

Flexibility in a Crisis

How Strong Relational Coordination and Lean Literacy Helped Us Weather the COVID Storm

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Our city was significantly impacted by the initial COVID-19 outbreak in the United States. We describe how members of our Quality and Safety team were able to leverage skills in relational coordination and process improvement to respond to rapidly changing needs in a flexible and effective way. **Key words:** *communication, Lean process improvement, nursing leadership, relational coordination, team building*

BOSTON was an early hot spot in the COVID-19 pandemic and is home to our 681-bed academic medical center. In the spring of 2020, we were called to respond to a surge in patient acuity and infectious disease volume that was beyond anything we had ever seen before. While the strain on our hospital was immense, we were able to stay a half-step ahead of the demands on our system.¹ We cancelled elective procedures and nonurgent ambulatory visits, freeing up staff and space to help manage the crisis. At the peak of the spring 2020 surge, we were caring for 131 critical patients and were

staffed for 149—almost double our licensed capacity of 77 critical care beds. At the same time, we had 346 patients on the general units with confirmed or suspected COVID-19.

Many teams and individuals throughout our medical center, working within our Hospital Incident Command System (HICS),² did heroic work that enabled us to provide the best possible care for our patients and staff during the crisis. As members of our Quality and Safety (Q and S) team paused to reflect on our contribution to this work, we identified themes that contributed to our success. We believe the use of Lean concepts and strong relational coordination (RC) powered our team's ability to respond to rapidly changing needs in a flexible and effective way.

RELATIONAL COORDINATION AND LEAN LITERACY: OVERVIEW

It is telling to analyze this team's contribution in the context of RC, defined

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as a “mutually reinforcing process of communicating and relating for the purpose of task integration,”^{3(p210)} with a focus on “shared goals, shared knowledge, and mutual respect,”^{3(p210)} among employees whose work is interdependent.⁴ This theory posits that RC is characterized by communication that is frequent, timely, accurate, and problem-solving and that the need for RC increases during times of uncertainty, time constraints, and interdependence.⁴

Our team’s response to the pandemic had all these features. Early in the crisis, much was unknown. We were constantly learning something new. Changes affecting patient care, supplies, equipment, capacity, documentation, and operations were occurring at a dizzying pace, requiring a rapid, flexible response. We needed to efficiently communicate these ongoing changes to inpatient leaders and frontline staff; the need for a communication process that led to task integration³—a hallmark of RC—had never been more urgent.

Our Q and S team, led by the associate chief nurse (ACN) for Quality and Safety, includes 5 inpatient leaders who had existing relationships with areas of the hospital that were critical to the pandemic response, as well as a project manager (Figure 1). Flexibility in our team members’ roles and responsibilities, and leveraging their existing relationships for new purposes, was a key

element in our approach and incorporated the task integration and shared knowledge principles of RC.⁴

Members of our team had been using Lean process improvement methods for some time.^{5,6} They were familiar with Lean concepts, including involvement of frontline staff in identifying and solving problems; streamlining communications; using Plan-Do-Check-Act (PDCA) cycles to implement change; and deploying visual management systems.^{7,8} These Lean skills worked in synergy with RC as we strove to address rapidly changing events.

IMPLEMENTATION OF RELATIONAL COORDINATION

Relationship dimensions

Relational coordination calls for organizations to create connections between workgroups rather than reinforcing silos of disjointed workstreams.³ The ACN leader of our team helped craft these connections in her role as inpatient unit leader in the HICS Operations branch. Clinical challenges that were brought to this role frequently required coordination with other HICS branches. To achieve this coordination, the ACN focused on leveraging the talents and existing relationships of the Q and S team, asking them to serve as liaisons to 1 or more HICS functions

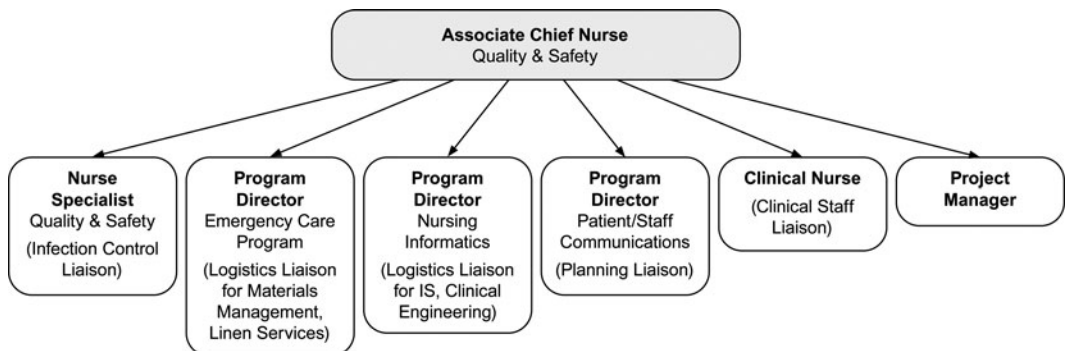


Figure 1. Q and S team liaison roles. Q and S team members pivoted to liaison roles, interfacing with HICS branches and hospital systems. Q and S indicates Quality and Safety; IS, Information Systems; HICS, Hospital Incident Command System.

or staff groups (Figure 1). Creating this network of liaisons across workgroups not only facilitated the work but also provided the space and time for the further deepening of relationships that, we feel, produced the “significant performance advantages”^{4(p13)} characteristic of effective RC.

Communication dimensions

The communication patterns inherent in RC emphasize frequent, well-timed communication that helps solve problems.⁴ Our multifaceted approach encompassed these ideals. As problems were brought to the Q and S team from multiple angles, we set out to streamline communication between the Q and S team, other departments, frontline leaders, and staff. A dedicated Q and S e-mail account was established to funnel questions and callouts to the team, which were then triaged to the appropriate Q and S team member. The e-mails also allowed us to track trending questions that were filtering in from frontline staff and leaders; it helped us keep apprised of issues that had to be readdressed or communicated differently, supporting the sharing of ideas and cross-functional conflict resolution.³ The Q and S team quickly adapted its weekly check-in huddle to a daily event in order to efficiently address emerging issues.

While e-mail was effective in calling out concerns/issues, it was an ineffective way to communicate back to the rest of the inpatient leaders and staff who were busy responding to clinical needs. We realized we needed a systematic, verbal communication loop.

As part of our previous Lean work, we had established a tiered communication phone call as a way to ensure key members of our leadership team had a shared situational awareness of factors affecting operations.⁹ Our HICS Operations included a series of tiered calls that created bidirectional communication. As part of that tiered communication matrix, the Q and S leader launched a daily inpatient call 7 days a week, attended by about 70 nurse leaders and oth-

ers. The call structure provided a way to share knowledge across multiple teams in disparate areas⁴ and included updates on key COVID-19 metrics; reports from inpatient clinical leaders; reports from the Q and S liaisons; and a question-and-answer session. Some problem-solving occurred in real time on that call; other more complex issues were held over for follow-up the next day.

While the call proved effective for communication among the leadership, face-to-face communication was needed for clinical staff who were dealing with the day-to-day uncertainties of providing care for patients. With so much changing, the leaders needed tools to help guide them to the important issues to address with staff. The clinical nurse liaison and the project manager played important roles in facilitating this communication with frontline staff, further discussed in the following text.

Concept integration: Examples

Examples of the Q and S team’s liaison functions illustrate how RC and Lean concepts helped us face myriad challenges during the pandemic. The work was a living example of how RC “enables employees to more effectively coordinate their work with each other, thus pushing out the production possibilities frontier to achieve higher quality outcomes while using resources more efficiently.”^{4(p14)} They illustrate how our approach provided the flexibility and efficiency we needed for an effective response.

Infection Control liaison

The Q and S nurse specialist supported Operations by addressing infection control issues. One example involved safety precautions related to aerosol-generating procedures (AGPs). We wanted to be sure we were following best practices to reduce the risk of aerosol transmission of COVID-19.^{10,11} While staff were wearing surgical masks and face shields for every patient encounter, if an AGP was occurring, this required anyone entering the room to don an N-95 mask. Without effective communication, the risk of

an inadvertent staff exposure was high. The communication had to be easily understood by anyone who might enter a room where an AGP was occurring, including clinicians, food service workers, environmental services staff, and more. The nurse specialist gathered a small team of clinical staff members to plan a 48-hour trial of an AGP communication sign, which included the time of the AGP and the time that an N-95 mask would no longer be needed for room entry. The nurse specialist used both Lean and RC principles in her approach. She understood that by involving those directly involved in the work, a sustainable solution could be developed that would foster additional shared knowledge and mutual respect, while increasing the safety of employees.^{4,8} The 48-hour trial proved successful and was soon rolled out house-wide.

Logistics liaison for Materials Management and Linen Services

The Q and S program director for the Emergency Cardiovascular Care program became a liaison to the Materials Management and Linen Services sections of the Logistics branch, both heavily involved in the management of personal protective equipment (PPE).

This liaison worked with the Infection Control liaison and others to ensure adequate PPE for all units. One way to preserve PPE was to minimize room entry. The liaison worked on a plan to position intravenous (IV) pumps outside of patient rooms so that staff could respond to a beeping pump or change an IV bag without donning PPE. Concepts of RC were critical in the liaison's work to maintain timely and effective communication across multiple teams,⁴ including Materials Management, Infection Control, the IV Team, and Clinical Engineering. Materials Management quadrupled our usual order of extension tubing, and Clinical Engineering ensured that the extra tubing did not affect medication delivery rates. Lean concepts were employed as the practice was trialed

in one intensive care unit, where staff confirmed it significantly decreased PPE use; it was then rolled out to all appropriate areas. The work on IV tubing was just one of countless innovations that this liaison was able to facilitate through effective RC.

Logistics liaison for Information Systems and Clinical Engineering

The Logistics branch focusing on Information Systems and Clinical Engineering fit naturally within the scope of our Nursing Informatics program director, who became the liaison to these groups. Early work included an urgent need to increase bedside equipment and mobile computers. In addition, in an effort to preserve PPE and reduce the number of staff members entering patient rooms, some clinicians from consult services began using mobile devices to remotely communicate with patients. Very quickly, challenges became clear; we needed a fleet of mobile devices available on the units. When nurses and other clinicians saw how well video calls worked for clinical consults, they asked to have tablets for patients so they could make video calls to family members who were not being allowed to visit. Staff worried that isolation was impacting the health and recovery of their patients.

Working with the Department of Medicine, Information Systems, Interpreter Services, Development, Media Services, and our Front Desk Ambassadors, we solicited donations of new and used tablets, aiming to have 2 to 3 devices per unit. We built the devices to work with multiple video applications. This enabled calls to be placed using whatever interface was familiar to the family.

Effective RC across departments led to a highly successful response to one of the most distressing aspects of the pandemic, which necessitated separating patients from their families at a time of critical illness. It enabled us to stay true to our mission of providing compassionate care even under extraordinary circumstances.

Planning liaison for patient/visitor and staff communications

Both patient- and visitor-facing communications and attention to employee wellness fell under the Planning section of HICS, and our team's Communications program director was the liaison to these groups. This director coordinated with hospital communications teams to develop timely communications for both patients and visitors, including information for patients on what to expect in the hospital, information for families about visitor policies, and instructions for patients needing home isolation due to COVID-19.

This liaison also worked with leaders in Nursing and Social Work to address staff wellness. Working closely with the certified wound/ostomy nurses, information was pushed to staff about strategies to prevent skin injuries during extended mask wear. Culling stories and photographs chronicling the crisis response, and circulating them on hospital social media channels, helped boost staff morale. This liaison also worked with our telecommunications staff to arrange for a Boston area favorite song to be played over the hospital intercom whenever a COVID-19 patient was discharged, providing weary staff with a reminder of the importance of their work.

Clinical nurse staff liaison

Prior to the pandemic, we had implemented a Daily Management System (DMS)—a Lean enterprise where staff identify and solve problems locally using daily huddles and a Visual Management System.^{5,12} We had deployed a small team of frontline nurses, trained as DMS fellows, to rotate through the units to support this program. During the pandemic, we repurposed their daily rounding to address new tasks. The fellows huddled with clinical staff to provide real-time education on everything COVID-related, strengthening relationships between HICS and frontline staff to enable the timely sharing of information that was often changing daily.⁴ They repurposed the DMS Visual Man-

agement System boards, creating a “COVID Corner” where they posted up-to-date policies and guidelines.

Fellows also used this face-to-face time to talk to staff using a technique known as “humble inquiry,” in which open-ended questions are asked, void of assumptions or authority.¹³ This technique has been shown to be effective in getting to the root of problems being experienced by stakeholders, in this case frontline staff. The fellows already had relationships with the units they were visiting and, as peers, provided a level of camaraderie and comfort that proved extremely valuable; staff felt very comfortable expressing their concerns, questions, and fears to the fellows. These unit huddles provided an opportunity to restate and clarify institutional messages, field questions, and find out about issues that needed to be escalated back up the HICS chart. The huddles reassured staff that concerns were being addressed.

Project manager

To help streamline the ability of frontline staff to cull the information they needed from the rapidly changing landscape, the team's project manager took the information from the daily e-mails and calls and created a “Nursing Frequently Asked Questions (FAQ)” document to support real-time, accurate, problem-solving communication to all frontline staff members, reinforcing that we had heard their questions and were providing answers.^{4,8} As new knowledge was acquired or new products were brought in, information was added and the “New” items were flagged. This was an invaluable tool for nursing leaders to use as they met with staff to notify them of the latest updates. It created a reinforcing process of consistent, correct information that could be shared, discussed, and then used to brainstorm more questions and concerns, which could be sent back to the Q and S mailbox or brought up at the inpatient leader call the next day. Such rapid process problem-solving communication used concepts of both RC and Lean

and was critical for the success of our rapidly changing state.^{4,8}

The project manager also monitored the team e-mail account, ensuring that issues were triaged appropriately and marking items as completed or outstanding. This helped coordinate task integration across the entire team.⁴

RESULTS AND LESSONS LEARNED

Following the first COVID surge in our area, our hospital surveyed staff to gain their insight into the pandemic response. Free-text comments on the survey highlighted both things that worked well and things that could be improved.

It was validating that a number of individuals confirmed that e-mail was not the way to communicate information out to staff; one person stated, “The ability to take in more than a few sentences during this time was difficult Overload of information all day and then a long e-mail with important info was hard to process.” Others validated that the evolution of our communication processes improved the staff’s ability to comprehend expectations, noting that things were “more stressful in [the] beginning when recommendations were changing hourly Later on it was more clear and more processes [were] in place.” Specifically, staff commented on the helpfulness of the daily call led by our team; one noted, “The exchange of information was invaluable and so appreciated by staff.” Said another, “I was very impressed at how management communicated to staff. I was impressed with the transparency of information.”

The daily FAQ that was shared with nursing leadership as a tool to guide their huddles with staff was called out as helpful. Said one respondent, “I think it was the most comprehensive way of communicating with very, very large staff numbers. The new items were called out and highlighted on a daily basis, and it was organized and easy to read and find information.”

Through the survey, we also learned of things that we could improve. While the Nursing FAQ document was seen as valuable, it was suggested that it be distributed to all staff members instead of just to leaders. We had limited the distribution to leaders so that they would have a chance to provide context for any changes and address any confusing bullets. This is something we may reconsider in a future crisis, as distributing more broadly would make sure frontline nurses had the information in a timely way if dissemination through the manager was delayed. And while we did attempt to listen and respond to frontline staff as much as possible, comments on the survey urged us to do better, with one person advising that we “incorporate bedside nurses’ input more directly in [the] decision-making process.” In the future, we would be better positioned to use our Nursing Professional Governance Councils toward this end,¹⁴ a step we were unable to fully utilize during this crisis because we were launching a new council structure in the same month that the pandemic came to our area.

Finally, one respondent commented, “It would have been nice to know what other units were doing to make our scarce equipment work better, or to use ancillary staff differently, or even how the disease was presenting and what worked for patients.” We agree that a more formalized mechanism for sharing innovations during the pandemic would have likely resulted in workflow improvements across many units.

DISCUSSION

The HICS approach to incident command is, by definition, hierarchical.² Implementation of needed strategies in a crisis is necessarily top-down. Yet, it is precisely at moments of crisis that attention to the voices of frontline staff may be most important. How can future leaders balance the need for a controlled systematic response during incident command with the benefits that come from listening to those closest to the work? We found that our organization’s history with

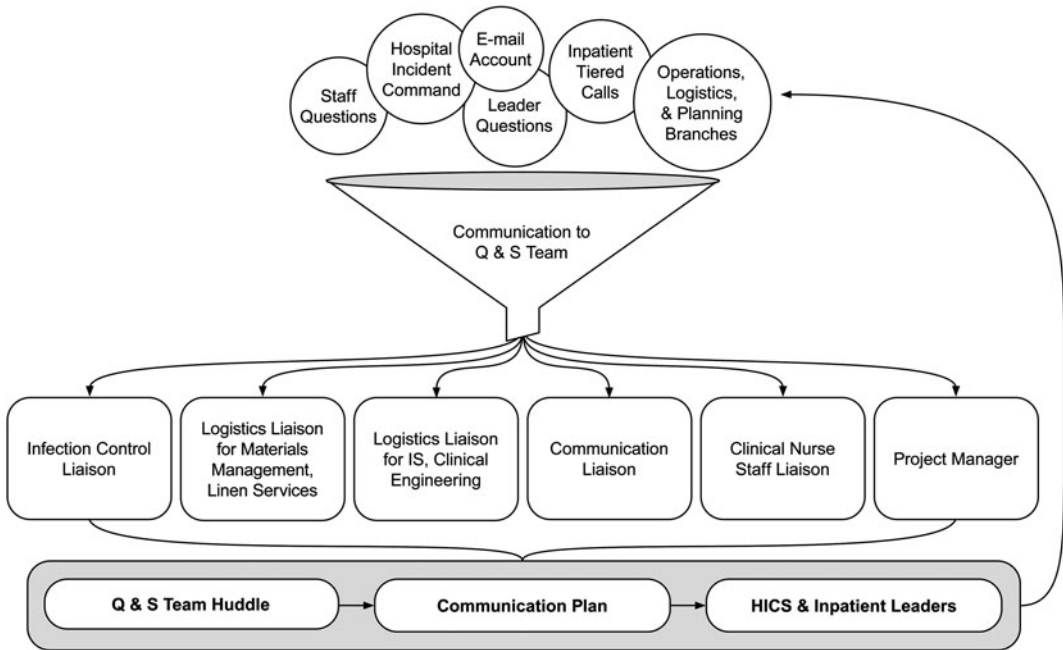


Figure 2. Communications during the crisis. The Q and S team used existing relationships and a liaison structure to funnel emerging issues from a variety of sources to staff members who had pivoted to liaison and coordination roles. Daily team huddles helped solidify rapidly changing plans, which were then communicated to the HICS teams and to inpatient groups. Q and S indicates Quality and Safety; HICS, Hospital Incident Command System.

Lean process improvement meant that Lean methods were part of our organizational DNA and were embedded in our approach. Using the flexibility and adaptability in our existing tool kits, we found ways to ensure that frontline voices helped drive our response, strengthening our RC in the process. Our communication vehicles were both established (DMS) and incident-generated (Daily calls, COVID Corner, FAQs) and relied on our learned confidence that problems can be solved.⁵

Throughout the pandemic, our medical center implemented large-scale practice changes through extremely rapid (48- to 72-hour) PDCA cycles. These changes were communicated using a multitude of mechanisms including e-mail, communication calls, face-to-face communication, and staff-facing documents and bulletin boards. Our communication methods were flexible, dynamic, and diverse, strengthening our RC. Staff

heard the same information through different means; this helped vet the information as it was being communicated both to and from management, leadership, and staff. The opportunity to hear staff members' concerns through these venues was critical to our ability to mount effective responses (Figure 2.)

The value of leveraging existing teams and strategies for new purposes was an important lesson that others have reported.¹⁵ Repurposing the DMS work to serve the needs of the frontline staff during the crisis helped drive the real-time communication that was critical to patient care. So was using the existing collaborative relationships our team members had developed, enabling them to function as liaisons to colleagues throughout the organization, which led to the success of many parallel work streams and contributed to our RC. We had an established baseline of shared values and mutual respect; this

was foundational. It provided us with the flexibility to create new avenues for shared knowledge and problem-solving among many interconnected workgroups.

Hospital leaders across the world have worked to incorporate process and quality improvement methods into their response to a global pandemic.¹⁶⁻¹⁸ Our familiarity with Lean process improvement and our liaison matrix strengthened our RC and helped us leverage the teamwork we needed to succeed. By embodying the main principles of RC—timely, frequent, effective, problem-solving communication with shared values, shared knowledge, and mutual respect⁴—our

response and communication through the pandemic were successful. The “interplay of communication and relationships”^{19(p31)} that is the bedrock of RC provided the “psychological support and the information-processing capacity needed to respond effectively to external threats that require[d] a coordinated, collective response.”^{19(p31)} As nurse leaders pause to reflect on the lessons learned through the COVID-19 pandemic, the notion of adaptable systems and flexible responses will surely rise to the fore. Teams that sharpen their skills in Lean process improvement and RC will be well positioned to rise to future challenges.

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