Team-Building and Change Management in Respiratory Care: Description of a Process and Outcomes

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BACKGROUND: Teamwork promotes enhanced outcomes in various business sectors but can be hampered when there are organizational "silos." This study describes an intervention that fostered teamwork among 4 separate respiratory therapy (RT) departments within a single hospital. METHODS: An initial retreat of leaders of the 4 RT groups indicated a common goal of developing a scorecard by which RT outcomes could be followed and improved. Developing this scorecard involved a business review process that comprised 7 facilitated meetings, in which the 4 RT groups developed metrics and targets for RT outcomes in 4 categories: quality/innovation; service; productivity; and employee engagement. RESULTS: The process of developing the scorecard prompted improvements in the quality of RT care (eg, enhanced cross-staffing, low respiratory therapist turnover). A welcome impact of the business review process was enhanced collaboration and teamwork among the 4 RT groups, as manifested by sharing of educational resources, developing a cross-departmental float pool, and forming a process and group to standardize RT care across all groups. CONCLUSIONS: The results of this business review process show that teamwork among 4 separate RT departments improved and that enhanced outcomes were achieved. Based on this experience, we recommend consideration of this business review process as a team-building activity that can confer demonstrable clinical benefits. *Key words: teamwork; outcomes; organization; respiratory therapy; leadership; team-building*. [Respir Care 2010;55(6):741–748. © 2010 Daedalus Enterprises]

Introduction

Good teamwork has been associated with enhanced outcomes in various business sectors.[1-3] In the specific context of healthcare, though generally less attention has been given to the benefits of teamwork to produce beneficial clinical and organizational outcomes, several supportive studies are available.[4-8] For example, in assessing observed versus expected outcomes in 13 intensive care units, Knaus et al[4] reported that units achieving better than expected outcomes were characterized by excellent communication between physicians and nurses and ample use of protocols; units that performed less well lacked these features of teamwork. Similarly, in the Shock Trauma/Respiratory intensive care unit of Latter Day Saints Hospital, Clemmer et al[5] reported clinical and financial improvements after implementation of a program that developed collaboration among members of the healthcare team. Also, O'Donovan et al showed that a team composed of a pulmonologist and a chest radiologist more accurately diagnosed rounded at-

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electasis on computed tomogram than did either individually.[6] Finally, in a study while introducing a new cardiac surgical technique of minimally invasive surgery into 16 New England hospitals, Pisano et al[7] observed that surgical teams with shorter procedure times after 40 cases were characterized by greater attention to team-building and stronger teamwork than were surgical teams with longer procedure times.

Given that organizational "silos" (eg, separate departments with like functions that compete, departments that do not collaborate) can conspire against good teamwork, and that processes to encourage teamwork can provide offsetting benefit,[9] the current study reports an organizational intervention that fostered teamwork among 4 traditionally separate departments of respiratory therapy (RT) within a single hospital. We explain the intervention (which was the development of a "business review" process for RT outcomes), classify its component activities according to the features of a change-avid RT department,[10] and present the outcomes regarding both RT quality and enhanced teamwork.

To clarify the impact of the business review process on teamwork among the 4 RT groups, we first describe the baseline state of the 4 separate RT groups. Between 1990 and 2008, RT services at the Cleveland Clinic were provided by 4 separate departments: Pulmonary, Allergy, and Critical Care Medicine; Cardiothoracic Anesthesia; Pediatrics; and Emergency Medicine. Each department had a separate budget and had separate medical and RT leadership. In 2008, the leadership of the Cleveland Clinic wished to enhance collaboration and interaction among the 4 separate RT groups and therefore introduced an overarching leadership structure called Cleveland Clinic Respiratory Therapy. A medical director (JKS) and manager (DKO) for Cleveland Clinic Respiratory Therapy were identified and were asked to help cultivate teamwork among the 4 groups, while leaving their separate budgeting processes intact. The strong impetus to launching Cleveland Clinic Respiratory Therapy was the organizational observation that undesirable competition and redundancy had developed among the 4 separate RT groups, such as regarding recruiting new respiratory therapists from outside the institution, offering educational activities to therapists, allowing heterogeneity of clinical practice regarding the use of RT protocols, and allowing variation of human resources policies and definitions regarding job descriptions, promotion criteria, and salary among the 4 groups.

The plan to develop a common scorecard for RT outcomes emerged from a facilitated retreat that was organized for the approximately 20 leaders (ie, managers, supervisors, education and research coordinators, and medical directors) of the 4 RT groups and of Cleveland Clinic Respiratory Therapy, who came together to consider what strategies might enhance collaboration within Cleveland Clinic Respiratory Therapy. The leadership of Cleveland Clinic Respiratory Therapy then contacted the Cleveland Clinic's Process Improvement group (which include members of Orion Advisory, a consulting company under contract by the Cleveland Clinic), who then deployed facilitators to help the RT team in a structured process to develop an RT business scorecard. This study examines the impact of this process of facilitated meetings to develop a business review scorecard for RT on clinical outcomes and teamwork of the group. We describe a welcome consequence of developing the business scorecard that was markedly enhanced teamwork among the 4 previously "siloed" RT groups.

Methods

The change intervention consisted of a series of structured meetings directed at developing a "scorecard" by which to assess the full spectrum of outcomes of RT services at the Cleveland Clinic. These "business review" meetings convened the leaders of the 4 RT groups and of Cleveland Clinic Respiratory Therapy (ie, managers, supervisors, education and research coordinators, and medical directors) with facilitators (RTB, DP) to develop an "RT business scorecard" that compared target goals with actual monthly performance. The leaders (approximately 20 individuals of the approximately 220 staff therapists in the 4 groups) worked together to define both common and department-specific outcomes related to RT services in 4 areas:

- Quality, risk management, and innovation
- Service
- Productivity and financial
- Employee engagement[11]

The meetings occurred once weekly for 7 weeks (18.5 h total), during which facilitators guided the process of determining metrics and targets, and then assembled the scorecard in final form.

The process used by the Process Improvement group, called the Performance Management Cycle, relied on collaboration and participation in the meetings as a means of creating ownership and buy-in of the RT team. The process (Fig. 1) was deployed over the course of the 7 weekly meetings aimed at identifying key measures and projects. The steps were:

- Week 1. Kickoff. Provided an overview to session participants, description of preparation requirements, and overall engagement objectives, with examples. Allowed for introductions of the Cleveland Clinic Respiratory Therapy leadership team and of the separate RT groups to one another.

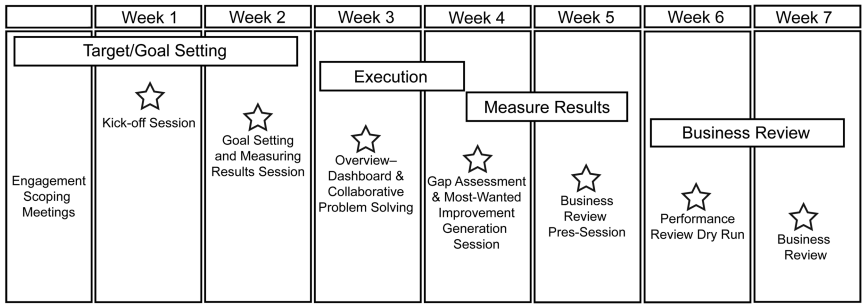

Fig. 1. The Performance Management Cycle. The figure summarizes the schedule and content of the 7 weekly meetings to develop the respiratory therapy scorecard.

- Week 2. Goal Setting. Developed and validated performance metrics, and aligned metrics with categories, overall goals and priorities, intended to build awareness of shared objectives and outcome goals.
- Week 3. Problem-Solving Tools Overview and Training. Training on linking problem identification and initiatives to quantitative measures of performance; demonstration of an approach to collaborative team-based solution generation and problem resolution.
- Week 4. Project Identification. Validated targets and identified performance gaps for metrics developed in the Goal Setting session (Week 2); identification of projects to close major gaps locally and across Cleveland Clinic Respiratory Therapy.
- Week 5. Business Review Preparation and Training. Detailed design and refinement of the business review; training on use of an online tool (which made the scorecard available to all members of all 4 RT groups).
- Week 6. Final Business Review Preparation. Practice run using standardized review documents and process; assigned roles for review process; set expectations for level of preparation required for the business review.
- Week 7. Business Review. Leadership reviewed performance using standardized review documents; colleagues identified potential actions and aligned effort across Cleveland Clinic Respiratory Therapy.

The facilitators' goal was to fully engage participants from all 4 RT areas in the discussions and to deal with moments of team disagreement and dysfunction which had to be addressed in real time in order to move forward. At the outset of the meetings, the facilitators guided the group in developing a charter for their interacting as a team, including a commitment to active listening to colleagues, avoidance of censoring ideas, and maintaining a spirit of true curiosity about colleagues' ideas and suggestions in order to maximize understanding. This charter guided the etiquette and behavior among the attendees during the meetings and set standards for the group's teamwork.

Results

Because the process of developing the RT scorecard and addressing antecedent silos represented a substantial change from earlier practice, we first considered the process of the business review in the context of previously reported features of a change-avid RT department. Table 1 describes specific aspects of the change intervention that exemplify these previously described features.[10,12] More specifically, we observed that the business review process featured many characteristics that typified change-avid RT departments (see Table 1, right column) and that also promoted teamwork. For example, the emphasis on developing close and collegial relationships through the process both encouraged teamwork and also allowed the group to work together toward change.

Several outcomes of this business review process can be described, some regarding the quality of RT services that the 4 groups provided and the process by which these services were delivered (Table 2) and others regarding the nature of the collaboration and teamwork among the different RT groups. The number and depth of these collaborative activities during and after the business review process far exceeded any that preceded the process.

The early and concrete deliverable of the business review meetings was a scorecard that defines specific, mutually determined RT outcomes and that structured regular performance reviews by the Cleveland Clinic Respiratory Therapy leadership group regarding attainment of these goals. Notably, in the absence of validated external benchmarks for the clinical and process targets in Table 2, the target values were developed by the RT team based on their assessment of a threshold value for excellent RT care. The core metrics that the RT team developed to assess its outcomes were classified into 4 categories:

- Quality, risk management, and innovation
- Service
- Productivity and financial
- Employee engagement

Table 1. "Highly Desired" Features of a Change-Avid Respiratory Therapy Departments: Features of the Change Intervention That Exemplify the Change-Avid Feature

Having a close and collegial working relationship between the medical director and the RT staff	The intervention included the medical directors and members of the RT leadership in each separate department in all meetings. The meetings encouraged candid, fluid interchange among respiratory therapists and the medical director.
Having a strong and supportive champion for change in the hospital administrative structure (eg, hospital leaders, medical director)	The impetus to undertake developing a scorecard was the realization by members of all RT groups in a common retreat that such an activity would facilitate discussion of common goals as well as areas of differentiated expertise and practice. The retreat was undertaken under the medical director's encouragement that enhanced teamwork should be encouraged.
Using data and other evidence to define problems and to measure the effectiveness of proposed solutions	The scorecard (see Table 2) is populated by specific, quantitative metrics that are updated frequently to allow assessment of performance against target.
Using multiple and redundant types of communication to cascade information throughout the RT department	Communication to all staff is accomplished in multiple ways (eg, e-mail via institutional and respiratory management information system), direct communication at shift changes, video monitors in report rooms, meetings). For example, a continuous slide presentation is active via a video monitor in the RT report room to update staff on current issues within the RT areas. Routine monthly shift meetings occur for all shifts throughout the year. Minutes of weekly administrative meetings with the medical director and RT administration are posted in the department and electronically sent to all staff members.
Being attentive to the forces of resistance and obstacles to change, and being able to navigate within institutional systems and people to achieve change	The initial focus was to convey to all RT groups the concept, purpose, and philosophy of Cleveland Clinic Respiratory Therapy. This involved meeting with each RT group to gain an understanding of this change-avid concept. Discussion with staff about this change process was encouraged, as was expressing reservations.
Being willing to confront, engage, and gain closure on tough issues	Discussions in the scorecard meetings were explicitly candid around difficult issues that were traditionally not discussed when the groups were "siloed" (eg, How we can optimize our work together? Can we develop "float pools" to enhance staffing for all groups?)
Having and maintaining a culture of internal, self-imposed, systematic, ongoing education and knowledge-acquisition	The scorecard process requires regular self-examination about performance and opportunities for improvement. In addition, specific metrics adopted include the numbers of abstracts and papers published, lectures given, and grants achieved, all of which are indicators of the search for new knowledge.
Consistently rewarding and recognizing change-avid behavior among the RT department members	The scorecard process intrinsically encourages progress and innovating new methods to achieve self-elected metric goals. As such, the scorecard process embraces and reinforces the need for change.
Fostering ownership for change rather than just complying with external policies and demands and, as part of this ownership, taking the time to identify and involve stakeholders in change (eg, physicians, nurses, hospital thought-leaders, and decision-makers)	Development of the scorecard requires articulating specific metrics and an "owner" for each metric (ie, the group member who is responsible for defining targets and assuring availability of data). In this way, ownership of issues and accountability is embedded within the scorecard process.
Paying attention to leadership-development and succession-planning in the RT staff	Attention to leadership succession planning is a key aspect of the business review process.
Having and communicating a vision in the department	The definition of specific metrics requires attention to the overarching goals of the RT groups separately and together (eg, superb clinical care, education of colleagues, and the search for and dissemination of new knowledge). In addition, the process of convening all 4 groups embodied and demonstrated enthusiasm to enhance the separate groups' teamwork within themselves and between all groups to create a cohesive whole (called Cleveland Clinic Respiratory Therapy).

RT = respiratory therapy

Table 2. Outcomes on the Scorecard That Were Developed by the 4 Respiratory Therapy Groups in the Business Review Process

Percent of staff cross-trained in one additional area
Cardiothoracic Anesthesia
Respiratory Institute
Pediatrics
Emergency Department
Gallup Engagement Score - Employee[11]
Turnover rate
Percent of voluntary turnover in first year
New-employee orientation rating
Percent of therapists who consider themselves competent at time milestone
Percent of therapists who successfully complete new orientation/hire period
Percent at shift meetings with medical director
Number of Therapist of the Year Awards
Cardiothoracic Anesthesia
Respiratory Institute
Pediatrics
Percent of Vacant Positions Approved
Overtime
Cardiothoracic Anesthesia
Respiratory Institute
Pediatrics
Emergency Department
Productivity index
Wage cost index - Respiratory Institute
Float hours
Direct Expense
Cardiothoracic Anesthesia
Respiratory Institute
Pediatrics
Number of hours/day work rate exceeds threshold
Percent of RT completed orders
Percent of treatments never attempted
Percent of RT orders that are appropriate
Satisfaction score for internal customers
Number of peer-reviewed publications
Number of non-peer-reviewed publications
Number of abstracts published
Number of grants received
Number of internal lectures given
Number of non-funded research projects
Number of external invited talks
Internal lecture educational objectives met
Internal lecture instructor's knowledge of topic
Number of strategic planning/continuous improvement and supported continuous improvement projects
Hand hygiene (% compliance)
Percent of policies reviewed
Percent of policies reviewed that are generalizable/common
Number of unplanned extubations per 100 ventilator days—adult
Percent of ventilator alarms appropriately set
Percent agreement on audits of protocols
Percent of critical values reported to a physician
Percent completion of tracheal intubation by appropriate standards
Percent documentation of end-tidal CO_2 with procedural sedation
Percent agreement of RT orders in RT management information system vs electronic medical record system
Percent of written orders for RT services
Percent of employees with current basic life-support certification
Percent of point-of-care value agreement with value entered in electronic medical record system
Percent of employees with current continuing-education unit requirement met

RT = respiratory therapy

Table 3. Selected Values from the Respiratory Therapy Scorecard*

Parameter	Baseline	Target	Outcome
Annual turnover rate among therapists (%)†	7.9	10	4.2
Rate of concordance between the auditor and the therapist who developed the RT care plan in the RT consult service (%)‡	92	90	90
Percent of regular shift meetings attended by the Medical Director (%)§	50	25	75
Mean hours over 3 months allocated by each of the 4 RT groups to cross-staff other RT departments, to address staffing needs (h)‖	1,110	1,920	3,287

* See Table 2. This table represents baseline data (before the business review process), targets, and outcomes 3 months after the business review process began.
† Calculated as the number of open vacancies divided by the total number of budgeted full-time employees.
‡ To determine the rate of concordance between auditors and therapists generating respiratory therapy (RT) care plans in the RT Consult Service (RTCS), the results of routinely performed audits regarding RT orders were compared to the actual RT orders generated by the therapists performing evaluations in the RTCS. Specifically, audits of RT care plans in the RTCS were routinely performed several times a month. During an audit, a therapist who was expert in the protocols would evaluate the patient, blind to the actual care plan, and generate an RT care plan for that patient based on the RTCS's algorithms. The RT care plans developed by the auditor were then compared to those ordered by the RTCS. Concordance was defined as agreement on the modality and specific RT intervention (eg, drug and delivery mode).
§ Measured as the percent of total meetings at which the medical director was present.
‖ Non-overtime hours allocated by one RT department to staff other RT departments. The target values are based on the goal of cross-staffing one full-time employee from each of the 4 RT areas over 3 months. The baseline and outcome hours represent 3-month totals. A significant ($P = .006$) increase in median hours was observed between baseline and outcome (following the business review process).

In the 4 once-monthly quality reviews to date since the final business review scorecard was developed, several examples of clear progress in achieving metric targets (which, in turn, bespeak improved outcomes of RT care) have already been observed. Details of selected outcomes (with baseline and post-intervention data) are described in Table 3 and include:

- After the scorecard was developed, turnover of therapists was low and well below the target (ie, observed rate of 4.2% vs target value of 10%).
- The rate of concordance between the auditor and the prescribing therapist on RT care plans remained at the target rate of 90%.
- The frequency of regular RT shift meetings in which the medical director attended the meeting increased. It was felt that medical director attendance at 25% of the shift meetings was a useful benchmark, but the benchmark was not chosen to drive the existing behavior. Rather, the benchmark was chosen to reflect a reasonable threshold value for performance. Actual medical director attendance at shift meetings exceeded 25% for the sampling interval.
- Hours allocated to offer cross-staffing coverage among the different RT groups increased significantly (ie, from 1,110 h over 3 months to 3,387 h, $P < .006$, Fig. 2). Because increasing cross-staffing to meet individual departments' staffing needs was an explicit goal of improved collaboration among the 4 RT groups, hours allocated by each RT department to cross-staff other RT departments were deemed an important outcome reflecting teamwork among the groups (see Fig. 2).

Going beyond the clinical and operational improvements in the delivery of RT care, specific improvements in collaboration and teamwork among the 4 RT departments were also evident. In the context of features of effective teams,[9] 3 specific examples of enhanced teamwork (that far exceed any antecedent collaborative activity) include:

1. Sharing of educational resources and development of a common RT course. Before the process of developing the business review, several groups offered their own, independent continuing-education series to allow therapists in that group alone to satisfy the licensure renewal requirements in Ohio (ie, 20 continuing-education units every 2 years). As the 4 groups convened to plan the business review, the groups agreed to work together to offer a common continuing-education-unit lecture series to which all therapists in all groups were invited and in which a broad faculty (ie, from Pediatrics, Pulmonary/Critical Care, the Emergency Department, and Anesthesiology) participated. This multidisciplinary, inclusive course is currently being delivered.
2. Development of a cross-departmental float pool. The staffing model before the advent of the business review process was "siloed" in that each RT group staffed independently, with no overlap or attempt to cross department boundaries. One of the early priorities identified in the business review process and one of the metrics developed was the number of therapists participating in a float pool (in which interested therapists could cover assignments in other RT departments based on need and availability). Early success in developing a float pool has been achieved in that therapists from the Emergency Department have been "floating" to cover the Respiratory Institute's intensive care unit service in a ward near the Emergency Department.
3. Commitment to standardize RT treatment plans and protocols as possible. In contrast to the baseline state (in which all 4 groups' policies and procedures manuals were separately developed), conversations between the 4 RT groups in developing the business review focused on a commitment to compare procedures and protocols to assure, whenever possible, a standardized approach among all 4 RT groups. Early meetings among leader-

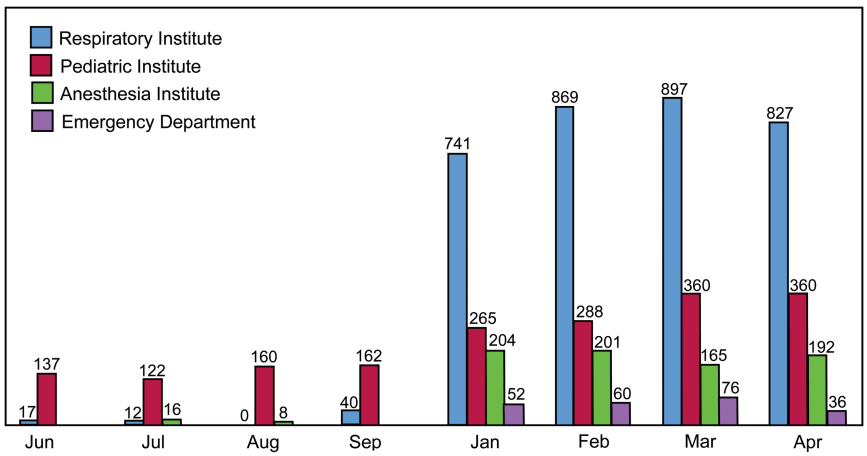

Fig. 2. Hours per month that one respiratory therapy department sent staff to a different respiratory therapy department, before (June through September) and after (January through April) completing the scorecard.

ship of the RT groups have already identified the policies and procedures in need of review and the order, process, style format, and timeline for reviewing them.

Discussion

The results of this study show that teamwork among 4 separate RT groups improved and that enhanced RT outcomes were achieved in association with a business review process that brought members of 4 initially separate groups together to develop an RT "scorecard." In the process of developing the scorecard to measure outcomes, the 4 RT groups demonstrated features of change-avid RT departments, as previously characterized.[10] In addition, excellent teamwork and collaboration newly developed among the 4 separate groups. While our observational study does not allow attribution of the enhanced teamwork to any specific intervention, we suspect that the process by which the business review meetings were planned and the facilitators' work contributed importantly to the development of teamwork. Specifically, in the context of available change models,[12-15] the impetus to undertake the business review process was a retreat to which all 4 RT groups contributed. During this retreat, all RT groups had declared themselves as stakeholders in the outcome and had developed a guiding coalition to lead the change effort toward enhanced clinical outcomes. Also, in convening and guiding the group, the facilitators focused on developing a community of colleagues who were committed to working well together. Developing a charter for the group's work together in the first meetings in which the group committed to collegiality, active listening, and true engagement was probably a key success element in producing a strong team (that was characterized by mutual accountability, participation, informality, and active listening).

In showing that enhanced teamwork was associated with enhanced RT outcomes, our results extend a relatively sparse literature regarding the benefits of teamwork in enhancing healthcare outcomes. As examples of available studies, Knaus et al[4] showed that intensive care units with better than expected mortality rates were characterized by better teamwork and communication among doctors and nurses than intensive care units with poorer outcomes. Also, Pisano et al[7] showed that surgical teams that achieved shorter surgical times doing minimally invasive cardiac surgery were associated with enhanced teamwork and communication than surgical teams with longer procedures times.

To the extent that our study considers the challenge of undoing "silos" in a hospital and encouraging teamwork among groups that are separate but have a common purpose of providing excellent clinical care, this study addresses a broadly generalizable issue in healthcare. Indeed, hospitals are often composed of groups that are highly "siloed" and have unrealized synergies.[13] Also, many authors have observed that, as a function of their selection and training, physicians are indisposed to collaborate.[14-16] The desire to cultivate collaboration as well as other leadership competencies among physicians and other healthcare leaders is at the core of a growing movement by healthcare institutions, professional societies, and business schools to develop and offer leadership development programs.[17-20]

In some ways, the observed enhanced teamwork among the 4 separate RT groups after they participated in the business review process was an unplanned consequence of our developing an RT scorecard. The business review process was designed to focus the group on the outcomes that it deemed important and upon which it wished to have its performance evaluated.

Surely, other interventions that are more specifically directed at enhancing teamwork among the groups could be imagined (eg, team-building exercises or a common retreat[21]). Our observation that enhanced teamwork followed the common development of a performance scorecard suggests that the business review process should be added to the toolbox of team-building activities in healthcare.

Several potential limitations of our study warrant comment. First, because we report the experience within a single hospital, generalizing our findings to other healthcare settings will require confirmation of these findings by others. Also, whether our conclusions pertain to providers other than respiratory therapists remains uncertain. A third limitation is that the association between enhanced teamwork during and after the business review process does not establish that the business review process caused the enhanced teamwork; correlation does not establish causality.[22,23] At the same time, the overlap of these 2 activities—focusing on RT outcomes and developing a team-based process to develop the instrument to capture and measure these outcomes—seems inescapable in this activity, certainly supports the relationship between enhanced outcomes and enhanced teamwork, and is concordant with other observations. Finally, given the subjective and qualitative nature of teamwork, we are aware of the difficulty of proving that enhanced teamwork occurred. At the same time, we submit that some of the activities among the 4 RT groups that started after the scorecard was developed could only have occurred because of enhanced teamwork (eg, a commitment to enhance cross-staffing, and to work on standardizing practices across groups).

Conclusions

In summary, our experience of enhanced teamwork and outcomes following a business review process to develop an RT scorecard recommends this process as another tool to enhance collaboration in healthcare. On the basis of this experience, we recommend this business review process to others trying to enhance teamwork among "siloed" healthcare groups.

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