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Changing Intensivists' Behaviors: A Challenge in Need of New Solutions

To promote higher-quality health care, health systems are increasingly using financial incentives to motivate physicians to more commonly provide certain types of care or less commonly provide others. The Centers for Medicare and Medicaid Services first formalized such “pay for performance” (P4P) programs in 2003, with the Premier Hospital Quality Incentive Demonstration, a program of voluntary hospital participation that rewarded top-quality scores and large improvements and penalized bottom performance. Since then, Centers for Medicare and Medicaid Services, private payers, and hospitals have introduced hundreds of value-based reimbursement programs. In March 2015, the Department of Health and Human Services partnered with public,

private, and nonprofit stakeholders to launch the Health Care Payment Learning and Action Network. This group recently reported that 25% of health care payments incorporate a P4P model (1), and Department of Health and Human Services has set a goal of including P4P elements in 50% of all its payments by the end of 2018 (2).

Despite this growing use, data regarding the success of P4P programs have been mixed (3). For example, an analysis of the Premier program demonstrated no long-term improvement in 30-day mortality, suggesting that its performance measures may not accurately reflect quality (4). Furthermore, concerns about unintended consequences of P4P have surfaced, such as denying

services to high-risk patients (5) and amplifying health care disparities (6). Given dramatic variation in care provision among intensive care units (ICUs) (7) and among intensivists within ICUs (8), it is important to determine whether P4P can successfully improve critical care quality.

In this issue of the *Journal*, Barbash and colleagues (pp. 56–63) add considerably to a nascent evidence base regarding P4P in the ICU (9). Like at least two prior studies (10, 11), the authors use a pre–post design to analyze physician-targeted financial incentives to promote evidence-based ICU processes. Unlike prior analyses of incentives to reduce albumin utilization (10) and ordering of arterial blood gases, chest X-rays, and blood transfusions (11), which primarily reduce costs, Barbash and colleagues (9) examined incentives to promote spontaneous breathing trials (SBTs) among eligible mechanically ventilated patients, which may reduce duration of mechanical ventilation and other adverse clinical outcomes (12).

The authors found that offering an annual bonus to all physicians practicing within each of three academic ICUs in a single health system was associated with increased completion of SBTs in the two ICUs that were performing poorly on this process measure at baseline, without changing completion rates in the ICU that was already performing well. However, this improvement did not consistently translate into clinical outcomes. For example, in the hospital with the largest increase in SBT completion, there was no significant change in duration of mechanical ventilation, ICU length of stay, or mortality. Furthermore, in a thoughtful and important analysis of whether P4P may yield unintended consequences, the authors found that the P4P program was associated with higher rates of documented ineligibility for SBTs. Although there was no increase in the rate of physicians’ “discretionary” exclusions of patients from SBT eligibility—which would have suggested P4P-induced efforts by clinicians to game the system—these results do suggest that P4P may change the quality of documentation rather than the quality of care, as has been reported in other settings (13).

This study’s key strength of exploring the intervention’s impacts on the three important domains of documentation, care processes, and patient outcomes is balanced to some extent by a key limitation of using a before–after design. As with the prior two studies of ICU-based P4P (10, 11), this design precludes assessment of whether the results were impacted by temporal trends in practice or case mix that may have occurred independently from the P4P program. For example, the observation that ICU length of stay declined over time independent of changes in SBT suggests that other changes were occurring at the same time as the P4P implementation. True advancement of the science of P4P will require more robust designs that would ideally include parallel-cluster randomized trials, in which some ICUs are randomized to adopt the intervention and others are not, or stepped-wedge randomized designs, in which all ICUs adopt the intervention eventually, but at randomly determined times. Even if randomization proves impractical in some settings, difference-in-differences approaches that leverage contemporary analyses of changes in ICUs that do not adopt P4P would provide more robust assessments of P4P or other interventions than are afforded by pre–post designs.

However, regardless of evaluative design, this study adds to a growing literature suggesting the complex and uncertain effects of

pay-for-performance strategies. So what can health systems and payers do to change intensivists’ behaviors to promote higher-value care? Although clear answers are currently lacking, a number of potentially fruitful strategies merit rigorous testing. First, insights from behavioral economics suggest that how incentives are structured may be as important as or more important than how large they are (14). Thus, although the study of Barbash and colleagues suggests that rewards for all intensivists contingent on ICU-level SBT performance may not work, it is possible that similarly sized incentives delivered to teams of all clinicians involved in the care of mechanically ventilated patients (i.e., physicians, nurses, and respiratory therapists) may work better (9). Similarly, it is possible that more frequent and immediate, albeit smaller, incentives that are more directly tied to clinical decisions may be more effective than the larger unit-level incentives that do not accrue until a full year later.

It is also important to evaluate nonfinancial incentives, which may be more durable in their effects. For example, given the intrinsic competitiveness of intensivists, coupled with everyone’s tendencies to be motivated by performance relative to peers, social comparisons offer great promise for altering physician behavior (15), as exemplified recently in a study of appropriate antimicrobial prescribing (16). In addition, with most ICUs now using electronic health records, there is great promise for nudging desired behaviors by changing the default options that appear in physician order entry portals, by requiring physicians to justify not performing desired tasks, and even changing the ways in which physicians think about their patients by prompting physicians to answer certain questions. Like P4P, all of these strategies require much more evidence before they can be broadly applied. But as the present study teaches us, health systems or payers that are willing to make the short-term investments in carefully comparing different approaches to promoting higher-value care may be more likely to achieve this goal than those that give in to the temptations to “just do something” without any way to reliably determine what that something achieves. ■

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Is This Intensive Care Unit Patient Frail?

Unraveling the Complex Interplay between Frailty and Critical Illness

The concept of frailty is an emerging theme in critical care medicine (1), despite its long-standing recognition as an important geriatric syndrome for more than three decades (2). Frailty has been described both as a “syndrome” or a “state,” and aims to capture multidimensional and multisystem declines in health status resulting in the cumulative impairment of homeostatic reserve (i.e., energy, physical ability, cognition), which predisposes to disproportionate and heightened vulnerability to adverse outcomes from acute stressors (i.e., infections, surgery, trauma, etc.) (3). Although frailty increases with age, they are not synonymous, and frailty may be a better predictor of vulnerability than chronological age alone. Frail individuals may experience catastrophic multisystem organ failure from illnesses that are tolerated by nonfrail individuals of the same age, prompting need for rescue with advanced life support in an intensive care unit (ICU) setting. In this regard, there is increasing evidence that frailty is a common end-of-life trajectory (4) and consumes considerable health resources (5).

The critical care community is only now just beginning to recognize and embrace the complex interplay of frailty, critical illness, and short- and long-term patient outcomes in the context of

contemporary ICU care (6). In this issue of the *Journal*, Brummel and colleagues (pp. 64–72) present a secondary analysis of the prospective BRAIN-ICU (Bringing to Light the Risk Factors and Incidence of Neuropsychological Dysfunction in ICU Survivors) and MIND-ICU (Delirium and Dementia in Veterans Surviving ICU Care) studies describing the association of frailty and long-term mortality and disability among a heterogeneous cohort of 1,040 critically ill patients (7). Participants were screened for frailty within 72 hours of enrollment by trained assessors using the Clinical Frailty Scale (CFS), a previously validated global subjective tool that classifies patients on an ordinal scale from “very fit” to “severely frail,” with a threshold score of 5 or greater indicating frailty (8). Prior studies have prospectively evaluated the association of frailty, as determined by the CFS, with poor clinical outcomes among critically ill patients (9–11). The study by Brummel and colleagues is an important contribution to our understanding of frailty in critical illness and provides a number of important insights (7). First, this study confirms prior work showing that frailty is potentially very common among ICU patients (estimated one-third) and, by virtue, may be an underrecognized modifier of response to treatments and outcomes. Second, this study extends the hypothesis that in ICU settings, frailty is not simply a geriatric syndrome but may manifest among younger patients who, by virtue of preexisting disease, are more susceptible to critical illness and vital organ failure (12). Although

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