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Accountable Care Units

A Disruptive Innovation in Acute Care Delivery

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Accountable Care Units are a disruptive innovation that has moved care on acute care units from a traditional silo model, in which each discipline works separately from all others, to one in which multiple disciplines work together *with patients and their families* to move patients safely through their hospital stay. This article describes the "what," "how," and "why" of the Accountable Care Units model as it has evolved in different locations across a single health system and includes the lessons learned as different units and hospitals continue working to implement the model in their complex care environments. **Key words:** *disruptive innovation, interprofessional collaborative practice, patient-centered care, safety checklist, teamwork*

ACCOUNTABLE CARE UNITS (ACUs) are a disruptive innovation that has moved care on acute care units from a traditional silo model, in which each discipline works separately from all others, to one in which multiple disciplines work together *with patients and their families* to move patients safely through their hospital stay. Developed in 2009 at Emory Healthcare (EHC) in Atlanta, ACUs gave life to several, interrelated core concepts in health care. The model was originally conceived to operationalize EHC's *Care Transformation Model* (see Figure 1), so it focused on concepts of *patient and family centered care, shared decision making, transparency, fair and just culture,* and *cultural competency and diversity*, all held together by *teamwork* (S. E. Shapiro, B. Castle, D. E. Clark, and J. Stein, unpublished data).[1] Over the years, as the model has evolved and spread, it has become clear that other concepts are an integral part of ACUs; among these are *role clarity*, *interprofessional collaborative practice*, a *shared mental model*, *collaborative cross-checking*, *situational awareness*, *resiliency, mutual support*, and use of *quality and safety checklists*, all of which have been promoted by multiple national organizations and initiatives to improve patient care and reduce health care–associated errors.[2-4] The ACU provides a microsystem–level organizational framework for seamlessly incorporating all these concepts into various aspects of patient-centered workflow and care processes, with the goals of improving patients' experiences of care

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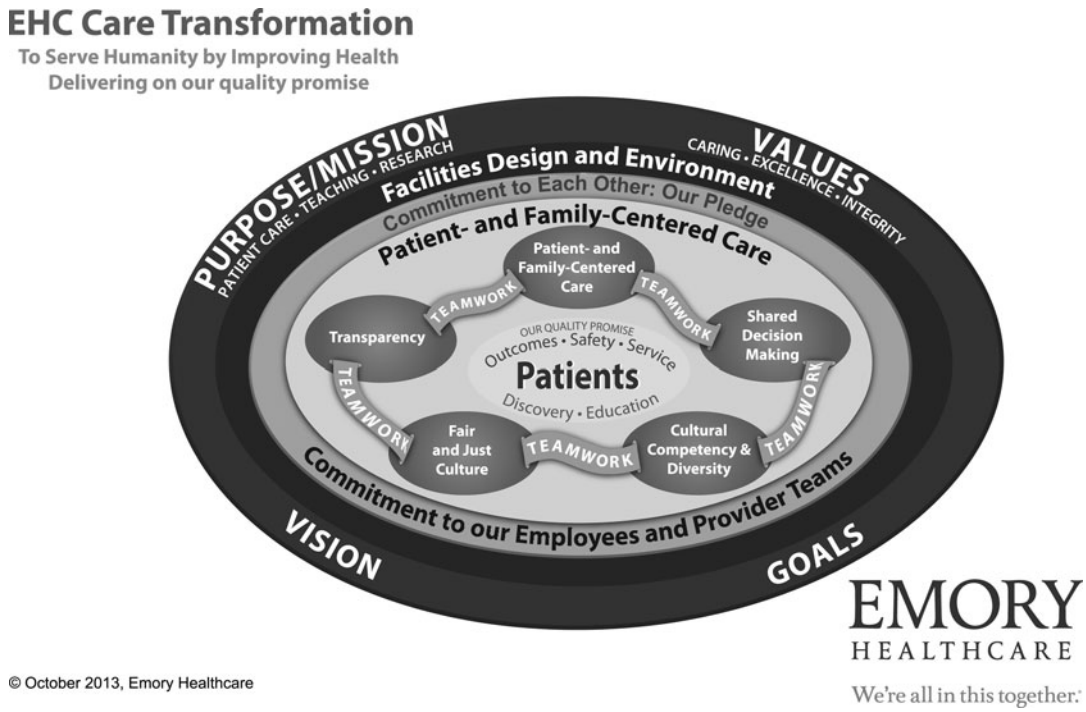

Figure 1. Emory Healthcare care transformation. Printed with permission.

and ultimately, organizational efficiency. This article describes the "what," "how," and "why" of the ACU model as it has evolved in different locations across EHC and includes the lessons learned as different units and hospitals continue working to implement of the model in their complex care environments.

THE "WHAT"

The structure and processes associated with ACUs have been described in detail in earlier publications.[5,6] The 4 essential pillars of ACUs are unit-based care teams; patient-centered workflow as exemplified by Structured Interdisciplinary Bedside Rounds (SIBR; pronounced "cyber"); use of unit-based data to inform/improve clinical practice; and a nurse-provider leadership dyad that is jointly responsible for the clinical, service, and cost outcomes on their units.[5,6] This model was developed and implemented initially on a 24-bed acute care medical teaching unit in a 500-plus bed academic health center, and each pillar of the ACU required significant disruptions in the usual care processes.

Prior to the ACU, standard processes for assigning patients to hospital medicine attending physicians and teaching teams resulted in physicians and teams being assigned to patients on as many as 7 or 8 units in disparate locations throughout the facility; changing that model required disrupting the physician team assignment process and the way bed control assigned patients to units. In addition to those disruptions, implementing SIBR required disrupting the usual workflow for every team member, for example, physicians, nurses, social workers, and pharmacists, so all could come together for 1 hour in the morning to round on the team's patients, *with the patients and their families*, and update the plans of care. Perhaps the most disruptive aspect of SIBR was the fact that these rounds occurred in patients' rooms and actively engaged the patient and family in the care planning discussion.

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Using unit-based outcomes to inform processes and practices was somewhat less disruptive than these other 2 pillars in that it did not require reengineering existing processes. On the contrary, for the physicians especially, this was entirely new to them; the physicians had not even been aware of the unit-based quality outcomes that were being collected and reported to the nursing unit director, so the disruption consisted of having the physician unit directors learn about and use this new (to them) process. Finally, the leadership dyad was also a new process; outside of specialty units such as critical care, emergency, and some perioperative areas, there had never been an identified physician leader/director with whom the nursing unit director could partner to lead patient safety and quality efforts. The ACU structure changed that entirely and required that the physician and nurse leaders *work together* to build the relationships and establish the processes required to achieve their shared goals for their ACU.

THE "HOW"

Becoming an ACU is a complex process that requires completely reimagining the way care is delivered on acute care units. The physician who originated the model[5,6] worked closely with the unit nursing director to address the processes of assigning patients to the pilot unit and teaching team as one of the first processes that needed to be revised. This required building close working relationships with the hospital admissions and bed control staff, as well as the entire hospital medicine administrative structure, and being open and responsive to staff and physician concerns that surfaced as they implemented these strange new (to them) ideas. This required multiple meetings and "Plan-Do-Study-Act (P-D-S-A)" cycles to refine the new processes and took nearly a year to complete.

Almost simultaneously, these 2 leaders also began to design the SIBR process as an entirely new way to approach patient-centered care and patient engagement. As with most disruptive innovations such as these, there was a lot of "active learning" on the part of this leadership dyad who, as innovators, were constantly monitoring the multiple new processes and instituting "midcourse corrections" in response to multiple sources of feedback/data. Multiple "plan-do-study-act" cycles were required to identify the most efficient way to organize SIBR (by nurse assignment rather than patient location so that all of one nurse's patients would be completed and then the team would move to the next nurse's patients) and to identify who should manage the rounds, so everyone was prepared and the team could move through all patients expeditiously (that would be the charge nurse, who has the role of "SIBR Rounds Manager"). Much time and attention was devoted to identifying team members' roles and responsibilities, and over time, after many tests of change, a structure and process emerged that worked well, was reliable, and could be represented graphically for all staff, patients, and families to understand (see Figure 2).

One of the rewarding consequences of revising and refining the SIBR process was the ways in which staff nurses not only embraced the process but also spontaneously revised other standard nursing processes, that is, team safety huddle and bedside shift report, both of which were already in place on the unit, to better support SIBR (S. E. Shapiro, B. Castle, D. E. Clark, and J. Stein, unpublished data). Becoming efficient as participants in these 3 patient-centered workflow processes (team safety huddle, bedside shift report, and SIBR) showed the nurses that having scripted processes and prepared worksheets were helpful in maintaining the integrity of all these processes and reminded them of the detailed information required to ensure that handoffs are safe and complete.

None of this just happened; to realize their vision, the leadership dyad developed and implemented a comprehensive training plan for all team participants, a program that is still being used to implement the model across other units in EHC. This initial education is for *all* staff and physicians/providers assigned to the unit and consists of 4 hours devoted to

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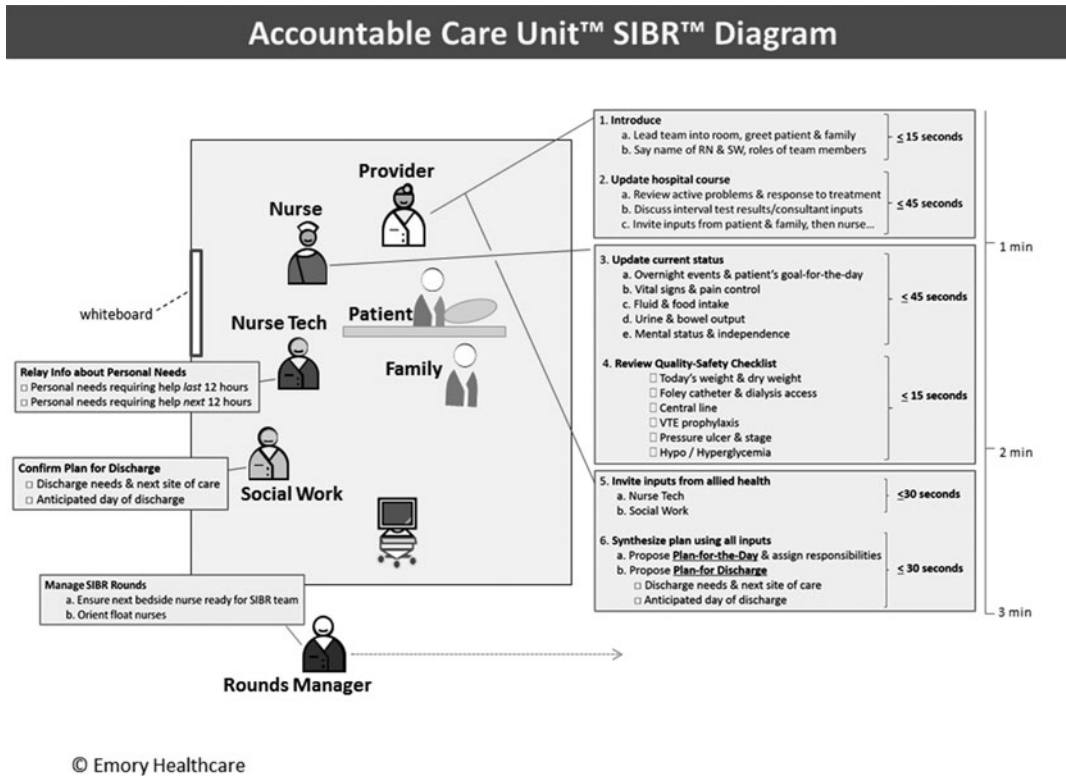

Figure 2. Structured Interdisciplinary Bedside Rounds diagram.

describing the model and associated processes in some detail; 8 hours on situational leadership; 3 hours on managing conflict; and 4 hours to review a standard personality inventory that helps team members better appreciate their strengths and communications styles. This upfront training is absolutely essential to building the shared mental model of the ACU and setting expectations for interprofessional collaborative practice behaviors.

THE "WHY"

The "why" of developing and implementing the ACU model is the easiest question to answer; the model was developed explicitly to respond to the ever-increasing demands for better care for patients and improved operational efficiencies. Since the release of the Institute of Medicine's 1999 publication *To Err Is Human*[7] and its follow-up publications,[8,9] many organizations and initiatives have recommended different strategies for reorganizing patient care and improving clinical and system outcomes. The Table lists several of these, but it is hardly an exhaustive list; it seems that new initiatives are launched with great regularity.

The ACU model was purposefully designed as a way to fundamentally reengineer the way care is delivered on acute care, inpatient units such that patients are at the center of the unit's work and teamwork is the default approach to unit management and patient care. In this way, the ACU structures and processes operationalize the thread running through EHC's Care Transformation Model. This radical reengineering results in a framework that provides *unit-based team* members with role clarity, enabling *SIBR* to serve as a living process for building the shared mental model for the patient's plan of care—a model constructed with active engagement of patients and their families. The *unit leadership*

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Table. Examples of Organizations and Initiatives That Promote Patient Safety and Quality

Organization's Name	Focus	Web Site	Comments
Institute for Healthcare Improvement	Has as its mission to improve health and health care worldwide. Began work in the early 1980s as a group committed to making patient care safer and improving health system efficiencies. Became the Institute for Healthcare Improvement in 1991.	http://www.ihi.org/Pages/default.aspx	Multiple patient safety and quality initiatives, tools, and resources available here.
Agency for Healthcare Research and Quality	Has as its mission to make health care safer, higher quality, more accessible, equitable, and affordable.	http://www.ahrq.gov/	A major division of the U.S. Department of Health & Human services focused on health system research and policy. It funds health systems research and houses clinical practice guidelines as well as an extensive collection of patient safety and quality tools and resources.
TeamSTEPPS	A training program designed to improve teamwork. Focus areas for training are leadership, communications, situation monitoring, and mutual support	http://teamstepps.ahrq.gov/	Developed initially by the Department of Defense, TeamSTEPPS is now one of the resources available through Agency for Healthcare Research and Quality (see above).
Quality and Safety Education for Nurses	Developed undergraduate and graduate competency requirements in areas of patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement, safety, and informatics.	www.qsen.org	Project began in 2005 with funding from various agencies and has developed teaching tools for faculty at all levels. Many of their recommendations have been incorporated in educational programs across the country.
Institute for Patient- and Family-Centered Care	Works in partnership with patients, families, and health care professionals to integrate concepts of patient- and family-centered care into all aspects of health care.	http://www.ipfcc.org/index.html	They offer a variety of tools and resources for health care professionals and educators. They also provide consulting services for hospitals and health systems interested in increasing patient and family involvement.

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Table. Examples of Organizations and Initiatives That Promote Patient Safety and Quality (*Continued*)

Organization's Name	Focus	Web Site	Comments
National Center for Interprofessional Practice and Education	Formed in 2012 to bring together health professions education and care delivery systems to improve care experiences for patients, their families, and communities. They are very interested in applying new/emerging technologies and rigorously evaluating all projects/programs/initiatives	https://nexusipe.org/	A public-private partnership with the Health Resources and Services Administration and 3 philanthropies, the Center is housed at University of Minnesota. They have a robust research and evaluation component, with many tools available.
Robert Wood Johnson Foundation	Overall focus is to improve health for all citizens. They identify the following broad areas of interest: building strong families; childhood obesity; access to affordable, high-quality health care; investing in high value health care; transforming communities to improve health; investing in leaders who are building a culture of health.	www.rwjf.org	These 3 philanthropies have been generous supporters of initiatives to improve health care quality and safety. Individuals and organizations may apply for funding for projects that fit within the organizations' priorities and requirements. Projects may include educational programs, health services research, or project implementation and evaluation.
Gordon and Betty Moore Foundation	Their patient care program aims to eliminate preventable harms and reduce unnecessary costs. They focus on engaging the patient and supporting a variety of nursing-focused projects, including founding the Betty Irene Moore School of Nursing at the University of California, Davis.	https://www.moore.org/	
The Josiah Macy Jr. Foundation	Four main foci: interprofessional education and teamwork; providing new curriculum content; developing new models for clinical education; education for care of the underserved; and career development for underrepresented minorities.	http://www.macyfoundation.org/	

dyad requires strong interprofessional collaborative practice, and finally, the use of *unit-level data to drive performance improvement* fosters complete transparency with all members of the team (including patients and families) and engages the entire unit in identifying opportunities to improve outcomes.

One of the great strengths of the ACU model is that it was developed from the ground up, that is, by a physician and a nurse working on the unit every day. Working with the unit staff, other practicing hospital medicine physicians, as well as the medical residents on the teaching team, they designed a process that worked for them. That is not to diminish the pain associated with radical change; staff and providers voiced concerns related to time management and perceived redundancies. However, as the processes were refined over time, staff and providers realized the benefits of focusing their efforts, benefits such as fewer phone calls between nurses and physicians to clarify elements of the treatment plan and better patient understanding of plans for discharge. It is worthy of note that medical residents who rotated through the ACU have become some of its strongest champions, advocating for the model as they move from fellowships to staff hospitalist physician roles.

LESSONS LEARNED

In 2013, Emory University's Nell Hodgson Woodruff School of Nursing and EHC nursing received a 3-year award from the Health Resources and Services Administration (UD7HP26046; S. Shapiro, PI) to implement the ACU model on 7 additional units throughout EHC and evaluate the impact of the model on, among other things, patients' length of stay, mortality, and 30-day readmissions on the target units. As of this writing, the project team has supported implementation on 4 units and has learned a great deal about how best to implement this model. These lessons are described below as a way to help set reasonable expectations around what it takes to successfully implement the model, and what outcomes can be reasonably associated with the implementation.

Lesson 1. It takes time and resources to move systems from fragmented care models to an ACU model

Although the day-to-day operations on ACUs are cost-neutral with respect to operations on non-ACUs (ie, ACUs require no additional staff or providers), getting to the ACU from standard fragmented care *does require an initial investment* on the part of the hospital/health system. This investment takes several forms, the easiest of which to identify is staff and provider training described previously. Once the model is formally launched—usually denoted by the date of the first SIBR rounds—*there must be an ACU expert/champion on the unit every day from 6:30* AM*—noon for at least the first 14 days postlaunch*. This expert provides real-time support and encouragement to staff and providers who are understandably shy about trying new processes such as team safety huddles, bedside shift report, and SIBR. We talk and write glibly about doing bedside rounds, but how many of the providers and staff currently working in hospitals have ever received formal training and coaching about *how* to actively engage patients and staff in their own care? How many appreciate how much it matters where they stand in the room? How many appreciate how easily they lapse into language familiar to them but completely bewildering to patients and families, for example, "VTE prophylaxis" or even "vital signs?" How many can speak comfortably *with* patients and their families directly rather than *to* patients or *across* patients to their professional colleagues? We also talk and write frequently about standardizing care processes and using quality and safety checklists, but how many clinicians habitually rely on checklists, a process known as checklist discipline[10]? Real-time coaching helps even the most experienced providers become more proficient at, and therefore more comfortable with, completely unfamiliar

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expectations associated with radically redesigned inpatient care.

Then there is the matter of time. How long it might take to implement all the structures and processes associated with the ACU model is difficult to estimate and is dependent on the confluence of many factors, including an organization's commitment to doing so, the degree to which midlevel and unit leadership actively support the project (see later), the type and amount of organizational change occurring during and immediately after initial implementation, and the adequacy and stability of both the provider and the nursing staff on the unit. In a perfect world, with adequate and stable staff, effective unit-level leadership, and strong organizational support, we have found that units can fully embrace the model with very good fidelity within the first 4 months of initial implementation. It will take longer—and in fact may never succeed at all—when either nursing or provider staffing is insufficient or unstable, when there is major upheaval at the "C-suite" level, or when the unit-level leaders fail to live out the model of shared leadership accountability and are not present on the unit actively engaged in caring for their patients, their staff, and each other.

Lesson 2. Implementing the ACU model will not, in itself, result in better clinical or service outcomes

The ACU was designed and implemented to provide *structures* and *processes* that offer the *opportunity* for medical, nursing, and other staff to come together as high functioning teams to address their patients' and units' needs, but whether or not the individuals on those teams take meaningful advantage of those structures and processes varies considerably from unit to unit and sometimes from day to day within a single unit. Structures such as unit-based provider teams and SIBR remove significant barriers to having providers readily available to patients and their families, and each other, to answer questions and engage in team-based care planning and delivery. That in no way guarantees that the providers, patients, and families, or staff either want to or even know how to accomplish that. The unit leadership dyad is another structure that could result in strong support for creative innovation at the unit level . . . *if* . . . both leaders are fully engaged, willing to overcome differences in style and hierarchy, and supported by *their* leaders (see later) in trying innovative approaches to unit management.

Inpatient acute care units are incredibly complex microsystems, wherein the principal individuals, that is, patients, their families, physicians, nurses, and multiple other caregivers and support staff are supposed to be working together for a common purpose: to move the patient and family safely and expeditiously through whatever treatments and procedures are required to enable them to achieve their health-related goals. There are so many variables interacting within this microsystem; it is difficult—if not impossible—to draw a model in which the structures and processes of the ACU have straight-line relationships with any quality outcomes such as hospital-acquired conditions or 30-day readmissions. The early results on the pilot unit showed some reduction in length of stay (~0.5 days), but it was unclear how much of this drop was due directly to the implementation of the model. The data from the project units are still being analyzed, and it is too early to draw any conclusions regarding length of stay, 30-day readmissions, unit-based mortality, or the clinical outcomes for the project. That said, by reviewing their unit-level data *together* on a regular basis, the leadership dyads on ACUs may identify opportunities to improve in one or more areas and, together with their staff, can launch formal process/performance improvement initiatives targeted at improving specific outcomes.

Lesson 3. Leadership matters

Unit-level leadership dyads alone are not enough to sustain the ACU model. If this model is not actively supported by midlevel and senior management, it has little chance of

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flourishing and that is because of the challenges inherent in the micro-, meso-, and macrosystem interfaces that affect the day-to-day functioning of any hospital acute care unit. As described previously, implementing unit-based provider teams will, for many systems, disrupt the usual assignments of patients to both units and physicians/providers and may result in perceptions of maldistribution of workload. Implementing and sustaining changes of this magnitude require high-level administrative support over a long period of time while everyone adjusts to the new reality. Midlevel manager support is also required, especially to empower providers and staff to flex their time and assignments to meet unit needs both initially when the model is launched and later as the unit faces the usual challenges associated with staff and provider turnover or other meso- or macrolevel changes and demands. Of course, midlevel leaders—both among providers and staff—take their cues from senior leadership, so this provides further evidence of the need to ensure senior administrative support for the ACU.

After working the past 2 years to bring up additional ACU across EHC, and evaluating the processes and outcomes associated with scaling up this model, what has emerged is the critical importance of *full engagement of the ACU leadership dyad* as exemplified by their physical presence/visibility on the unit. When team members (both providers and staff) see their ACU leaders out and about on their unit or when the leaders come to staff or provider meetings *together*, it sends powerful messages of the importance of the model and the value of interprofessional collaboration. If the nurse leader is present and engaged but the physician leader is not, it should not be a surprise when providers are reluctant to support the SIBR process, or else only participate halfheartedly. If the physician leader is engaged but the nurse leader is not, it will not take long for the support structures to fall by the wayside. For example, staff may fail to consistently adhere to their SIBR scripts, or the process may degenerate into staff and providers talking over patients and using medical jargon. When the dyad is truly working together and using the structures and processes of the ACU to their greatest advantage, then the dyad should be able to meaningfully engagetheir entire unit in addressing lapses in fidelity to the model.

Lesson 4. The ACU model will not be sustained unless it becomes the standard of care at the hospital level

Sustainability has been defined as the degree to which an innovation remains in place after the initial implementation has been completed.[11] An innovation must become *routinized* for it to be sustained; it must become part of the organization, not a "one-off."[11] In the process of implementing the ACU model in multiple units in different hospitals, there has been a notable variation in the degrees to which the macrosystems (ie, the hospitals) involved have embraced the ACU and moved it toward the standard on their care for acute care units. This same variability has been observed among the ACUs themselves (ie, the microsystems), and these variations will certainly affect the degree to which the model is sustained, both at the micro- and macrosystem levels.

At the unit (microsystem) level, where aspects of the ACU have become routine, for example, daily SIBR, it has been observed that these aspects can be sustained despite significant disruptions in both unit and hospital leadership. On 1 unit, for example, SIBR had become the standard operating procedure; every day, SIBR occurred because it had become the routine care process. Although SIBR is now routine on that unit, it cannot be said that the ACU is flourishing there. The leadership dyad on this unit had been disrupted over a long period of time, making it difficult for medical and nursing leaders to develop a strong dyad to effectively address unit performance metrics. In addition, as of this writing, the senior leadership has not fully embraced the ACU at the macrosystem level.

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Conversely, where it has been observed that both the micro- and macrosystem leaders embrace the model, taking ownership at the unit and hospital levels, the structures and processes of the ACU are beginning to be standardized across multiple units and have become the routine way in which care is delivered. Leadership dyads on these units are beginning to engage in data-driven, unit-level performance improvement activities. This degree of leadership commitment is exemplified by unit leaders coming in on their off days to mentor new providers and staff in learning their roles in SIBR. Staff and providers now anticipate daily in SIBR and organize their care activities accordingly; this is now the *routine* way in which care is delivered on these units. Senior and midlevel leaders in this organization have begun identifying additional units on which to implement the ACU. As the spread of the ACU continues in this organization, there will be no need to differentiate an ACU from a non-ACU as there will no longer be units delivering traditional, fragmented, silo-based care.

CONCLUSIONS

The ACU is a disruptive innovation that radically reconfigures the way care is delivered on inpatient acute care units. The model dissolves the barriers to interprofessional collaborative, team-based, patient-centered care that confront nurses, physicians, and other health care providers on traditional units. The ACU is a road map that can take an organization's mission, vision, and values directly to patients and families; it provides milestones and guideposts for operationalizing those lofty statements into daily practice. The structures and processes of the ACU provide opportunities for high-functioning teams of committed health care professionals to deliver care that is truly safe, effective, efficient, timely, patient-centered, and equitable.

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