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The Power of Collaboration with Patient Safety Programs: Building Safe Passage for Patients, Nurses, and Clinical Staff

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Abstract

Patient safety is a relatively new field, with many opinions and few effectively proven approaches. One factor is clear: optimal patient safety outcomes cannot be achieved in isolation. Although it is well recognized that multidisciplinary collaboration in the healthcare setting is necessary to effect patient safety, collaboration with resources external to healthcare-academia and industry in particular-will not only aid but also quicken the patient safety efforts. The authors outline a healthcare system's use of all available resources to build a patient safety program.

There are reasons why academic and clinical partnerships are important and will be more important for our future: they work! The literature is a testimonial to the results that academic and clinical unit partnerships can achieve. The question is why are there not more? The best work cannot be done in silos. Boundary spanning work clearly can push important work further and faster with the integration of excellent minds that are coalesced around a central mission.

With this paradigm in mind, in 2001, Clarian Health Partners (CHP) launched an ambitious patient safety program. Five years later, the model continues to generate new knowledge by developing new paradigms to achieve outstanding success. The founders of the Clarian Patient Safety Program recognized from the very first days that no one in healthcare had all the answers to establishing an effective patient safety program. Although patient safety research was starting to emerge as a discipline, few examples and certainly no formula existed to implement a system-wide patient safety program. Other non-healthcare industries, such as Toyota or aircraft carriers, had increased reliability and safety, with remarkable outcomes.¹

To be effective, we needed to collaborate with many organizations to create new programs in the shortest time possible. The literature that exposed the number of patients harmed when receiving care in our healthcare system challenged us to urgently address the issue of patient safety.^{2,3} Our intent was to collaborate with a wide variety of experts from business, industry, and academia locally and nationally to build the program.

Clarian Health Partners resulted from the 1997 consolidation of Indiana University Hospital, James Whitcomb Riley Children's Hospital, and Methodist Hospital of Indiana. All 3 hospitals had very different cultures. It was imperative that a system-wide patient safety program with one standard for high-level care throughout the system be created.

The foundation of the Clarian Patient Safety Program is the Safe Passage Program (Copyright 2001, CHP). It is the vehicle that implements and makes the goals of the Patient Safety Program operational. The senior vice president for nursing and patient care services/chief nursing officer (CNO; K.M.K.) at that time envisioned a safety nurse on every patient care unit. The CNO realized that the safety nurses would be creating safe passage for patients through the healthcare system, hence the name "Safe Passage Nurse." The term "safe passage" evolved from the American Association of Critical Nurses (AACN) Synergy Model of Nursing Care that has been implemented at CHP as a joint venture with AACN. This model states that when the needs of the patient and the competencies of the nurse are aligned in a healthy work environment, the patient will have "safe passage" through the system.⁴⁻⁶ With education and support, we believed that this position would be instrumental in bringing evidence-based practice in patient and staff safety to the frontline of patient care.

Pairing service and academia was key to the vision. In particular, an academic partner was needed who could work in synergy with clinicians at Clarian to build an evidence-based program reflecting the best research and thinking available. Accordingly, the CNO paired the director of risk management and patient safety (K.R.) at CHP and a professor (P.E.) at Indiana University School of Nursing (IUSON). The professor had developed a patient safety specialization through mentoring with researchers at the Cincinnati Veteran's Administration Hospital's patient safety program, who are recognized as one of the foremost experts in patient safety. She knew that understanding the real work of care providers was an essential factor in making and sustaining improvements in patient safety. Using frameworks and methods borrowed from human factors engineers, she developed a research program focused on learning about the real work of nurses and has translated some of the data collection techniques for application in the service setting. This collaboration between academia and service proved to be the foundation of the program.

To further this collaboration, the risk management and patient safety director and the professor applied as a team and were invited to become fellows in the first class of the Health Forum/National Patient Safety

Foundation's Patient Safety Fellowship program. They, along with 50 fellows from across the nation, learned patient safety leadership principles and were able to establish a network with nationally known patient safety leaders. With a common frame of reference to build the program, the risk management director organizationally translated the patient safety evidence base from the professor and other experts into a working, organization-wide, evidence-based patient safety model.

The Safe Passage Program

The Safe Passage Program was started in nursing with the implementation of a Safe Passage nurse on every unit and then migrated to other clinical departments such as respiratory therapy, pharmacy, and information technology. The initial group of Safe Passage staff nurses was volunteers who indicated interest in this new role. The risk management director, who was out in clinical areas a great deal of work time, looked for expert nurses who were eager to learn new content and build patient safety into their work environments. The concept was that these bedside clinicians, because of their education, new knowledge, and facilitating abilities, would take an active role on the unit to prevent errors by seeing the possibility for the error before it occurs and implement interventions to create safe practice proactively.⁷ The intent was not only to create safe passage for patients and their families but to also create a safe environment for the clinician to work in without the fear of harm and with the confidence that they were working in an organization that was dedicated to making it very difficult for clinicians to make mistakes.⁸

The curriculum as designed included evidence-based information about human factors and patient safety, complexity theory, evolution of near-miss and error events, the effect of the authority gradient on safety, and the need to develop a non-blame culture for learning and improving systems. Mandatory and voluntary patient safety measures, such as the Joint Commission for Healthcare Accreditation National Patient Safety Goals⁹ and the Leapfrog National Quality Forum Safe Practices Leap,¹⁰ are used to ensure baseline measurement and adoption of evidence-based practice principles.

Based on internally derived knowledge, such as information from root cause analysis, and external knowledge, such as information from conferences and research, new curricula content to train Safe Passage clinicians is continually developed and delivered. Biannual workshops, in the form of a day and a half competency training program, were developed to train any new Safe Passage clinicians and update current Safe Passage clinicians. This information will soon be available in the form of a handbook that will not only systematize the orientation and advanced education of safe passage clinicians but will also be available to any other institutions, professionals, or students interested in patient safety. In addition, a "Safe Passage" resource notebook was developed and distributed to each unit. The notebook has become a living and evolving central collection of information and content, continually updated and reviewed, for the use of everyone on the unit.

The Safe Passage clinician has evolved into the unit-based expert on patient and staff safety. This is not an overnight evolution-the Safe Passage clinician spends time not only understanding the patient safety issues on the unit but also receiving mentoring from others to assume a resource and leadership role. In particular, unit management become the Safe Passage clinician's enablers by helping the Safe Passage clinician to fulfill the role. These patient safety experts continue their role at the bedside but proactively look for opportunities to safety-proof the unit as they work and listen to others. The Safe Passage clinician is an example of what clinicians can do when they have the knowledge and the support to become involved and empowered. They are active in the unit councils, providing information and leading teams to continuously improve practice in patient safety.

For example, the newborn intensive care unit (ICU) at Riley Hospital has more than 150 staff members. One of the founding members of Safe Passage realized that she could not be the lone patient safety expert on the unit-questions arose at different times. Using the initial model of encouraging others to take responsibility for patient

safety, she recruited several coworkers and encouraged them to take the safe passage curriculum classes. The Riley Hospital Newborn ICU Safe Passage Council composed of these peers recruited Safe Passage clinicians. The unit-based Safe Passage Council is working on a project not only to increase incident reporting but also to understand incident report data and make changes based on these data. This Newborn ICU Safe Passage Council is led by staff nurses within the framework and spirit of shared governance. The Council also includes, as needed, people from the administrative team, risk management, medical staff, and other disciplines to provide the support, mentoring, and connections to address any identified patient safety issues.

An important part of any patient and staff safety program is the evolution into a blame-free, open culture of ongoing dialogue and improvement where intimidation and fear are driven out. Safe Passage clinicians have been very instrumental in first learning to give up the old culture themselves and then to be the role model and teacher of the new culture on their units.¹¹ For example, occurrence reporting has always been of interest to nurses, but primarily for reasons of liability. Once the concept of error reporting to understand and reduce error was explored in Safe Passage and a new Web-based incident reporting system was introduced where the reporter's name was optional, Safe Passage nurses embraced the concept. One Safe Passage nurse created a PowerPoint presentation that discussed the mini-root cause analysis of several unit-based errors. Most recently, Safe Passage clinicians distributed laminated computer attachments that spelled out the Web-based incident reporting steps. Modeling good occurrence reporting behavior among peers is far more effective than a distant administrator sending out e-mails or notes encouraging occurrence reporting.

Patient safety researchers consider the frontline (or sharp end) as the resilient factor in assuring safe care in the complex environments where care is delivered. Findings from studies on nursing work demonstrated that in the midst of multiple obstacles and challenges (work complexity) faced in the actual delivery of nursing care, nurses recognized gaps and unintended system failures and yet effectively delivered safe care.¹² Through data gathered from formal research projects, focus groups, or first-story/second-story methods (a form of root cause analysis in which detailed narrative descriptions from sharp-end providers reveal the complexity within healthcare environments), routine strategies have been developed for managing complexity and the critical decision making needed in the face of unpredictable and demanding situations.

In particular, through this primarily retrospective analysis, Safe Passage clinicians are learning to proactively identify hazardous situations before they reach the patient. Safe Passage clinicians have noted confusing medication labels and storage, misleading order sets, and product and device issues before the problem reaches the patient. It is through a combination of system supports for human limitations and reliance on the ingenuity of the frontline to create safe practice environments that creating and sustaining patient safety become possible. Through these patient safety dialogues, we are learning the true and almost daunting complexity of patient care and nursing work.

A communication network of Safe Passage councils-pediatric, mother baby, intensive/acute care, emergency department, operating rooms, and ambulatory care safe passage councils-across the system upload and download pertinent information so that everyone will have access to the latest discoveries and innovations. Safe Passage alerts are "instant messages" of critical product, device, or other safety issues that need to reach the frontline quickly. Consistent with this program, there has been a continual interplay between CHP and IUSON. The professor is embedded in the Clarian Safe Passage Structure as a thought leader, researcher, program educator, and communicator and has also become a regular member of committees at Clarian, such as the risk management committee. Other elements of the Clarian Patient Safety Program hinge on the successful climate and drive to improve patient safety fostered by the Safe Passage Program. Retrospective review done by root cause analysis not only improves the system but also gives practitioners knowledge of the gaps in the system. Staff members now request root cause analysis to understand and address gaps in the system. Prospective analysis tools such as Failure Mode Effect Analysis (FMEA) are used to identify prospective gaps in the

system.¹³ For example, prior to overall implementation of information systems applications, FMEAs that use frontline staff and Safe Passage clinicians are performed.

Further Evolution of the Clarian Patient Safety Program

To be successful, we knew the program needed to learn about safety from business and industry, both of which have a long record of successful safety initiatives. The book *Wisdom of Crowds*¹⁴ documents research demonstrating that the more diverse the group, the better the outcome. The power of diversity in groups is an essential force to build a solid patient safety program. Partners from business and industry who were farther advanced in safety than the healthcare providers and who could become an integral part of our process were needed. We started building the program and then involved other experts as the program grew and evolved. Networking with academia and business leaders revealed a remarkable expert base in the local community.

One example is the relationship we established with Rolls Royce to help advance the patient safety agenda. Rolls Royce, a jet engine manufacturing plant in Indianapolis, is well known as a high-reliability organization with infrastructure that achieves reliability. A high-reliability organization is an organizational structure, such as an aircraft carrier, that consistently performs with few, if any, mistakes in a high-risk situation. Rolls Royce uses "reliability engineers" who specialize in developing high-reliability processes and organizational structures to build its jet engines. Reliability engineers from Rolls Royce volunteered their time to teach the high-reliability organizational concepts that we have adopted as part of the standard safe passage curriculum. The content has now become embedded in many structures and processes, such as the root cause analysis methodology. The partnership has been beneficial also for Rolls Royce. Oxford BioSignals, a Rolls Royce company, chose CHP as their partner in developing anticipatory monitoring systems for medical-surgical patients after learning through this experience about the culture, infrastructure, and leadership of patient safety at Clarian. This partnership has become a mutually beneficial program for both CHP and Rolls Royce.

Engineering experts from Purdue University were recruited to help with advanced content and to lead projects. A team from Purdue taught ISO 9001:2000 certification standards as another foundational block for the program, which would further hard-wire the concept of a high-reliability organization. Faculty members and students in organizational development and high reliability are developing a more in-depth measure of the culture of safety at Clarian, including the impact of the Safe Passage Program. The Purdue Healthcare Technical Assistance Program, with a team of industrial engineers and pharmacists, assisted Clarian in addressing workflow and reliability in the health-care setting and several other projects. Clarian Health Partners has become a fertile ground for the mutual interaction between clinical practice, academia, and business and industry.

Another part of the Safe Passage Program is the collaboration that Safe Passage clinicians provide to product development and evaluation for the healthcare manufacturing industry.

Safe Passage clinicians are now intimately involved in the evaluation and oversight of effective products. They are involved in the initial decisions as consultants to evaluate the safety of the product for use in the healthcare system. Also, they are continually on the lookout for products and devices that can potentially be used inappropriately and cause harm. For example, latex-free gloves came from the vendor in the same color as the latex gloves. The Operating Room Safe Passage Council quickly identified that this was a danger and the manufacturer agreed to change the color nationally so the different color of glove could easily identify it as the correct glove wherever the glove was sold.

Simulation: the Next Generation

From the beginning, the Clarian Patient Safety Program was built on the principals of a high-reliability organization. The assumption was that if the standards of a high-reliability organization were achieved, patient care would be much safer. According to Gaba,¹⁵ 4 basic elements are essential for a high-reliability organization:

- Systems, structures, and procedures conducive to safety and reliability are in place.
- A culture of safety permeates the organization.
- Safety and reliability are examined prospectively for all the organization's activities; organizational learning by retrospective analysis of accidents and incidents is aggressively pursued.
- Intensive training of personnel and teams takes place during routine operations, drills, and simulations.

While implementing the curriculum and building the infrastructure for safety, evidence-based systems, structures, and procedures were put in place and continue to evolve to develop higher levels of safety and reliability. The first basic element, systems, structures, and procedures conducive to safety and reliability, was implemented through the Safe Passage Program, the Clarian medication safety and risk management committees, and through policies and procedures and are evolving well. The culture of safety, the second basic element, showed remarkable progress over time as measured by annual standardized culture of safety questionnaires administered to the entire staff. The third basic element, prospective learning stimulated by the Safe Passage clinicians, and technologies and techniques such as FMEA were well embedded in the culture. Retrospective analysis of near misses, adverse events, and other factors such as staff turnover or the unexpected exit of a valued manager was in place. The clinical staff, however, did not have access to high-fidelity, multidisciplinary simulation. Thus, the search was on to find resources to aid the clinicians in this effort.

There were several efforts at the Indiana University School of Medicine and the IUSON to use simulation in clinical education. Purdue University has developed simulation in areas such as disasters. There were, however, few, if any, opportunities for clinicians at CHP to use simulation. Through our service-academia collaboration, a new consolidated multidisciplinary simulation center, including IUSON and the Indiana University School of Medicine, is in the developmental stage. Students from many disciplines will work together with clinicians. Scenarios can be built around the outcomes of the errors and near misses to help clinicians practice "getting it right," to experience high-risk situations, to ready students for practice in an actual setting, and to hone current clinicians skills in a safe, nonthreatening environment. In effect, simulation is reaching beyond the quick fixes inherent in addressing most healthcare errors and actually addressing a true root cause: teamwork and communication.

Outcomes

When there are many initiatives in place in an organization, it is hard to attribute success or failure to any one initiative. In the case of Clarian, in a very short span of time, the AACN Clarian Synergy Model of Care was launched and the Clarian system achieved Magnet status. Therefore, it is useful to look at overall system level metrics, such as retention rates, internal promotion rates, and improved patient outcomes. The previously noted metrics did improve dramatically, most likely in response to the supportive, innovative environment.

There are, however, metrics that demonstrate positive improvement in terms of patient safety. For example, reporting of incidents increased, which was an aim of the program, but the number of adverse outcomes did not despite dramatic increases in acuity. Also, the perception that Clarian embodies a strong culture of safety has improved every year. The program has been effective in recruiting nurses, and many note on their application that this is why they choose the organization. New recruits arrive for job interviews with Internet research on the Safe Passage Program.

Empowered employees are known to make the difference between success and failure of projects and organizations.¹⁶ The Safe Passage Program has resulted in high levels of nursing and healthcare provider engagement, a proactive and self-sufficient model of solving systems issues, and the creation of personal pride and responsibility in one's work. Information sharing is beginning to capture averted errors through proactive Safe Passage management.

From a mentoring standpoint, Clarian now has a cadre of nurses who are able to publicly speak, communicate well in meetings and other activities, and put together presentations. One group of Safe Passage clinicians have published¹⁷ and others have spoken at national meetings. Safe Passage clinicians come back from these meetings not only reenergized but also with a new skill set. Ultimately, the self-sufficiency of the Safe Passage clinicians and program is the best outcome.

Another outcome of the embedded program is sustainability. Although the 2 primary program developers have left for other positions, the Safe Passage Program continues to not only function but also thrive. Two additional Clarian staff members have been selected for the HRET/National Patient Safety Foundation Patient Safety Fellowship, thus continuing the success of the program.

Researchers from academics and clinical practice are joint recipients of the local Clarian Values Grants to pursue patient safety work, conduct pilot studies for larger grants such as safety education for residents, and Safe Passage curriculum. Grants from national organizations such as the National Patient Safety Foundation have been awarded to pursue work in complexity.

Very recent studies have in fact determined that traditional patient safety outcomes, such as medication errors, are neither a quality nor a patient safety outcome. Rather, medication errors are a reflection of staffing. Realizing that patient safety outcomes are difficult to measure and existing tools are in fact in their infancy, Clarian is working with Purdue to develop instruments to effectively measure outcomes.

Summary

The Safe Passage Program is embedded in practice because of the interaction and synergy of a diverse group of people from academia, clinical practice, and business and industry. The collaboration with IUSON provided the foundation for evidence-based content, and the professor's involvement provided consultation and advice throughout the organization about patient and staff safety. With that foundation, the collaboration branched out to business and industry partners who have provided a mutually beneficial relationship around patient safety. We were pleasantly surprised to discover so many resources in our local community with whom we could partner. Finally, the collaboration to develop an integrated simulation center, where clinicians, students, and academicians can work together, will provide even more opportunities for the development of new knowledge with the simulations written from actual clinical situations. In addition, this collaboration with industry has assisted us in addressing the true root cause of most healthcare error: team work and communication.

We have also learned that the more we form partnerships with organizations outside of healthcare, the more we learn. Healthcare has traditionally been very insular and guilty of the "not invented here" syndrome, which did not allow and appreciate concepts from other fields and business to be a part of its thought processes because "healthcare is different." We have found more similarities than differences in non-healthcare safety practices in other organizations that we can use to address our systems issues. Without the concept of collaboration, the Safe Passage Program would not have evolved into the effective program it is today.

Collaboration is usually thought of as working jointly together to achieve an outcome. However, we believe that through these processes, we have achieved a higher level of true collaboration that borders on synergy because our collaboration has far exceeded what any of us could have accomplished alone. The synergy of these diverse

collaborations has created mutually strong programs. Our safety program is one more example of how much more gets accomplished when we seek out collaborative experiences than when we work in isolation.

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