Evidence was considered based on level and quality and evaluated in

relationship to support of the defined problem and possible solutions (See Appendix B). (Melnyk & Fineout-Overholt, 2015).

Available Knowledge

Comprehensive workforce planning has many contributing factors. Supply and demand is one of these, but data and tools that use that information to drive decision-making are vital elements as well. There is no simplistic approach to this complex process. A model that can be replicated and applied across a system can be very complex to develop, let alone deploy. Advocate Health's quantitative components model study states that a mathematical model that can accommodate the abundant healthcare staffing intricacies is ideal (Gavigan, Fitzpatrick, & Miserendino, 2016). In the end, the tools need to provide the best possible answer when all staffing options are considered, including costs. Various factors should also be considered and included in the models, like a seasonality of demand for certain staff types. In the Advocate Health study, supply and demand was one of the major components considered, along with clinical division definitions, work rules, cost parameters and special cause data. The inputs were run through predefined derivatives (census models, ratios, and nonproductive time) and then applied to the model. Results found the best solution by cost and skill type needed. During implementation of this model, staffing was looked at as an ecosystem involving clinical leadership, finance, education, human resources and information technology. Each piece of this ecosystem was responsible for monitoring various metrics and key performance indicators once the model was in full use, thereby targeting workforce optimization.

A simulation tool can also assist patient care departments in a hospital to optimize variable workload with demand and resources (Bryce & Christensen, 2011). This model compared on-call, call-back and scheduled time (cost) to historical data. Applying the historical

data to a standard bell curve variation revealed opportunities to maximize on-call options, even though call-back costs can be exorbitant. Although temporary agency staffing should be considered in the overall model and can provide some relief during times of extreme shortages, it is not always the most cost-effective or quality-focused option (Seo & Spetz, 2014). The National Academies of Sciences, Engineering, and Medicine, formerly known as the Institute of Medicine (IOM), asserts that there are inherent risks in the use of supplemental labor even though it might be a cost-effective option (Adams, Kaplow, Dominy & Stroud, 2015). Its recommendation is that facilities and nursing leadership develop tools and strategies that assist them to eliminate the use of outside labor to the extent it is possible.

Many factors need to be considered in workforce option decisions, such as the cost of a full-time equivalent, including compensation and benefits; staff satisfaction; workload; and cost of onboarding both temporary and permanent staff (Jeffs, Grinspun, Closson, & Mainville, 2015). Additionally, the fatigue factor should always be kept in mind when considering staff schedules and the use of on-call or additional resources (Dent, 2015). Being adaptable and flexible to accommodate changing census and acuity is an ongoing challenge for most facilities, and the strategy of an internal agency is one that has gained popularity over recent years. In a study conducted at Emory University, a decision support tool and development and use of an internal agency pool proved wildly successful. In 2014, they exceeded their target hours' coverage by 133% using this internal agency and saved $1.1 million dollars over a 12-month period (Adams, Kaplow, Dominy & Stroud, 2015).

A study performed in Singapore took publicly available data from two hospitals, in Georgia and Illinois (Davis, Mehrotra, Holl & Daskin, 2014). Using this data, they applied a "newsvendor" model to test the hypothesis that staffing up--allowing for more resources than

required--in an ICU is never cost effective. By applying a complex mathematical equation to the data, researchers were able to achieve a 3.1% and 7.3% cost savings respectively.

Using manufacturing models of productivity in nursing has always been challenging (Nickitas & Mensik, 2015). In the era of value-based purchasing and care delivery, many nurse leaders are striving to adopt decision support tools for staffing that are not only data driven but also measured by quality. A critical element in providing high-quality care is having the nurses you need when you need them (Snavely, 2016). Anticipating gaps in position control and navigating solutions to address those gaps efficiently and successfully is sometimes an elusive goal. There is an abundance of evidence that shows a causal relationship between quality and staffing (Martin, 2016). Better patient outcomes and lower mortality rates have been at the crux of these studies and an association has been shown with adverse outcomes when resources fall short. Evidence-based practice models for staffing are still being developed and there is no doubt that this area is rich for further investigation and studies. Healthcare executives strive for and guide their staff to aspire to provide the highest quality care possible. Healthcare leaders need to use the data they have and seek out new data and insights to guide and benchmark outcomes to their staffing models and key performance indicators. Having evidence and data to support decisions gives key stakeholders credibility when alternatives must be considered. Beyond traditional tools, outside supplemental labor and internal agency pools are also factors that must be considered. Decision support tools should also be used in determining the right approach with regards to creative options and can be benchmarked and proven successful through evidence-based practice quality decisions. Having the resources, you need when you need them is critical to continuity of care.

The Need for Better Healthcare Workforce Data

The National Academies of Medicine, formerly, the Institute of Medicine (IOM) 2010 report on the *Future of Nursing* calls for better healthcare workforce data. Although data exists, there are gaps (IOM, 2010). Closing those gaps and making the data readily available to those planning and studying healthcare workforce policy is essential. Having a plan and best practices that promote an advanced workforce stability model can help healthcare leaders achieve this. Using workforce data to drive decision-making when it comes to an overall workforce plan is an undertaking that continues to present challenges to leaders in the industry (IOM, 2010). Healthcare leaders need to take on this challenge and use the data that already exists. Using data can provide guidance and benchmarking when it comes to the best possible workforce planning decisions and solutions. As healthcare entities work together more than ever before due to mergers and partnerships, applying this data in a useful way across an enterprise adds more complexity to an already complicated problem. Appendix B illustrates the elements of workforce planning. Supply and demand are influenced by many factors in each market. Our biggest opportunities as industry leaders exist in the bottom two sections, data and decision support tools.

Workforce data collection is vital for effective workforce planning (Bienemy, 2015). Being able to forecast needs at a regional and state level and use that model to plan more effectively at the unit and hospital level is essential. That is exactly the prototype created by the state of Louisiana in 2015 (Bienemy, 2015). This model sought to provide statewide data and apply it in a meaningful way giving leaders at the regional level insight into future RN workforce demand and supply projections. This representation took five categories of inputs and applied a model that predicted RN supply and demand in the state and by region until 2020. Subsequently

this data was supplied to hospitals statewide, to use as primary inputs for future forecasting for their staffing.

Similarly, the U.S. Department of Health and Human Services set out to project healthcare workforce supply and demand through the year 2030 (See Appendix C). This endeavor focused on RNs and LPNs and was developed using the Health Resources and Services Administration (HRSA) Health Workforce Simulation Model (HWSM). This model is an integrated microsimulation model. The report warns that there will be severe variability in supply and demand of registered nurses across states. Based on a workforce modeling calculation, this bureau sought to compare 2030 supply and demand to achieve projections for each state. This model incorporated projected population healthcare needs by state. When this was applied, the model revealed seven states that will experience a severe shortage of registered nurses across the care spectrum, to meet their demands by 2030 if the current level of healthcare is maintained. California is one of these states: it is projected to have a shortage of 44,500 registered nurses to care for its population by 2030.

HWSM estimates current and future supply for many healthcare disciplines and in various settings. Supply and demand were assumed to be equal in the base year 2014. Supply encompassed many factors, like existing workforce, new entrants into the workforce, and workforce participation decisions, including retirement and patterns of current hours worked. The demand modeling included population demographics, patterns of use within healthcare and demand for healthcare. The modeling showed national trends but specifically highlighted regional locations that will have severe shortages and some surpluses by 2030. Although workforce planning is imperative for all healthcare leaders, understanding these projections and how they affect regional workforce supply and demand is critical.

The Need for Workforce Planning

Having the resources needed to delivery safe, quality- and value-based care is a core foundation for all healthcare organizations. In healthcare, every role is important, but our greatest need is for those who provide care to patients. The American Organization of Nurse Executives (AONE) recommends four steps in the workforce planning process: data, strategy, planning and evaluation (AONE, 2013) (See Appendix D). It is no surprise that data is at the top of this list, as it affects each of the other categories. The current data on workforce metrics is sometimes lacking and often reported retrospectively. Although retrospective metrics are important to review and understand for future implications, real-time data contributes to a flexible and nimble approach to getting the right nurses in the right place at the right time. Turnover and vacancies are extremely costly to an organization both financially and operationally. Furthermore, gap times, the times when there are vacancies in your position control and schedules, can also be costly if not managed efficiently and diligently. The cost has both financial and work environment implications, since the effect on employee morale and job satisfaction can be a further drain on the organization (Jeffs, Grinspun, Closson, & Mainville, 2015). Inability to fill gap times can cost you greatly in employee relations. Striking the balance between filling gap times and working efficiently is one of the keys to workforce planning.

Developing and implementing tools that aid in the decision-making process for on-demand staffing are essential to the overall success of an organization (Bryce & Christensen, 2011). As population health strategies and the drive for value-based care increase in demand, innovative approaches to on-demand staffing need to be flexible and reactive to all influences, including the outside market. Healthcare workforce planning should be a multidisciplinary and multidirectional effort between human resources, organizational leadership and clinical

leadership. Human resources executives play a key role in this endeavor; however, clinical and organizational leadership have not only a vested interest in participation, but also a professional obligation to ensure they have the necessary staff to care for the patients they are committed to. Workforce planning cannot be done in a silo, and should be multidirectional (AONE, 2014). Each area of operational leadership needs to have visibility and ample data that can help drive a plan and decision-making.

Workforce Planning Models

In September of 2014, AONE, in conjunction with the American Hospital Association (AHA), and the American Society for Healthcare Human Resources Administration (ASHHRA), published a white paper entitled "Developing an Effective Healthcare Workforce Planning Model." (Appendix E). This model provides healthcare leaders with thought-provoking questions and guidance related to developing a short- and long-term strategy in planning for current and future workforce needs. The model formulates that workforce planning in healthcare cannot be done in a vacuum and needs to incorporate a multidisciplinary and departmental approach (See Appendix F). Considering the ever-increasing constraints on supply and increasing demand, using a tool to proactively position your institution at the forefront of a dynamic healthcare workforce market can give you and your organization an industry leading position (Johnson et al., 2016). Healthcare today is a consumer-based industry, driving nurse leaders to seek more innovative options to elevate their organizations, in terms of quality and safe care across the enterprise. This approach engages consumers in their own healthcare, providing excellent outcomes for patients and ultimate job satisfaction for nurses.

Rationale

Conceptual Framework

The World Health Organization Centre on Health Workforce Planning and Research has developed a conceptual framework around healthcare workforce planning. This comprehensive model serves as a tool for considering all factors that influence and affect healthcare workforce planning (WHO Collaborating Centre on Healthcare Workforce Planning and Research, 2012) (See Appendix G). It captures the dynamic relationship between these factors and suggests that each one affects the others. Workforce planning occurs within the context of many factors, including social, economic, geographical, technical and political influences, as is evidenced by the outer circle of the framework. The model, however, contends that workforce planning begins with population health needs. Identifying these needs and understanding how they will drive the model is fundamental. These needs will vary regionally; therefore, a comprehensive understanding of regional needs and specific challenges is critical. Additionally, local considerations for supply and demand are key to understanding the workforce landscape. The supply of new providers and caregivers will drive and affect the flow of services to individuals and populations. The supply of providers is impacted by financial resources and organizational management. Management then has the responsibility to deploy the resources they do have to direct care areas and operational management. The utilization of these resources is also key. Decisions must be made about employment status offered, such as full-time, part-time or as-needed (per diem). These resources are ultimately supported by facilities and technology that will drive patient, provider and system outcomes. Keeping this structure in mind while strategizing and implementing a comprehensive workforce plan is essential to providing context of commonality in the challenges that lie within the plan (WHO Collaborating Centre on

Healthcare Workforce Planning and Research, 2012). As healthcare leaders begin to assess the current state of their workforce and plan for future needs, this framework brings together the complex issues in a way that is applicable to any environment.

Leadership Framework

A leadership framework is essential as a guiding tool for the overall goal of developing a comprehensive workforce plan for any unit, facility and healthcare system. In 1954, Peter Drucker authored the "Practice of Management" as part of his overall theory of business (Vohra & Mukul, 2009). This theory is an overall theoretical framework for business and leadership and is one of many conceptual frameworks and thought leadership readings published by Drucker. The theory of business in its inception was used as a management concept that challenges businesses' overall performance. The concept of organizational planning built into this framework acts as a powerful planning tool and strategy for organizations. (Daly & Walsh, 2010).

Very few people would argue with the concept that healthcare is a business. Even nonprofit systems and hospitals need to operate like a business to survive. More importantly for Drucker, the leadership theory contained in the thesis is pillared by the concept of management by objectives. This framework goes on to explain that managers often become so focused on daily tasks that they lose sight of why they are performing those tasks, the overarching objective. Healthcare leaders are often guilty of this amid the highly complex daily demands of operating clinical care delivery areas. Drucker argued that managing by objectives helps to prevent the pitfall of being focused on tasks, rather than on ultimate ends (Vohra & Mukul, 2009). This theory contends that when objectives are clear and agreed upon leaders can focus on the *what* instead of the *how*. Drucker goes on to assert that ninety percent of the time managers don't

know or understand the objectives of the organization and thereby get lost in daily activities, oblivious to overall system, facility or unit goals. Additionally, this theory stresses the importance of planning. Execution of those plans are in the end results that customers and others experience. In healthcare the delivery of care is the result of system and organizational planning; having the resources to deliver the care is essential. Furthermore, implementation of a plan requires strategic thinking. In his theory, Drucker suggests a process that includes thinking, planning, reflecting and implementing.

Code of Ethics

The American Nurses Association (ANA) has a code of ethics with interpretive statements applicable to all nurses (American Nurses Association, 2017). This code of ethics is broken down into nine provisions and then subdivided into applicable sections. Provision nine addresses integrity of the profession. Specifically, section 9.2 mentions sustainability of the workforce. Nursing leaders have an ethical obligation to plan for and continue to develop their current and future workforce. To achieve this, leaders need to be aware of the current workforce landscape, understand the data that is available and strategize on how to meet this obligation to the profession and the patients to whom they are responsible for providing care.

Lessons from the Airline Industry

Airline operations have some similarities to healthcare, the closest being staffing and scheduling. The airlines were early adopters of technology, as it produces good returns when it is used to eliminate low-value operational activities (Guillot, 2016). The airlines have used many forms of technology, including self-service, not just for customers but for flight crews as well. Technology allows self-scheduling for flight attendants and pilots as well as push notifications for open flights and the ability to trade flights with similarly qualified colleagues.

By using technology allowing staff to help drive the scheduling process, the airline industry was able to significantly reduce canceled or delayed flights. These technologies are emerging in healthcare as well and should be tapped into whenever possible. Tools like these can become an integral part of unit, facility and health system culture and management.

Section III Methods

Description of the Present Situation/Context

The Perinatal Services Department at an inner city, Level II trauma center in Southern California consists of two primary units: Labor and Delivery (L & D), and Family Centered Care (FCC). These units are challenged by a high dependence on contract labor rapid response resources, to fill holes and gaps in the schedule and position control. Rapid response staff is more costly than traditional contingent labor staff, due to the quick nature of the needs. These units had relied upon this type of staff when critical holes arose, and they were unable to fill the needs timely. Once the resources were in place on the units, their contracts were continually renewed, in the absence of an exit strategy to replace them with less expensive options.

The L & D unit has a high vacancy rate in its position control and is challenged to find efficient resources to fill gaps and cover absenteeism on the unit. Absenteeism has a negative effect on the organization overall (Jeffs, Grinspun, Closson, & Mainville, 2015). From August of 2016 to August of 2017 these two units experienced 203 sick calls, negatively affecting operations within the department. The sick calls resulted in 203 shifts that either fell short of ideal staffing, as they were unable to accommodate elective procedures, and/or absent staff were replaced with costly contract labor. These shifts added to the already complex staffing challenges these units face. These sick calls have a negative and lasting impact, not only on the staff affected, but also on the ability of the units to provide services to both patients and

physicians. Additionally, due to vacancies in position control and difficulty forecasting how long it would take to fill those vacancies, the Perinatal Services Department spent $543,000 on contingent labor in one year.

This department has experienced some recent workforce instability. There has been an increase in vacancies and turnover and the department has become dependent on uncertain contingent labor to fill the gaps. Lacking an overall plan to address the core issues, and without an understanding of how market conditions will affect the length of time it will take to fill vacancies, contingent labor assignments have simply been renewed. The department director continues to struggle with a strategy and plan.

A comprehensive workforce assessment was performed for both units in the Perinatal Services Department, L&D and FCC. This assessment was performed in May 2017, to get a baseline status of the unique workforce challenges facing these units, considering the current business development growth strategy for the organization. A proactive approach to workforce planning is key to achieving operational and financial goals.

Current Workforce Status Assessment

These two departments have varying vacancy rates. FCC enjoys a relatively low rate at 5%, while L&D, the more difficult unit to staff, is currently experiencing a vacancy rate of 21% (See Appendix H). Additionally, the department director is currently facing a large number of medical leave of absences (MLOAs) on both units. Currently, out of fifty full-time employees, there are seven RNs out on a mix of both personal and workers compensation-related medical leaves of varying lengths. These MLOAs create unique challenges on both units from a daily staffing perspective. Because the positions cannot be permanently replaced contingent options must be considered to fill the gaps even though the defined period of leave varies in each case.

Although these units continue to enjoy a relatively low, less than 3% annual turnover rate, the organizational growth targets for these units have strained the current workforce and a reliance on costly and risky contingent labor is not a standard that is desired.

Unique Challenges

There are unique challenges associated with staffing L&D and FCC. Experienced labor and delivery nurses are difficult to recruit, and training new staff takes a very long period of non-productive but paid time, approximately six to twelve months. Finding these resources when needed is difficult and when located they usually require long-term commitments, which creates financial and operational challenges. Additionally, this department is facing the retirements of two key long-term charge nurses in the next sixty days, fall of 2017. The two positions will be backfilled internally with promotions; however, those promotions will create two more vacancies in the position control in the coming months.

Organizational Insight

The department director for the two units is faced with several unique challenges in the overall workforce plan and in meeting daily staffing needs. She is often caught up in the daily tasks of staffing each shift. The department is further strained by the organizational drive for increased business development in these units, while also focusing closely on labor productivity. The Perinatal Department needs a forward-thinking workforce plan to address these issues. This plan needed to aid in managing contingent labor resources, but also provide flexible solutions to supplement core staff. Tools were also needed that would engage the core staff in reducing sick calls and the impact they have on overall operations, additionally keeping staff engaged in unit and staffing operations through technology and self-service. The department committed to implementing tools that will help with better insight into the workforce data and innovative

options staff and the director can use to address the operational challenges they have faced in the past to continue providing consistent, high-quality patient care.

Identified Gaps

During the organizational assessment there were many identified areas for improvement. Until some of these challenges are solved, the department would continue to struggle with day-to-day needs and be unable to focus on a long-term plan and a strategy for overall workforce sustainability. By first focusing on a few key areas that could be improved quickly and efficiently the department could then start to focus on a long-term strategic workforce plan that addresses other issues like turnover, vacancy rate and recruitment. Three key areas are outlined below that can had an immediate impact.

1. Reduce the use and cost of contract labor, eliminate the use of rapid response staff
2. Increase staff engagement for picking up open shifts when there are holes in the schedule or gaps
3. Decrease sick calls in both departments to lessen the operational impact they have

The workforce management of the perinatal departments is a fluid and ever-changing situation. Implementation of a workforce planning tool kit helped to drive cost savings and operational changes that will become part of this department's daily operations and culture. Improvement in the metrics would not only help the overall operations of the department but have a positive financial impact on the organization. Once the project was complete, the organization considered adopting the tool kit for use in other departments that are also facing workforce challenges. Three options were considered.

Option #1

Take no action to change the current workforce challenges in perinatal services. Continue relying on expensive rapid response contract labor to fill the holes in the schedules and gaps in the position control. Continue with a very high number of sick calls from the core staff with very few options other than contract labor to fill those shifts when they arise at the last minute.

Option #2

Deploy only the WIN Workforce Analysis Vision and Execution (WAVE) tool with LiquidCompass input, to drive better workforce data and insight with which to drive departmental decision-making. This option would likely result in some decrease in money spent on contract labor monthly but doesn't address the sick calls or core staff shift pick-up as an option to further decrease the dependency on contingent labor.

Option #3

This option was full deployment of the WIN Workforce Tool Kit, including the WAVE tool with LiquidCompass input and NurseGrid self-service scheduling application, new agency agreements to allow for flexible assignment lengths, and resource tracking and approval tools. This option is the complete tool kit, which will have a positive impact on both workforce planning for perinatal services and reduce dependence and money spent on contract labor. Additionally, a reduction in sick calls and an increase in staff satisfaction is anticipated.

Intervention

AIM Statement

The aim of this project was to reduce Perinatal Services Department's use of and dependency on supplemental labor through the deployment of the Workforce Innovation Navigators (WIN) workforce stability tool kit, resulting in cost savings, cost avoidance and operational improvements (See Appendix I).

Project Goals

The goal of the project was to implement a workforce stability tool kit for the Perinatal Services department. Through a consulting partnership with WIN, a nurse-led healthcare workforce strategy company, and the encompassing tools in the WIN tool kit, the department leadership had data and tracking tools that allowed them to focus on stabilizing their current workforce challenges. Market-specific "time-to-fill" data from LiquidCompass was used through the WAVE tool. With these data, the director was better able to forecast options to fill gaps in the schedule and position control, focusing on using less expensive options. The tracking and technology tools assisted in overall visibility and staff engagement through a self-service application called NurseGrid.

A workforce planning assessment, was performed first using the AONE tool as a guide. This was completed prior to the intervention. Based on the assessment results, these specific solutions were crafted to provide the best impact and some short-term solutions; with an overall strategy being the long-term objective. Specific targets were a reduction in the use of and dependence on contract labor, and an application to push out open shifts to core staff to fill holes and reduce absenteeism by increasing overall unit communication. Improving processes in the

control and management of contingent labor through tracking and improved contract language was also essential.

Although other workforce elements such as vacancy rates, turnover, recruitment and retention continue to be challenges for this organization, this project was not specifically focused on impacting those metrics. Applying Peter Drucker's conceptual theory and relating the WHO model to this situation, the first step was a regionally specific toolkit providing tools to the department leadership and driving immediate improvements. A second phase of this project to address the other workforce elements, such as turnover, recruitment, and compensation, not being specifically addressed in this project will be recommended.

Tool Kit Solutions

Workforce Innovation Navigators

WIN is a nurse-led consulting firm located in Southern California. This firm, partners with systems, facilities and providers to generate and streamline their workforce stability and sustainability strategies. The primary consultant from WIN was the project lead, DNP student and developer of the Workforce Analysis Vision and Execution tool.

WAVE Tool with LiquidCompass

The Workforce Analysis Vision and Execution (WAVE) tool was developed to assist leaders in identifying true gap times in position control and scheduling to drive better decision-making on filling those gaps (See Appendix J). The WAVE tool was developed by a team of experts in areas including healthcare workforce operations, data management and Excel configuration. This tool gave department leaders historical and geographical workforce data from LiquidCompass in conjunction with hospital metrics, fostering better decisions on filling gaps in schedules.

LiquidCompass is a leading healthcare recruitment and analytics company. At the core of the company's technology is a data collection and intelligence platform that daily aggregates job openings from healthcare employer websites across the United States, and converts the raw job postings into a standardized, structured data set. This data is then mapped to attributes that are meaningful to both healthcare recruiters and job seekers, including key properties such as job title, specialty, shift, work location, education and experience requirements, as well as salary and bonus offerings and time to fill (See Appendix K). These data show national trends in the market, but also drill down into metric and major indicators, including average time to fill in defined geographic markets.

Fill-time data is often reported in retrospect at the facility and unit level. Using real-time market-specific data leads to better planning. Taking geographic fill-time data averages provided insight into the first piece of the gap equation (See Appendix L). Market level data did not exist until LiquidCompass. The second piece of the equation was time to productivity. This is the time it takes once a position is filled until that resource is fully productive. During the interim period, patients must still be cared for and until the resource is completely prepared to do so, those gaps must be covered. Considering market-specific fill times and hospital-specific data on time-to-productivity gave the department leadership better insight into what resources were needed when, and for how long. Traditionally, travel nurse contract labor assignments tend to be thirteen weeks in length. If total gap time is fewer than thirteen weeks, they may have overcommitted to expensive contingent labor.

Bringing the WAVE tool together with LiquidCompass supported department leadership in evaluating market-specific time-to-fill metrics for identified clinical specialties. The tool also served as a dashboard for some metrics identified by department leaders to use in benchmarking

themselves and to monitor progress. The benchmarks included turnover and vacancy rates, as those are important care metrics when developing a complete vision of workforce planning; however, this project wasn't specifically focused on improving vacancy and turnover. Placing facility metrics together with data from LiquidCompass brought together critical pieces of the workforce puzzle.

NurseGrid

The next tool in the kit was the implementation of the NurseGrid application. This application assisted unit leadership and staff in communicating more efficiently and effectively, including being more proactive about filling holes in the schedule and responding to real-time unit demands. This application simplified communication, staffing, and schedule management, making operations more efficient and productive. Each staff member could communicate with each other and the unit leadership through the application. The application was applied to assist in filling holes and last-minute needs in the schedules by using push notifications to staff, improving overall unit communication and effectiveness. The application was used as a first attempt to fill the needed shifts, prior to reaching out to contingent labor agencies. This instrument allowed department leadership to make schedule changes to meet overall unit demands before turning to contract labor, an expensive and inconsistent option. These units need notifications were achieved through easily pushed announcements to staff cell phones and connected the active users on the unit via the platform (See Appendix M). Since the unit schedules, including vacation and non-productive education time, were uploaded into NurseGrid, the application was able recognize and screen out for those who were not available for the extra shifts prior to the notifications going out. The use of applications such as NurseGrid that are

helpful in better managing variable units demands can provide additional value and efficiency to an organization.

Contingent Labor Control/Approval Logs

In the absence of oversight and controls on contingent labor, the pool of resources can grow beyond what is truly needed and have a negative impact on budget and full-time employees' hours. The development of contingent labor control logs was an essential piece of the workforce tool kit (See Appendix N). These logs were designed to be department-specific, enabling the leadership of the department to see exactly how many contingent resources they have currently on contract, and how many are planned for future assignments. Using the logs in conjunction with the WAVE tool and LiquidCompass fill-time metrics will drive more strategic decisions in relation to contingent labor resources and contractual commitments.

New Contracts

Addressing the contractual needs of the facility with the providers of contingent labor is an essential component of the workforce tool kit. Industry standard assignment lengths of thirteen weeks may not be necessary for all assignments. Having contracts that allow for flexible assignment lengths based on the fill-time metrics from LiquidCompass and the WAVE tool would give the department leadership more options when considering a contingent resource. Identifying agency partners that are willing to work with leadership on flexible solutions will be an important step. Keeping agency rates competitive so the resources are available to the facility is crucial. Coupling that with language that allows assignments to meet the needs of the units will aid in driving cost savings and cost avoidance.

Planning the Intervention

Project Design

The detailed statement of proposed work is displayed in the work breakdown structure (See Appendix O). The project lead from WIN developed the WAVE tool with LiquidCompass data and configured it for the departments involved with metrics defined by the unit leader. Vacancy data was added to the tool by unit leadership for benchmarking and overall workforce insight. Access was given to the LiquidCompass database. The fill-time metrics were pulled for the Orange County market in Southern CA, for both labor and delivery RNs and post-partum RNs weekly. The WAVE tool was subsequently populated and used in weekly strategy meetings with the department director to drive decisions about labor utilization.

Profiles were created by NurseGrid for each staff member on both units. Adoption of the NurseGrid application was announced to staff and they were encouraged to download the free application to their smart phones in August of 2017. On-unit training and needed support with application download or activation was provided by NurseGrid and the project leadership team. Schedule uploads from the internal staffing system StaffRunner began on September 1, 2017. Active users were able to see their schedules and communicate with others via the application, including receiving push notifications for open shifts or unit needs. The active users could clearly see unit staffing shift by shift and were able to identify who was working and when.

New agency contracts were sent to agency partners in August of 2017 and went live September 1, 2017. These new contracts included flexible assignment lengths that could be used by the facility as needed. Additionally, traveler control logs and approval forms (See Appendix N) were created and went into effect September 1, 2017. These logs included the contingent

labor information such as resource name, agency, specialty and the length of the approved assignment.

Key Stakeholders

Due to the recognized workforce gaps for these departments, identified in the assessment, and the selected solutions, key stakeholders were named, including organizational leadership for the units involved who all expressed interest in participating in this program. These leaders were the department director, four charge nurses on each unit and the nurse educator for the department. Additional key stakeholders were identified from LiquidCompass, specifically the Chief Executive Officer (CEO), and the lead account manager working on the project from NurseGrid. The lead for the project was a consultant from WIN, who was a DNP student. The staff on each unit were also stakeholders for the use of the NurseGrid application. Although the use of the application was not mandatory, it was highly encouraged, and all staff received a pre-built profile and log-in information from which they could then customize options for communication.

Strategic Messaging

Messaging to the staff on the units was purposeful and direct. Through a written communication from the unit director, flyers on the units, and messaging, through the NurseGrid application; staff was made aware of the opportunity to use and benefit from the application. Additionally, on-unit verbal communication at shift change and as time allowed throughout the shift was provided by the charge nurses, unit educator, project lead and director. Communication directed to the staff was aimed at pointing out the benefits and ease of use of the application. Two WebEx training sessions were provided to staff and charge nurses who expressed interest in

them. The application was provided at no cost to the staff and was free for them to download from the application store of their choosing (See Appendix P).

Messaging for the unit leadership was done on two levels. Weekly strategy meetings were held between the department director and the consultant. At these meetings the overall workforce stability plan was discussed, and the WAVE tool was populated with the time-to-fill metrics from LiquidCompass. Contract labor data and sick call data from the prior week was analyzed and considered. The project aims, and results were also discussed at monthly staff meetings and in weekly meetings between the department director and her charge nurses.

SWOT Analysis

A SWOT analysis is provided herein (See Appendix Q). A specific strength for this project was the baseline workforce assessment, which brought to light current challenges in workforce stability within the departments and identified specific solutions to address them. The solutions were customized to the contexts of the challenges and involved real-time, market-specific data that propelled decisions around contingent labor. The solutions included in the workforce stability kit were innovative and compelling. Both NurseGrid and LiquidCompass bring forth new data and applications that the department leader had not considered before. Real-time market-specific time-to-fill metrics did not exist in the industry prior to LiquidCompass and NurseGrid provided a streamlined solution for pushing out open shift notification to all eligible staff with a few clicks on a smart phone. Any time processes are changed, or new tools are implemented adoption and acceptance can be both a weakness and a threat. The units have a diverse and multigenerational workforce at varying levels of engagement. Operational priorities, regulatory requirements and changes in leadership were significant threats to the overall success of the implementation.

Barriers

Barriers in this environment were abundant. The facility and units concerned have a multitude of challenges including several changes in ownership and leadership over the past three years. This has created a bit of a void in defined processes and workflows. Several key positions remain vacant, and all these conditions have put immense strain on this health system.

Often adoption of a new tool can be challenging due to various factors including time constraints and change in process. Additional work and steps in a process create opportunity for errors and resistance to new steps in a workflow. Dealing with robust data can present challenges from several perspectives. Ensuring that the data was entered timely and available to unit leadership was important. It was also necessary to protect the integrity of these data from the previous month, as new invoices from contract labor agencies streamed in weekly. Processes for data collection, storage and analysis were well-defined and controlled (See Appendix R). Any new concepts and processes face challenges. Shining light on data and potential challenges in an organization can also be met with significant resistance.

Resource Requirements

Resources and associated responsibilities are listed (See Appendix S). Resources included but were not limited to:

- The project leader, an external consultant from WIN and an EL-DNP student at the University of San Francisco, whose responsibilities included project oversight, coordination of data for the WAVE tool, weekly strategy meetings with the department director, and distribution of new contracts
- The facility resources, including the department director, the department educator, charge nurses and the staffing coordinator. The department director attended the weekly

strategy sessions, facilitated communication with the staff regarding the project and assisted with oversight of the data. The staffing coordinator facilitated extracting schedules from StaffRunner, faxing agency time sheets weekly and entering and updating invoice data weekly. Training, communication and support was all done during work hours on the unit, so replacement staff was not needed.

- NurseGrid provided a dedicated account manager who built the staff profiles, uploaded schedules into NurseGrid from StaffRunner, provided technical assistance and training as needed.
- LiquidCompass provided access to their database, training and support as needed, and ongoing updates on market analytics as needed.

Project Controls/Lines of Authority

Project controls helped to foster clear lines of communication and task expectations. Defined responsibilities were communicated to key stakeholders and resources in advance of the project and throughout. The project leader had overall responsibility and oversight during the project. Decision-making was done at the project lead and stakeholder levels as necessary. Support resources provided input, as did faculty as need.

Timeline

The project was carried out over an 8-month period, with data collection taking place monthly on contract labor spend and sick calls (See Appendix T Gantt Chart). Data was collected for the four-month period prior to the implementation of the WIN workforce tool kit and for the four-month period post-execution.

Proposed Budget

NurseGrid and LiquidCompass provided their tools in-kind to the facility, inclusive of the applications and any training or support required. The project lead, an external consultant from WIN, was also provided in-kind to the department leadership. However, a cost benefit analysis was performed and provided for purposes of evaluating the true value of the project if the actual costs (See Appendix U) had been incurred.

Cost Benefit Analysis

Deployment of the WIN workforce stability tool kit required upfront costs in technology, WIN Workforce Tool Kit Budget and ROI. The WAVE tool and LiquidCompass each cost $1,200 in the first year, increasing by 6% in year 2 and 10% in year 3. Additionally, the NurseGrid Manager application for the department director costs $4,300 in the first year, increasing by 10% each additional year. Because the training was done on the unit during shift times with no required replacements, the cost structure for this project was simple. The training for the department director was also done during regular hours, eliminating the cost for any replacement time. The cost for the WIN consultants to implement the project was projected at $2,000 in the first year, increasing incrementally by $1,000 in year two and $2,000 to a total of $5,000 in year three. There were additional minimal costs considered for copying and, in years two and three, built-in costs for customization to the tool and application, based on the results in year one.

A cost benefit analysis was performed for this project based on the above referenced budget (Appendix V). The Perinatal Services Department spent $540,000 last year on contract labor, in both rapid response and daily per diem coverage. A modest projected 10% reduction in that spend by using the tools in the workforce tool kit would save the facility $54,000 in year

one, at a cost of $8,700, yielding a positive return on investment (ROI). Years two and three will yield additional savings, maintaining a positive ROI for all three years. Open shifts pushed out to active staff via the NurseGrid application, also provided cost avoidance by allowing core staff to work rather than using contingent labor to fill some of the holes and last-minute needs. Additionally, sick calls were tracked, which have a negative impact on operations and staff satisfaction. A reduction in sick calls and increased staff satisfaction have an overall positive impact and provide cost avoidance to the organization.

Project Evaluation

Data collected prior to the use of the WAVE tool with LiquidCompass, NurseGrid and the overall workforce assessment planning model was to be compared to the data collected during use of the tools for the defined time frame. The project lead, broke down the analysis by month, and a comparative analysis of the data pre and post implementation ensued. Additional and incidental findings have been included and discussed in the results section. With these data and results comparison, the project lead from WIN evaluated whether the combination of the overall workforce assessment WAVE tool with LiquidCompass and use of NurseGrid was effective in assisting nursing operations in these departments in decreasing dependence on contract labor, overall spend and cost avoidance.

Implications for Practice

Integrated workforce planning models are a crucial element of healthcare delivery. Healthcare leaders have more of the critical data they need to drive better staffing decisions. When this data is paired with support tools, we will have superior insight and analysis that has been long needed. Having the right amount of resources in the right places at the right times is a challenge but is also linked to good quality outcomes and safe care. Engagement at the

leadership level is an important element in comprehensive workforce planning (AONE, 2013). A tool to assist in evaluating and analyzing the empirical inputs available, including market and competitive metrics for healthcare, is needed. Industry leaders that use the data that exists to guide the development and practice of workforce planning and sustainability applications will undoubtedly be ahead of the curve. The use of this workforce planning tool kit can potentially help to significantly reduce fill times and drive variable resource decisions that affect operations in critical clinical areas, thereby affecting good quality outcomes and safe care delivery.

Ethical Considerations

Organizational approval for this practice change, process improvement project was obtained by key stakeholders involved in the project. Leadership from WIN, NurseGrid and LiquidCompass also approved of the project and supported it. A Doctor of Nursing Practice (DNP) statement of non-research determination was submitted to the University of San Francisco School of Nursing and Health Professions and approved by faculty in the fall semester of 2016. The project received approval as a non-research change in practice process improvement project (See Appendix W). Additional ethical considerations were taken in reflection with the Jesuit Catholic values of the University of San Francisco. Specifically striving for excellence during the project and helping this facility by educating and changing practice through evidenced-based critical thinking and responsible behavior changes.

Section IV. Results

Method of Evaluation

The method of evaluation for this project was mixed method, quantitative and qualitative. Contract labor data is reported monthly and tracked by unit, agency and staff type. Baseline data was collected for the four months preceding the implementation of the Workforce tool kit, and

subsequently also collected for four months post-implementation. The pre-and post-data was analyzed and compared by the project leader. Additionally, sick calls, the number of rapid response contract staff, and average length of contract assignments was tracked, collected and compared post-implementation. Cost avoidance was calculated for sick calls and contract labor spend data was compared in actual invoice and paid data.

Baseline Data

Trends in the baseline data for L&D and FCC prompted this improvement project. Both units were showing upward trends in spend and total number of rapid response contract labor staff. Rapid response contract labor was brought in to fill critical openings in each unit, but contracts were commonly extended every 13 weeks in early 2017. The contracted hourly bill rates for Rapid Response staff is significantly higher than traditional travel nurse bill rates. For L&D they were 29.2% higher and for FCC, 32% respectively. This type of staff had been continually renewed by the department and not replaced with the lower hourly bill rate travel nurses. The baseline data revealed $268,840 in contract labor spend for L&D and $12,360 for FCC between May-August 2017. Sick calls totaled 32 for L&D and 33 for FCC. The average assignment length for each of the contract labor staff was 13 weeks. The vacancy rate was 21% for L&D and 5% for FCC. The market-specific time-to-fill rate for specialty nurses was 64 days for L&D and 33 days for FCC, therefore 13-week assignments or 91 days, was 27 days greater than the projected fill time for L&D and 58 days for FCC.

Administration of the Tool Kit

Baseline contract labor data was collected from actual agency invoices from May 2017-August 2017. A spreadsheet was created for tracking spend by agency, unit and month. This spreadsheet was populated by the staffing coordinators upon receipt of invoices from contract

labor agencies. The spend data was recorded in the month the shifts were worked rather than the month the actual invoice was paid, to ensure that spend data was accurate month to month even if an invoice was tied up in accounts payable waiting to be paid.

Sick calls were entered into StaffRunner, the nurse staffing system. Sick calls are initially recorded on the daily staffing records and then entered back into StaffRunner the following day by the staffing coordinators. Sick calls are tracked and recorded by staff member name and unit for the date and reason if one was given. This data was then pulled out of StaffRunner on a sick call report for both L&D and FCC. The baseline data was collected for the four months preceding the tool kit implementation and then again for four months post-implementation. The sick call report was run monthly and tracked in an additional spreadsheet. Implementation of the NurseGrid application began September 1, 2017 and continues to be downloaded and activated by staff in both Labor and Delivery and Family Centered Care.

The number of rapid response travelers was also tracked monthly based on contract requirements. Additionally, assignment length for active and new travelers for both units were tracked pre-and post-tool kit implementation. This information was tracked on a traveler control log, as part of the tool kit, along with a new traveler approval form and new contracts with each agency allowing for flexible assignment lengths executed September 1, 2017.

Vacancy and time-to-fill data from LiquidCompass were entered on the WAVE tool monthly. The vacancy rate was provided to the project lead by the department's director, based on position control Excel logs. The time-to-fill market-specific data by specialty was entered on this tool monthly after taking an average of the daily fill-time metrics for the preceding month. Vacancy rate and time-to-fill metrics were discussed with the department director in a weekly meeting and strategy planning session.

The NurseGrid application was one of the tools in the workforce tool kit. This tool is a two-way application designed to be used by staff and unit leadership to communicate scheduling needs, propose open shifts that need to be filled and trade shifts between staff members. The initial launch of the application took place on September 1, 2017, and training was provided on the units and via two WebEx sessions on October 7, 2017 at 6pm for the day shift and 8pm for the night shift. Additional assistance was provided to staff on an ongoing basis as needed and with the unit leadership in weekly touch-base meetings. This application was used in one phase during the four-month period of the project and Phase II is planned for mid-2018. Phase I included the use of the application for communication and pushing out open shifts. Phase II of the rollout in the coming year will include the ability to trade shifts through the application and obtain charge nurse approval.

Results

Quantitative Contract Labor Spend

This project utilized a mixed methods approach. The quantitative results were measured by comparing contract labor spend for both units, L & D and FCC, for four months prior to the implementation of the WIN strategic workforce tool kit and four months post-implementation. Additionally, sick calls were tracked and measured for the same time pre-and post-implementation. The Labor and Delivery unit spent $268,840 on contract labor in the four months preceding implementation and $239,202 in the four months post-workforce tool kit. FCC spent $12,360 in the four months prior to implementation and $3,458 post-tool kit. These results showed an 11.02% reduction in contract labor spend for Unit A and a 72% reduction in contract labor spend for Unit B (See Appendix X). Unit A reduced total contract labor dollars by $29,638 and Unit B by $8,902. The initial goal for this project was to reduce cost by 10%.

Results exceeded this goal. Additionally, the department was able to focus on an exit strategy for the rapid response staff and replace them over time with less expensive contract labor by using traditional travelers for eight and ten-week contracts versus the industry standard thirteen weeks.

Quantitative Sick Calls

During the four-month pre-implementation period measured, L&D experienced 32 sick calls and FCC recorded 33 sick calls. After implementation of the workforce tool kit that included the NurseGrid application that number was decreased by 12.5% to 28 for L&D and 17% to 27 for FCC. The cost avoidance associated with the reduction in sick calls was calculated as the $1,200 per shift average cost of a contract labor nurse, used to fill the gap associated with sick calls. The total reduction in sick calls for the four months post-tool kit implementation helped the units avoid $10,800 in costs (See Appendix Y).

The NurseGrid application had both units' schedules uploaded every four weeks. L&D had 1,319 scheduled shifts loaded into the application for staff to view via smart phones or computer access and FCC had 1,986 shifts loaded into the application. A total of 18 open shifts were pushed out through the application for both units during the four-month trial period. Pushing those openings out to staff allowed core staff to pick up those shifts when openings arose either due to census spikes or sick calls, avoiding the use of contract labor coverage for those shifts. The $1,200 average cost of a contract labor shift was used to calculate cost avoidance of $21,600 by use of the application from the tool.

Additional Metrics

Additional metrics were tracked throughout this project as important factors in the consideration of comprehensive workforce planning. With the use of the WAVE tool, unit leadership and the project lead were able to compare the average length of current contract labor

assignments on the units versus the average market-specific time-to-fill metric for each unit's specialty. At the inception of the project in September of 2017, the average length of each contract labor assignment was 13 weeks or 91 days. The metrics gathered from LiquidCompass showed a market average time-to-fill of 64 days for L&D and 33 days for FCC. This information, along with each unit's respective vacancy rate for open positions, allowed unit leadership to decrease the average assignment lengths committed to for contract staff from 91 days or 13 weeks to 70 days or 10 weeks, allowing time to fill open positions and coverage for overall gap time in onboarding new nurses to the unit. Onboarding time for experienced staff averaged two weeks. Through this project all rapid response staff was eliminated and replaced with traditional contingent labor at significantly lower bill rates, a reduction of 29% for L&D and 32% for FCC.

The WAVE tool also assisted the units' leadership in tracking and understanding how vacancy rates can affect the plan for filling gap times. Vacancy rates for both units were calculated monthly and discussed during weekly strategy sessions with unit leadership. Vacancy rates for L&D started at 21% and were decreased to 17% in December of 2017, and for FCC started at 5% and increased to 7% in December of 2017. Both units strove for a less than 10% vacancy rate. L&D experienced a slight decrease of 3% but did not hit the goal of 10%; FCC had a slight increase but remained well below 10%.

Organizational Measures

As noted prior to the implementation of this workforce planning tool kit, the two units involved had experienced a gradual increase in contract labor spend and sick calls on both units. Reliance on rapid response contract labor became the norm, resulting in increased spend. Overall this facility struggles to keep pay rates in a market-competitive range, thereby making

recruitment and retention of core staff a challenge. The goal of this project was to provide unit leadership with tools for overall workforce planning to drive better decision-making, reducing contract labor spend and the operational impact of sick calls on the organization. The project did not focus on recruitment and retention challenges, but leadership and the project lead do recognize that those challenges affect this overall picture. The facility has taken on a comprehensive salary review for all units and is currently undergoing task force work to improve salaries in identified areas of extreme shortages and hard-to-fill areas. This task force has not yet completed its work; however, once the review is complete and salary adjustments are implemented the hope is that recruitment and retention will be less of a challenge for these units. Unit leadership understands these factors and how they will need to be monitored and considered in the plan going forward. Additionally, during this project, there were two Joint Commission surveys requiring department leadership's attention and resources for preparation and follow-up. A critical crash of patient monitoring equipment occurred during the same period, and unit leadership resources were allocated to that project full-time.

Qualitative Findings

Although this project was focused on cost saving and cost avoidance, it is important to note some of the qualitative findings. The project was well received by department leadership, including the charge nurses on each unit. Unit leadership expressed gratification with the project for shedding light on some of the workforce challenges they were experiencing. Prior to the rollout of the NurseGrid application, a brief survey was conducted with Unit A and Unit B staff to assess their current level of satisfaction with notifications of open shifts and being called to pick up extra shifts (See Appendix Z). There were 18 respondents to the survey, and 13 of those or 72% rated being called to work extra shifts as very bothersome, or 5 on a scale of 1-5. Sixty

percent of those responding to the survey ranked their satisfaction with the current unit technology as 1, or not satisfied at all.

Four months after the NurseGrid application was introduced to the staff on both Perinatal Services units, a general overall satisfaction survey was conducted with staff that had activated their profiles and were using the NurseGrid application (See Appendix AA). Of the staff that responded to the post-implementation survey, 83% ranked their satisfaction with using NurseGrid at 5 on a scale of 1-5, with 5 being very high. Participant impressions of the tool were captured in the following quotes:

- *I wish more of my colleagues would use the platform*
- *This really streamlines the process for extra shift notifications and trades*
- *This has been a great addition and tool for the unit to use*

Section V. Discussion

Summary

A strategic workforce planning tool kit was implemented within two units at an inner-city Level II Trauma Center in Southern California. Use of the tool kit was intended to help the two units achieve cost reduction and cost avoidance in the use of clinical contract labor to fill vacant positions and backfill sick calls. A growing dependence on contract labor to fill vacancies had been noted in the prior twelve-month period, with L&D spending $257,727 and FCC $21,000 in the six months prior to tool kit implementation. This was a 50% increase year over year in spend and it became the driving factor for improving the overall process and data utilization to drive awareness and decision-making. The expense of contract labor had been increased by a dependence on rapid response contract labor, which can cost a facility significantly more than traditional contract labor rates. Rapid response is designed for short periods of time to fill

critical needs, but these resources were being kept for full 13-week assignments and often renewed for an additional 13 weeks, increasing costs and spend. Further impacting the workforce structure within these units were the large number of sick calls on each unit in the preceding 12 months (93 on L&D and 98 on FCC), amounting to 13% of shifts either falling short or being backfilled by agency staff at a premium rate.

The tool kit consisted of the WAVE tool, which assisted unit leadership in understanding and benchmarking market-specific fill-time data from LiquidCompass, traveler control logs, new agency agreements, and the NurseGrid application, to assist staff to communicate about their schedules and push out open shift notifications through the application.

Baseline data for both units was collected for a four-month period prior to the tool kit implementation and aggregated in a spreadsheet for post-implementation comparison. These data points included total contract labor spend, total number of sick calls per unit, the number of rapid response and traditional contractors on each unit, average length of each contract assignment, unit vacancy rates, and time-to-fill metrics from LiquidCompass. Data was collected monthly and entered to the tracking spreadsheet. Monthly meetings were held with unit leadership to discuss the ongoing project data collection. Weekly meetings were held with the department director to review data and the WAVE tool metrics, and discuss strategy based on current data points such as time-to-fill metrics.

Data was collected for a four-month period from September 1, 2017 to January 1, 2018. All data collected during this period was aggregated and compared to data from May 2017-August 2017, the four-month period prior to implementation. The data points were reviewed and analyzed for pertinent trends and findings.

Interpretation

Implementation of the Workforce tool kit met and exceeded the goals set for the project, as evidenced by a decrease in total contract labor spend for the four months following implementation and a decrease in the number sick calls each unit experienced. Prior to implementation the Perinatal Services units were spending significantly more money than desired on contract labor and a high number of sick calls was further contributing to staffing challenges and affecting operations. Implementing this tool kit shined a light on these issues and focused attention on data that can provide better visibility into steps that could be taken to minimize contract labor spend and the operational impact of sick calls. By utilizing the tool kit, the department director was able to focus on data to drive decision-making as it relates to the use of contract labor and communication among staff to fill gaps in the schedules. An additional benefit from the project was the education for the department director and charge nurses on workforce metrics and planning.

Contract labor spend on L&D was reduced by $29,638 or 11.02%, and on FCC by $8,902 or 42%. This was accomplished by decreasing assignment lengths for contract positions by three weeks, based on fill-time data from LiquidCompass, and execution of new agency agreements allowing for flexible lengths. A decrease in sick calls also contributed to the reduction, by cutting down on the number of shifts that needed to be backfilled by agency staff for last minute call-ins. The use of the NurseGrid application from the tool kit aided in this endeavor by facilitating communication among staff as it related to the schedule and covering gaps in addition to providing a platform to push out open shifts and unit needs in a blast communication to eligible staff, alerting them of the needs. The NurseGrid application had begun to spread to other units in the facility by the end of Phase I of the project. In January of 2017, it was noted that use

of the application had spread to the Emergency department and the Intensive Care unit with 88 and 38 active users respectively in those areas.

Limitations

Limitations of the project included the small sample size: one hospital and two units were utilized for the project. As this was a non-research project, a non-test unit was not used to compare, and this limits the ability to conclude that implementing this tool kit will produce positive results at every facility or for other departments. The elements and the implementation of the tool kit were highly customized to the organization and targeted specific department processes and metrics. Each hospital has a different philosophy and strategy as relates to workforce planning. These factors would need to be considered when attempting to implement measures focusing on cost and dependency on contract labor. The intervention was designed to assist two units at a hospital to decrease their dependence and dollars spent on contract labor and did not involve control groups. The results of this project may or may not have been affected by concurrent organizational projects or surveys, which necessitates some caution in interpreting the results and applicability to other units and or institutions.

Additional limitations include the fact that we attained only a 50% adoption of the NurseGrid application among the staff. Use of the technology was optional. Access was provided to all and profiles were created for each staff member; however, customization of the notifications received and the activity within the accounts was at user discretion. This was for various reasons, including factors that we had not anticipated, including staff who did not own smart phones. Although the platform can also be used from a desktop or laptop computer by staff who do not have smart phones, the extra step proved challenging and these staff did not receive the benefits of real-time open shift notifications or communications with others about the

schedule. Additionally, it was not possible to process and approve shift trades through the application. NurseGrid does include this functionality; however, due to the inability to interface with the StaffRunner technology that drives the schedules at the facility level, paper tracking and approval had to continue as a process rather than using the application for this purpose. The facility does plan to upgrade to a different schedule platform in Q3 of 2017, which will allow this functionality to integrate with NurseGrid.

There were also challenges in getting the schedules from StaffRunner into NurseGrid. The first upload of the schedules in September had to be done manually by the project lead and the team from NurseGrid. NurseGrid did not have the ability to read the StaffRunner format, so the team developed an Excel template that translated the schedules each month after they were pulled from the staffing technology for NurseGrid upload. The process proved successful and the Excel template was used for the rest of the project.

An interesting age-related contrast was observed during the NurseGrid implementation. Some staff, even though they owned smart phones, were reluctant to activate and use the application because they preferred the paper process: they did not embrace the real-time connectivity the application offered. We found this reluctance particularly prevalent among older nurses. The application was embraced and used by younger staff, who expressed a desire that more staff be connected through the platform. This brought to light some challenges these units face in uniting a multigenerational workforce. The current nursing workforce is comprised of four distinct generations, including veterans, baby boomers, generation X and millennials (Moore, Everly & Bauer 2016). Each generation within the workforce has developed different sets of values and attitudes. Leaders in organizations where these types of differences are

abundant need to understand each generation's values and ideals to customize an approach that can reach all involved (Al-Asfour, Lettau, 2014).

Conclusions

Healthcare facilities across the country face workforce planning challenges every day. There is no one solution to addressing all aspects of these challenges, but there are tools that can aid in proactively managing the workforce issues and embedding these tools into everyday leadership practice can create wins. We know that there are correlations between outcomes and resources, and nursing executives have an ethical obligation to ensure they have the resources needed to provide care to the populations they serve. Vacancies and turnover of staff are inevitable in healthcare. How leaders manage the gaps they create on schedules, and last-minute holes like sick calls, is crucial to the health of the organization.

Visibility into data is the first step in understanding workforce resource challenges. Peter Drucker said, "What gets measured, gets managed" (Wallman, P. 485, 2010). A critical piece of this workforce tool kit is the WAVE tool, which brings together vacancy information and real-time, market-specific fill-time data. These two data points shine a light on the true gap time the unit leaders are facing. Actively measuring and analyzing data on a regular basis helps to keep these issues top of mind and ensure they assist in driving more strategic decisions at the unit and hospital level.

Adding additional measures to help leaders track and understand how they are managing contingent workers is vital and necessary. The addition of contingent labor control logs and a formal approval process for each request adds extra controls on how many resources are brought in and for how long. Overcommitting to contingent resources is a common problem in healthcare but it can be avoided if metrics are measured and understood. These tools help to

create a clearer picture of who is coming in and for how long. Managing these metrics can drive cost savings and cost avoidance.

Managing the operational impact of sick calls on an organization adds to potential and actual cost savings as well. Last minute holes in the schedules and lack of resources to care for patients has significant consequences for both patient safety and staff morale. Technology should assist in access and communication, enabling staff to schedule and pick up additional shifts. Streamlining this into an application that is simple for staff to use drives better staff communication, reduces sick calls and assists leadership in pushing out open shifts and getting them filled, thereby decreasing dependence on contingent labor. Those staff that embrace the technology will find it to be a useful tool for communication and ease of picking up open shifts, driving overall satisfaction. Healthcare has a multigenerational workforce and a tailored approach to rolling out new technology is imperative so that each generation appreciates the value it brings.

An inability to cover gaps in schedules and core staffing increases stress levels for staff and can contribute to low morale, resulting in higher turnover. Striking a balance between filling gap times and working efficiently is key to workforce planning. Healthcare leaders need workforce data that provides visibility and actionable intelligence to drive evidence-based workforce planning. Developing and implementing tools that aid in this decision-making process is essential to the overall success of the organization (Bryce & Christensen, 2011). Healthcare leaders should use the data that currently exists to guide and benchmark outcomes to their workforce planning models, strategies and key performance indicators. Having evidence and data to support decision-making gives key stakeholders visibility and credibility when facing future workforce demands.

Section VI. Other information

Funding

The tools in this toolkit were provided in kind by WIN, LiquidCompass and NurseGrid. A budget was provided with real costs that would have been incurred had this not been the case. The Return on Investment was calculated based on the real costs of the project and driven by the savings and cost avoidance achieved.

Section VII

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