Agency Nurse Usage of Infusion Interoperability

Identifying Barriers and Improving Workflows

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Over the past several years, hospitals have utilized agency staffing to combat staffing shortages. Increased use of agency staffing presented an opportunity for implementation of an education project related to the potential variance in practice of permanent staffing, specifically with the use of infusion interoperability in the inpatient setting at the University of Pittsburgh Medical Center St Margaret hospital. Discussion around variables causing agency nurse setbacks with utilizing infusion interoperability while trying to meet the required standard laid the groundwork for this project. Improving agency workflows allowed for process improvement including enhanced quality, documentation, and adherence. Early data analysis revealed variance in adherence between agency and permanent staffing prompting further analysis. Investigational methods included assessment of agency nurse infusion interoperability usage through interviews and observations, review of adherence reports, review of education and onboarding, and interviewing of nurse leaders. Findings suggested lack of experience, inability to troubleshoot, and underutilized resources contributed to lower adherence with agency compared with permanent staff. These findings lead the informaticists to make changes to the curriculum for new hire onboarding, increase rounding and interactions with agency staff, and increase access to resources. These interventions resulted in increased adherence scores and verbalized satisfaction by the agency nurses.

KEY WORDS: Agency staff, Infusion interoperability, Patient safety, Scanning, Staffing shortage

There has been an evident change in the healthcare environment following the COVID-19 pandemic announced in March 2020.[1] Nursing staff have seen copious quantities of departures, with the National Council of State Boards of Nursing estimating that 100 000 RNs have left the workforce following the pandemic.[2] These RN departures create vacancies within a hospital system, thus contributing to higher patient-to-staff ratios. Higher ratios can lead to medical errors as nurses have less time to provide individualized care to their patients.[2–4] To combat staffing shortages and the resulting issues thereof, many healthcare organizations have employed temporary nurses, travel nurses, or agency nurses to alleviate some demand for permanent staff.[5,6] Although supplemental staffing can alleviate the burden of work required of permanent nurses in an understaffed unit, many of these agency nurses struggle to quickly integrate required policies and procedures into their workflows. As these nurses experience rapid onboarding procedures to begin their assignments as soon as possible, it is likely that many struggle with information retention as a result. This educational project aims to identify barriers in agency nurse workflows and integration through disparities in onboarding and education procedures. By addressing disparities and closing gaps in education and training between agency and permanent staff, organizations can better provide individualized support to agency nurses throughout their assignments.

The travel or agency nursing industry provides supplemental staffing for hospitals and other healthcare agencies to fill vacancies within their organizations.[7] Vacancies can occur in all nursing positions including RNs, LPNs, and unlicensed assistive personnel.[8] In addition, many other specialties use supplemental agency staffing including radiology, respiratory, and therapy services. The focus for this discussion was placed on nurse agency staffing, specifically those with assignments in inpatient units. This project was facilitated at the University of Pittsburgh Medical Center (UPMC) St Margaret Hospital, a hospital that utilizes external staffing agencies and the internal UPMC Travel Staffing program to supplement nursing vacancies with agency staff (Figure 1).[9] The facility stands as a beacon of cultural competence and collaborative spirit within the healthcare community. The nursing staff is not only highly skilled but also exceptionally supportive, fostering an environment where agency staff are welcomed and integrated seamlessly into the team. This culture of inclusivity and mutual support ensures any member of the staff, regardless of their permanent or temporary status, has access to the knowledge and assistance they need. It is a place where questions are encouraged, learning is continuous, and helping one another is not only a courtesy, but also a fundamental aspect of daily operations. Such a nurturing atmosphere not only enhances

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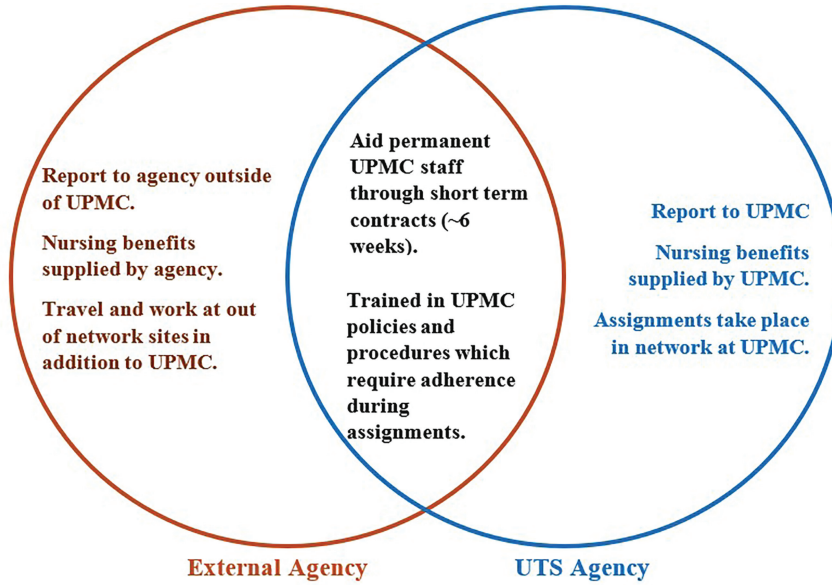

FIGURE 1. Comparison of staff supplied to UPMC by external agencies and those provided by UPMC internal travel staffing program (UTS). Comparisons include the length of contracts for both types of staffing in addition to similarities in training on UPMC policies and procedures. Staff supplied through their respective agencies differ regarding direct reporting, benefits distribution, and location of assignments.

patient care but also contributes to the professional growth and satisfaction of the staff.

Facility orientation and preparation of agency nurses (external and internal) are multifaceted responsibilities that involve several key stakeholders. The hiring agency (external or internal) is responsible for selecting nurses who have not only the requisite clinical skills but also the adaptability to integrate into different inpatient environments. Although agency staff report to their external agencies with performance measures,[8] internal agency nurses undergo training and hospital experience specific to the hospital network, and performance leaders work directly with the staff manager overseeing the nurse's contract. Once hired, the agency nurse is oriented to the unit they will be assigned and immediately begins work within the unit. The hospital strives to provide a comprehensive orientation that acquaints agency nurses with policies, procedures, and the specific needs of their patient population. Internal agency nurses and those contracted through external agencies differ in their previous work experience (Figure 1). Therefore, educators play a crucial role in ongoing training and development, ensuring agency nurses are up to date with the latest best practices and technologies. The agency nurses who are deployed come knowledgeable and prepared for duty but require additional specific education that is required for local performance and standards. Education is provided as a special orientation and continued on inpatient floors with the other staff. It is worth noting that agency nurses themselves bear the responsibility of actively engaging in their orientation process, seeking out necessary information, and continuously striving to improve their competencies. This collaborative effort ensures that agency nurses are well-prepared to deliver high-quality care and meet the performance standards of the hospitals they serve. Having two types of agency nurses supplementing staff during this project impacted both assessments and interventions. Therefore, it was important to understand this disparity in onboarding processes in addition to the differences in an agency nurse's interactions with other staff throughout their contracts.

With the rapid introduction of agency nurses to inpatient floors, disparities in policy adherence are noticeable to that of full-time staff. To better understand and support these nurses, a specific policy was isolated that shows promise of improvement with better workflow integration: the use of infusion interoperability (IO), a bidirectional communication between an electronic health record and an infusion pump that helps reduce the risk of IV medication errors.[10,11] To combat these errors, the facility utilizes the Alaris Smart Pumps (Becton Dickinson and Company, Franklin Lakes, NJ, USA), which reduces the need for manual programming, thus improving patient safety.[11] The postimplementation benefits of IO included reduction of infusion pump programing and transcription errors, simplified infusion documentation and view, and improved care decisions with monitoring and correlation of near real-time patient data.[12] Prior to starting the project, there were some concerns raised

by permanent staff and unit directors (UDs) that supplemental agency staff (both outside and internal) were having issues with performance. This included some of the specialty items used for patient care that were being measured for outcomes and adherence with safety, one of these being IO. Each nurse strives to reach an adherence target of no less than 77% usage according to the defined guidelines. The importance and improvements of IO monitoring adherence are essential for patient safety, and noting variances in permanent staff versus agency staff generated an interest in exploration of agency nurse knowledge and usage of IO, inspiring the framework for this educational study.[13] The aim of this project was to explore the specific variables causing agency nurse setbacks with IO and implement interventions to improve adherence based on the findings.

METHODS

Initial nurse IO adherence data examination commenced in January 2023 followed by assessment of education and training alongside UD discussions regarding IO adherence. Discussions were finalized in late February with staff consultations extending through May. Based on resulting agency and permanent nursing feedback of IO usage, interventions occurred in June and July with postimplementation adherence monitoring conducted in August and September. Methods used for this project included IO report analysis, UD and clinician interviews, and agency nurse interviews.

Reviews of the state of agency nurse adherence were performed regularly through PowerChart (Cerner Corporation, Kansas City, MO, USA) and visualized through Power BI (Microsoft Inc., Redmond, WA, USA). Reports were created weekly for communications with the agency nurses working on the units and shared for employee guidance and management. Monthly reports from Power BI were created for data analysis purposes. The IO reports from PowerChart and visualized in Power BI were reviewed daily, weekly, and monthly looking at individual agency nurse scores, scores across all agency nurses in an inpatient unit (agency nurse group), and scores across comparative groups (agency nurse group vs permanent staff). Monthly reports gave overall adherence ratings, ratings for each inpatient unit, and ratings for each nurse (agency or permanent staff) assigned to that unit.

Discussions with the UD and other nurse leaders took place in group settings and then on individual inpatient floors alongside clinicians. These discussions determined initial perceptions of agency end user adherence with IO. Interview questions aimed to identify number agency nurses currently on a unit, nurse-to-patient ratios, potential barriers to IO adherence, methods being utilized to address adherence, and communication recommendations for the research team to approach agency nurses during this project for process improvement. UD and clinician interviews were imperative in providing frontline information related to day-to-day knowledge of agency management related to IO adherence.

The agency nurse consultations were approached from a casual standpoint, thus encouraging productive conversation and feedback to improve IO adherence. Members of the research team sought out nurses who wanted to participate in this educational study during their shift. Discussions were brief to create as little disruption in their workflow as possible, and nurses could decline to participate if they so wished. Although brief in nature, discussions were structured with questions that allowed for easy and authentic responses. A focus was placed on speaking with agency nurses with lower than 72% IO adherence on average in a 2-week timespan. By placing a focus on these nurses, barriers to adherence were properly identified, and better processes were enacted to support the proper use of IO. The questions addressed comfort levels in use of the technology for IO, satisfaction of IO training, any areas of training that they wanted to see improved, barriers that prevent adherence, and what could be implemented to better support them using IO. Agency nurses on all units, shifts, and days including nights and weekends were included.

RESULTS

Information was compiled in three stages: the initial assessment of IO adherence prior to interviews, the resulting barriers identified after agency nurse interactions, and potential interventions discerned from emerging barriers. Stage 1 of the project led to potential areas of improvement including accountability, education and training, role clarity, and cultural integration. As a Magnet®-designated organization, staff nurses wanted to be part of improving the overall scores and wanted to better understand the cultural differences between agency and permanent staff that might influence collaboration. This aspect of collaborative practice falls under Exemplary Professional Practice in the Magnet® Program.[14] Initial data observations of agency nurse IO scanning through Power BI reports showed evidence of lower adherence for agency nurses overall, using the benchmark of 77%, compared with permanent staff. Additionally, isolated adherence scores for individual agency nurses showed a need for increased emphasis on individualized education plans and support.

Stage 2 of the project substantiated the findings in stage 1. In-depth insight into IO adherence was provided through barriers identified in UD, clinician, and nursing conversations in addition to review of IO training and education. An unexpected finding early in the study included adherence improvement during the end of the interview phase. An overall increased awareness of the project and slight improvements in adherence for IO were noted during the

interviews and initiation of the project. This could have potentially been caused by discussion with leaders and staff and perhaps was an unintended outcome as awareness of the project increased. This is not easily demonstrated in later findings but was something that the informatics team could sense as the project continued.

Review of IO education requirements identified areas for restructuring to meet the needs of new agency staff. As IO-specific education is a mix of independent learning modules and hands-on training with the IO interface and Alaris Smart Pumps, facility nurses are required to complete both portions of the training before they are released to their nursing assignment. Many agency nurses new to the facility noted in interviews that although training was extensive, they were not always prepared or had the knowledge to address errors and troubleshoot, thus affecting their adherence. Similar barriers were also identified in returning agency nurses who completed an assignment within the past 2 years. As facility processes and procedures would still be familiar, a full orientation was not provided upon return prior to project initiation. Rather, they would be provided with a short refresher course consisting of a 12-hour orientation with a bedside nurse. This information was shared as a concern by the agency nurses as the refresher training requires none of the formal training modules or hands-on classes required during initial orientation. Many specifically mentioned IO as other hospital networks in the area do not always use IO in the same capacity and additional refresher training may help improve adherence.

Barriers in workflow integration and inpatient environmental factors were identified during interviews with clinicians and UDs. Setbacks in adherence were identified including the short duration of agency nurse contracts, complications in troubleshooting and workflow integration, and accountability disparities between day shift agency nurses and those who work night shift. UDs mentioned that agency nurses improve briefly when approached about individual adherence scores by leadership team members. However, in certain cases, improvement is not maintained over time. Many UDs stressed difficulties of IO workflow integration due to the short-term nature of agency nurse contracts, stating that IO is less likely to be integrated into their workflow compared with permanent staff on the same units. To be adherent with outlined standards and expectations, many agency nurses must deviate from comfortable workflows utilized at other facilities. This can prove difficult for those working for the organization for the first time as well as ones who may have been contracted previously and are coming back after some time. Additionally, many UDs mentioned that agency nurses do not always seek out help from other nurses on the unit when they have a question or an issue. This prompted investigation into improvements for cultural integration, so these nurses could feel comfortable asking for help when needed.

When discussing medication administration specifically, many UDs discussed barriers using IO to properly document IV fluids. Fluids were a topic of discussion with many UDs, especially when asked about IO medication administration. Each bag of fluids hung must be documented through iAware® (Cerner Corporation) and administered using IO. iAware® is an adapter application that helps manage infusion data for entry into a patient's medical record. Using this application, the nurse can easily document infusion rates and volume data from the infusion(s) that they have scanned and administered. It holds data for a rolling 12-hour period at a glance, and data fields can be documented into a patient's chart with a single click. Data flow to the appropriate fields within the medical record for final documentation. As nurses are moving quickly and many are helping one another with replenishing fluids, IV fluids tend to be overlooked in the IO process as compared with IV medications.

The UDs and clinicians discussed accountability and the concept of "skill vs will." When evaluating the nurse's use of electronic applications such as IO, the informatics nurse often will consider the "skill" or competence the nurse has for using the programs versus the "will" or desire and motivation to use them. According to the skill/will matrix, nurses can fall into four general quadrants based on "skill" and "will."[15] When a nurse possesses "low skill" and "high will," education and training can change the use and performance of daily workflows. In cases of "high skill" and "low will," emphasis should be placed on exploring barriers and may require management interventions. Although this concept is used to assess all staff when applying learning principles, it was used in this project to assess the agency nurse population as one aspect of adherence. From a UD perspective, agency nurses had the skills they needed to conduct IO but seemed to be lacking the will to troubleshoot. They often stated agency nurses do not remember or do not have enough information to get the electronic programs to work the first time, then they do not troubleshoot further. Agency nurses are instructed about and do know that they are expected to meet the adherence standards for the organization, but many believe because their contract is short it may not be or is not necessary. Contrary to UD perception, project assessment revealed these nurses had a "low skill" but a "high will," which was perfect to work within changing workflow.

Setbacks in agency nurse adherence highlighted in UD and clinician discussions were expanded upon throughout the nursing interviews. During this time, suggestions were received regarding expanding the training program for returning agency staff. Many coming back from different networks have noted difficulties with process and workflow retention from their previous in-network assignment. In

addition to onboarding process feedback, many nurses spoke about various hardware issues they experienced when performing IO during their shift. Many of the issues mentioned were errors that occur during pump association. This results in the nurse manually entering volume and rate values when troubleshooting efforts are unsuccessful, thus affecting adherence scores.

After UD and agency nurse discussions, potential interventions were identified that could improve adherence scores. This included a restructuring of unit rounding by informatics nurses. This rounding process is conducted in the clinical areas to provide one-on-one or group instruction, education, and follow-up in addition to developing support materials for end users to successfully use clinical technology in real time. Informatics nurses develop improvement plans when goals are not met to support nonadherent individuals. These goal tactics allow for relationship development between nurses, sharing tips for technology use, and strengthening of workflows and best practice. Through casually speaking with agency nurses one on one, a nonthreatening environment can be created where agency nurses feel comfortable sharing information regarding barriers to adherence.

Stage 3 of the project involved compiling interventions to improve adherence and assessing adherence after project completion. The outcome data reveal that improvements in adherence during and following intervention reached the benchmark expectation of 77% or greater for agency nurse users. The improvement seen in the agency nurse usage of IO influenced improvements in overall adherence for all users (Figure 2). Agency nurses on short-term contracts (8 weeks) as opposed to the longer-term contracts were less likely to be adherent with IO. Anecdotally, they discussed with the informatics team that they were there only for a brief time and would most likely not go to another hospital that had IO again, so they were not worried about learning it at this time. However, this was a small subset of the nursing population that participated in this study. Many suggested that they were overwhelmed throughout their contracts, and therefore more of a focus was placed on taking care of patients and less on workflows. Although this speaks multitudes on the positive impact these nurses have on the patients they care for, this also highlighted a need for the informatics team to determine better methods for nurses to both focus on their patients and meet quality and safety standards.

DISCUSSION

Following the evaluation of data for both permanent and agency staff, it was clear that the agency subgroup experienced a lower percentage in IO adherence, thus bringing the overall adherence scores down and causing concern for their ability to meet system standard adherence. The concern stemmed from an organizational standpoint, as the project team felt that the facility could provide help and assistance to a specific group of nurses that might have been being failed by current onboarding and preparation processes. Once measures were put into place and adherence for subset agency improved, overall total increase (permanent staff and agency combined) and maintenance above system standards were identified. After UD and agency nurse interviews, potential interventions were identified that could be applied to agency nurse workflows to improve adherence scores. Informatics nurse rounding is conducted in the clinical areas to provide 1:1 or group instruction, education, and follow-up and develop support materials for end users to successfully use the eRecord and other clinical technology in real time. Goal tactics allow for developing relationships, sharing tips for technology use, strengthening workflows, and best practice. They develop plans for improvement when goals are not met to support individuals

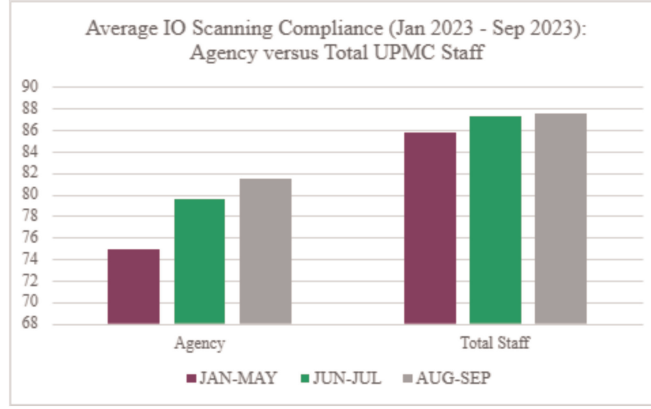

FIGURE 2. Average IO scanning adherence scores for agency nurses and total staff (agency and permanent nurses). Average scores were taken before interventions were applied (January-May), during the intervention stage of the project (June-July), and postintervention implementation (August-September).

who are nonadherent. Through casually speaking with agency nurses one on one, a nonthreatening environment can be created where agency nurses feel comfortable sharing information regarding potential barriers to adherence.

As a result of discussions with hospital staff, all staff are now provided with a quick tip trifold IO pamphlet. This pamphlet is a step-by-step guide on how to troubleshoot common errors. Agency nurses were also made aware of an electronic guide available in their online document database that could be used as a resource pertaining to IO workflow and troubleshooting methods. In addition to pamphlet distribution and electronic resources, agency nurses were made aware of multiple contact sources they could use if an error should occur that they could not fix. This included contact names, numbers, and email addresses of nurse educators, clinicians, and 24-hour help-desk resources available to assist a nurse in troubleshooting. In addition, agency nurses were encouraged to seek out their peers and nurse educators when they had a question or an issue.

Although agency staff new to the network receive the same IO training and independent modules to that of permanent staff, it was hypothesized that extensive training in IO in addition to a multitude of other processes and procedures might be inhibiting information retention. Further exacerbating this issue is the demand for these nurses to begin their assignment to alleviate the burden on permanent staff. Due to this demand, training periods are not as long in duration as those of a permanent staff member. IO is one of the many training PowerPoint (Microsoft Inc., Redmond, WA, USA), videos, learning modules, and hands-on activities an agency nurse must complete over the course of their training, which can cause barriers in information retention and adherence after orientation. Along with intense education locally for agency improvement during the project, there was a change in the IO education process for onboarding systemwide following the initial assessment phase of the project. The self-paced modules allowed the learners more time to study at their own pace when the content was new, giving them an advantage moving into the hands-on learning. Implementation of self-paced modules and IO hands-on module became the standard, allowing for direct supervision and follow-up sessions specific to IO if needed. With many nurses wishing for a more in-depth comprehensive training with more exercises that prepare them to troubleshoot, an emphasis was placed on improving the onboarding process for the nurses. This included the implementation of a hands-on IO module provided as an in-person class following the prerecorded self-paced training modules the network provides. The education is supported by both written supplements and rounding informatics support.

The workflow barrier at the forefront of the discussion with all UDs and clinicians was the concept of skill versus will. With any medical technology comes the need for nurses to troubleshoot, and many agency nurses struggle with finding the local solution to their problem. When a solution is not readily available in a timely manner, they may struggle to troubleshoot and will eventually bypass IO and manually enter values into the pump. Nurses have many processes and procedures to complete in their day, so IO is easily overlooked in favor of manual pump programming when confronted with a problem that cannot be solved quickly. When associating the pump with iAware, prompts and dialog boxes will notify nurses of any issues or disparities in the workflow. Busy nurses will click through these prompts quickly and thus may miss valuable information on solutions to the problem at hand. Encouraging agency nurses to carefully read messages and prompts will not only better prepare them to troubleshoot on their own but also could help in improving overall adherence scores. Additionally, overall IO adherence would be increased if more emphasis were placed on the importance of properly scanning and associating fluids every time a new bag is hung as each bag not properly associated counts against personal adherence scores and brings down the overall total.

Lessons Learned/Setbacks for Project

Several characteristics were identified in the initial phases of the project. Because agency nurses were used for short-term contracts and had rapid turnaround, the following were identified in interviews and assessments. Although the agency nurses were well prepared for the patient care and integrated excellently to the staff culture, adapting to new technologies and variant practices that were specific to this healthcare system amplified certain variances as identified in this project. From an educational perspective, shortcomings were identified as nurses were being onboarded into the organization. This left some nurses with several of the following perceived notions. Attitudinal approaches to use were represented by indifference toward process and use. Lack of commitment to learning variances and to initial learning was identified as blockade for success. Cultural integration was seen as not fully occurring due to the brief period of contract duration and rapid start of assignment. Resource utilization was not identified as a support because of insufficient knowledge and recall of how to access troubleshooting methods. Prioritization and planning became secondary to difficult patient care situations and workflows causing a pattern of care that was in a comfort zone rather than prescribed policy and safety. Familiarity with policy and procedures for IO was not top of mind. These characteristics defined the project scope and interventions.

In the later phases of the project, there was a system-wide decision to decrease the agency staff usage in all business units. This measure allowed for several changed aspects

impacting IO adherence. The impacted aspects included lengthened contracts of those who were onboard. There was increased support shifted to local resources including internal agency and permanent staff. Informatics team members and other resource members from the business unit increased interactions with agency staff. A collaboration was noted between the permanent staff assisting agency, thus contributing to overall adherence improvement.

Throughout the duration of the interview process, setbacks were identified in attempting to locate and speak with agency nurses that were critical in understanding barriers in usage of IO. Many of these nurses were difficult to locate at times if they floated to other floors or units on a needed basis or traded shifts with another nurse. When requesting feedback on IO education from agency nurses during interviews, the feedback received did not always translate to changes that were feasible. Many agency nurses discussed simulating errors that could occur during their shift. However, errors are hard to simulate during hands-on training with the software. Instead of attempting to simulate errors during training, this information from the agency nurses was used to educate them on support systems they can use should an error occur that they cannot solve themselves.

Overall issues in communication and problem solving with IO were identified from interviews with UDs, clinicians, and agency nurses and evaluating IO education. Many of these issues directly impacted adherence scores for agency nurses, thus negatively impacting the overall adherence score for the hospital. With this information, the informatics team changed the way adherence scores are reported to the UDs by separating agency and supplemental staffing scores from the total. By doing so, the UDs have more usable data they can use to isolate instances of improper IO usage and determine potential setbacks and interventions on their own. The approach to speaking with nonadherent agency nurses on short contracts was amended by making IO more doable with usable quick tips. By making the process of IO less daunting, agency nurses will be more likely to integrate IO into their workflow.

Throughout this project, it was discovered that lines of communication between members of a department are essential during both orientation and continuing education. This can be applied to all disciplines who use temporary staffing. Because permanent staffing and temporary staffing need to support each other to improve patient outcomes, results of this project can be applied in all other practices and for any type of workflow.

Future Directions

The future directions and plans realized from this project included developing an ongoing educational plan for the agency or supplemental staff that would be involved in the IO process. The initial education and ongoing education include both on-demand and real-time education to better support their needs. A plan was implemented for regular review of the new interventions and ability to maintain their effectiveness. There will be an evaluation to see if users are still using the education plans and quick tips that are provided during initial training for IO. The evaluation of the quick tip usage will be done through rounding and continued interviewing of the agency nurses.

CONCLUSION

Obtaining adherence for IO prior to this project proved to be a challenging task. With initial data review, disparities in adherence data for specific subgroups were quickly identified that could explain why adherence was not improving with interventions predating project initiation. The focus on agency staff utilizing IO process and technology shed light on onboarding practices, integration, partnership and mentoring, culture of the organization, education practices, and attitudes. Each of these variables impacts an agency nurse differently compared with a permanent staff nurse. Interviews and observations displayed a need for the teams responsible for onboarding to have an increased awareness of these disparities to provide additional support to agency nurses during orientation. When these variables were considered, the agency subgroup was empowered to improve, and thus, overall adherence scores improved. Without agency nurses' participation and enthusiasm in meeting adherence standards for IO, the hospital would fall short of meeting adherence expectations. For several reasons, agency nurses tend to be less adherent than full-time permanent staff at meeting IO standards. From project findings, it was noted that agency nurses struggle to solve IO connection and medication administration errors on their own, thus lowering overall adherence scores. This struggle was possibly due to lack of knowledge in using network resources as well as shortcomings in education upon contract imitation. The items most found to be nonadherent in IO process included IV fluids and complex medications. Following agency nurse awareness of the project and interventions, adherence within the subgroup increased, and along with interventions, the total group adherence improved. Permanent staff members' adherence increased as a secondary benefit from all interventions taken. The agency staff expressed a sense of satisfaction in the ability to better utilize the IO process, UDs were increasingly more satisfied with their unit IO adherence scores, and the informatics team felt stronger about the education and support they were providing. As this project neared completion, there was a noticeable decrease in the use of agency staff throughout the health system. Had the project continued further past the completion date, a natural increase in adherence could be noted with more full-time

staff being introduced into the nursing pool to replace agency staffing. Whatever the future brings, better insights into working more effectively with the agency staff among the permanent staff with IO processes have been noted. The nursing staff is hopeful this educational project will strengthen knowledge and awareness of agency nurse needs during periods of staff shortage to provide them the tools they need to treat their patients comfortably and successfully.

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