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Ripple effects of hospital team faultlines on patient outcomes

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Medical errors are rampant across healthcare settings, imposing a significant burden on patient safety. Here, we examined the ripple effects of diversity splits, or faultlines, within hospital teams on patient safety and care. Hospitals consist of hierarchical, mixed-gender, and multiracial units that are prone to conflict. Within a diverse unit, faultlines can occur when multiple attributes (e.g., gender and race) of unit members align and divide a unit into two or more homogeneous subgroups. Yet, little is known about how such faultlines influence patients. Hierarchical path modeling of data collected from 1,102 hospital employees and 4,138 patients across 38 hospital units illustrated that when strong faultlines formed through homogenous subgroups within hospital units resulted in decreased civility among staff. This incivility was related to higher rates of medical error and patient deaths. A 10% increase in unit incivility was linked to a maximum 8.87% increase in healthcare-associated infection rates and a maximum 10.59% increase in mortality rates. However, we found patients within units high on collaborative cultures for managing conflicts—that fostered mutual respect, active listening, and openness to differing opinions—experienced fewer medical errors and lower mortality rates, regardless of strong faultlines. These findings offer an evidence-based, culture-focused approach to reducing medical errors and improving the quality of patient care.

faultlines | hospitals | incivility | culture | patient safety

Significance

Medical errors are one of the 10 leading causes of death and disability worldwide. This study investigates how group dynamics among hospital staff contribute to medical errors and patient deaths. The present findings suggest that when strong faultlines—hypothetical dividing lines—split a hospital unit into two or more "subgroups," that unit exhibited increased hostile behaviors toward each other. This was related to both higher medical error and mortality rates among patients within that unit. However, hospital units that established collaborative cultures to address conflicts experienced fewer negative effects from strong faultlines and achieved better patient outcomes. These findings can inform ongoing and future interventions designed to improve patient safety.

Out of the 421 million patients who check into a hospital around the world each year, nearly 43 million will experience unsafe care during their stay (1). These medical errors are not only damaging and costly for hospitals, but also potentially fatal for patients, resulting in one million deaths annually (2). Indeed, recent evidence suggests that medical errors are one of the 10 leading causes of death and disability worldwide (3). While the technical and structural causes of these alarming error rates have been the subject of much investigation (4–6), less attention has been paid to understanding how complex group dynamics drive medical errors (see refs. 7 and 8 for exception). In particular, modern-day hospitals bring individuals from diverse backgrounds to form teams that deliver complex clinical care. In these teams, conflict is inevitable and can pose a serious threat to patient safety (9–11). Consequently, there is an urgent need for empirical work to understand the effects of the diversity composition of hospital teams and ways to improve patient safety.

Expanding on the critical issue of patient safety within hospital teams, it's imperative to acknowledge the growing concern surrounding incivility among medical professionals and its direct impact on patient well-being (12–14). Studies have shown that incivility, or rude and unprofessional acts that violate workplace norms of respect, has adverse consequences within organizations (15–17). In healthcare specifically, incivility negatively affects the diagnostic and procedural performance of medical professionals and is correlated with a lower safety climate in the operating room (18, 19). Diversity composition seems particularly relevant in predicting incivility in medical units. While previous research has examined how gender and ethnicity predict incivility in medical teams, these attributes have often been studied in isolation, yielding inconsistent results (20). Here, we take a unique perspective on diversity in hospital teams by examining different attributes simultaneously when studying diversity dynamics in hospital settings. We theorize that incivility episodes will increase when the alignment of multiple attributes results in homogeneous subgroups. Therefore, we study the diversity composition of hospital units using faultlines (21).

Faultlines become stronger when unit members with multiple attributes in common—such as similar expertise, gender, and racial background—form subgroups. For example, a medical unit would have a strong faultline when all the White males are physicians, and all the Black females are nurses. Strong faultlines due to the alignment of social identity attributes are likely to elicit social categorization and its negative consequences at the group level (22). There is considerable evidence that strong faultlines play a critical role in conflict and performance losses within a group. What remains unexamined are the

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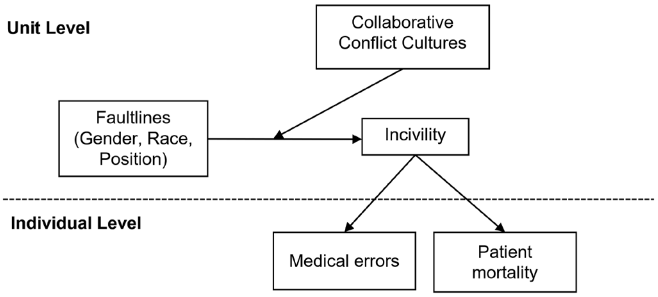

Fig. 1. Proposed multilevel path model.

ripple effects of group faultlines beyond the team—i.e., on individuals who interact with these fragmented groups, such as patients. We extend faultline research by introducing a multilevel theory on the downstream effect of group faultlines on individual patient outcomes. We specifically predict that unit faultlines affect the likelihood of medical errors and patient deaths through their influence on incivility among unit staff members.

How can hospitals manage the negative effects of faultlines? We theorize that the presence of strong faultlines may not always elicit incivility acts to the same extent. Indeed, research on social identity theory shows that the emergence of subgroups is not necessarily detrimental (and can even be beneficial) for groups (23), as subcategorization adversely affects group functioning only when members identify more strongly with their subgroup than with the group as a whole (24). Given that the effects of faultline strength on team processes are highly contextual (25, 26), we propose that the overarching conflict-management culture within a team may increase or reduce the negative effect of faultlines. In this study, we examined collaborative conflict cultures, which refer to conflict-management norms for active, cooperative discussion of conflict (27). In collaborative conflict cultures, normative behaviors for dealing with conflicts include mutual respect, active listening, and openness to differing opinions. That is, collaborative conflict norms are expected to act as a "social glue" through which diverse members can manage their differences and conflicts inclusively and collaboratively. Thus, we argue that collaborative conflict cultures may reduce the salience of social identities of subgroups and help to alleviate the negative effects associated with strong faultlines.

Indeed, research has shown that units with collaborative conflict cultures have higher cohesion and group potency, as well as lower burnout (28). Work units with high collaborative conflict cultures encourage social integration, reducing the likelihood of social categorization. Members may identify with their larger unit more strongly than with their subgroups. Many conflicts are collectively managed by the entire unit to avoid escalation into incivility acts. On the contrary, in work units with low collaborative conflict cultures, tensions among diverse social groups may intensify, making social identities between subgroups more salient and eliciting more incivility episodes. Accordingly, we predict that collaborative conflict norms will mitigate the incivility that stems from fractured groupings. Fig. 1 summarizes our model, suggesting that collaborative conflict cultures moderate the relationship between faultlines and incivility, which in turn is linked to medical errors and patient mortality.

Results

We tested the hypotheses using data collected at a large medical center in the United States. We administered an employee survey measuring hospital units' faultline strength, collaborative conflict cultures, and incivility experiences. The survey data included 1,102 physicians, nurses, and staff members across 38 clinical units [M_{age} = 37.72 y (11.81), 847 females, 163 males, 92 others/nondisclosures]. We also obtained our outcome measures, namely, medical errors and patient mortality, from the archival patient data of 4,138 individuals who were discharged from these 38 units between the period of July 2015 to June 2016. Specifically, we measured medical errors by computing the likelihood of patients contracting healthcare-associated infections (HAIs[*]). Individual patient information also included their age, gender, length of stay, primary diagnosis, comorbidity conditions, severity of illness (SOI) through their categorization on the All Patient Refined Diagnosis Related Groups (APR-DRG), and APR-DRG risk of mortality (ROM).

We combined the employee survey data (n = 1,102) aggregated at the unit level and patient outcomes at the individual level, resulting in 4,138 patients nested within 38 hospital units. We tested all hypotheses simultaneously in a multilevel structural equation model (SEM) using maximum likelihood estimation with robust SEs. Mplus was used to conduct all analyses (29). The descriptive statistics and correlations among the study's variables at the individual and aggregated levels are shown in Table 1, and the path coefficients from the SEM analyses are shown in Table 2.

We conducted a confirmatory factor analysis to test whether collaborative conflict cultures and incivility measures loaded onto distinct factors. We conducted these analyses using the *lavaan* (latent variable analysis) package in R (30, 31). First, we tested a model with a single factor for all items. This model had poor fit, χ^2 = 775.47, Comparative Fit Index (CFI) = 0.76, TLI = 0.67, Root Mean Square Error of Approximation (RMSEA) = 0.22, BIC = 19,152.39. Next, we tested the two-factor model. All collaborative conflict cultures items were loaded onto the first factor, while all incivility items were loaded onto the second factor. The regression weights of all variable loadings are between 0.65 and 0.92. Factor loadings are listed in *SI Appendix*, Table S4. This model had better fit, χ^2 = 120.82, CFI = 0.97, TLI = 0.95, RMSEA = 0.08, BIC = 18,450.45. A chi-square difference test showed that the second model had a better fit than the first model, χ^2 (1) = 654.65, $P < 0.001$. Thus, we concluded that collaborative conflict cultures and incivility are distinct constructs.

In addition, to ensure the sample size of our study is adequate for the proposed analysis, we performed a post hoc power analysis. Using the methods described in Kleinman and Huang (32), we simulated a bootstrap power analysis (32) by randomly sampling with replacement until we reached the sample size used in the study 1,000 times. We then fit the same multilevel SEM specified in the text to each sample and observed the proportion of time each parameter was significant at the $P < 0.05$ level. We used this method because an analytical solution to power analysis in the context of such a complicated model would be intractable to derive. These calculations were performed using the R (31), MPlus (29), and MPlus Automation (33) to facilitate the coordination of R and MPlus. Though we calculated power for all model coefficients, the important coefficients for the purpose of this study are the effects of incivility on patient mortality, the effects of incivility on HAI, and the interaction between faultlines and collaborative conflict cultures on incivility. Our bootstrap analysis suggests a post hoc power to detect these effects of 0.99, 0.98, and 0.99, respectively. Effects of this magnitude are reliably identified in this model despite the small number of units relative to the total number of individual-level patients.

The Impact of Faultlines on Incivility and Patient Outcomes. The main effect of faultline strength was significant, $\beta = 3.61$, $P < 0.01$,

[*]HAI is an infection that develops as a result of medical care, and it is highly preventable. Medical errors are defined as preventable adverse events, and HAIs represent the most common class of preventable adverse events (51, 52).

Table 1. Means, SDs, and bivariate correlations among study variables

	M	SD	Individual-level correlations				
			1	2	3	4	5
1. HAIs	0.03	0.17	1				
2. Patient mortality	0.06	0.24	0.14*	1			
3. APR-DRG ROM	2.4	1.09	0.18*	0.33*	1		
4. APR-DRG SOI	2.97	0.87	0.18*	0.27*	0.76*	1	
5. PLS	14.33	19.04	0.30*	0.10*	0.36*	0.40*	1
			Unit-level correlations				
	M	SD	1	2	3	4	
1. Unit faultline strength	0.84	0.12	1				
2. Collaborative conflict culture	4.70	0.40	−0.28	1			
3. Incivility	1.72	0.22	0.10	−0.67*	1		
4. Group size	24.08	16.36	−0.02	0.04	0.15	1	

*Correlation is significant at the 0.01 level (two-tailed).
Note: HAIs and patient mortality are both dichotomous variables.

which indicated, on average, that stronger faultlines within the unit were associated with higher unit incivility. We also found that unit-level incivility is positively associated with individual-level patient mortality, controlling for APR-DRG ROM, β = 4.24, P = 0.001. This shows that a 10% increase in incivility predicts a maximum of 10.59% increase in mortality rate.[†] Similarly, unit-level incivility is also positively associated with individual-level HAIs, controlling for APR-DRG SOI and patient length of stay (PLS), β = 3.55, P < 0.001. This shows that a 10% increase in unit incivility mapped on to a maximum 8.87% increase in HAI rates.

We also addressed issues associated with simultaneity and reverse causality of patient outcomes and incivility. That is, it is possible that high mortality rates and/or high HAI rates in the units are related to incivility in those units. To address this potential endogeneity problem, we conducted a series of ordinary least-squares (OLS) regression analyses and generalized linear mixed-effects models (GLMM), including the control variables. We conducted OLS regression analyses to test reverse causality wherein patient outcomes aggregated to the unit level predicted incivility. For our GLMM, we treated the individual patient binary outcomes as a level-1 variable nested within hospital units and aggregated unit incivility as a level-2 variable using the *lme4* package (34) in R (29). Results of the OLS regression and GLMM, as shown in Tables 3 and 4, led us to reject the endogeneity hypothesis with patient mortality not predicting incivility at the unit level (β = 0.001, P = 0.67), controlling for ROM. Similarly, controlling for SOI and PLS, HAI's rate did not predict incivility at the unit level (β = 0.02, P = 0.08). On the other hand, when controlling for ROM, incivility was a significant predictor of the likelihood of patient mortality (β = 4.3, P < 0.01). Additionally, when we controlled for SOI and PLS, incivility significantly predicted the chance of patients getting HAIs (β = 3.54, P < 0.001).

The Moderating Impact of Collaborative Conflict Cultures. From testing the moderating impact of conflict cultures on the relationship between faultline strength and incivility, we found a significant interaction between faultlines and collaborative conflict cultures (β = −0.76, P < 0.01), controlling for group size. The nature of this interaction is graphically represented in Fig. 2. An analysis of the simple slopes showed that in units with higher collaborative conflict cultures, strong faultlines were negatively associated with incivility (β = −0.48, P < 0.001). In units characterized by a low collaborative conflict culture, strong faultlines were positively related to incivility, though this didn't reach significance. (β = 0.56, P = 0.11).

The path coefficients from the multilevel SEM analysis are shown in Fig. 3. Given the multilevel structure of the data, standard model fit statistics of SEM such as Chi-Square, SRMR, RMSEA, or CFI were not applicable. To demonstrate that the moderated model was a better fit than the main effect model, we compared the Akaike Information Criterion (AIC) between the moderated model and the main effect model. In the moderated model, we examined how collaborative conflict cultures interacted with faultline strength to predict incivility, which was associated with negative patient outcomes (AIC = 1,740.82). By contrast, in the main effect model, faultline strength was directly associated with incivility, which was related to negative patient outcomes (AIC = 1,762.14). According to Burnham and Anderson (35), the individual AIC values are not interpretable, but differences in AIC are interpretable for determining model comparison strength. If a difference is larger than 10, we have substantial support to conclude that the lower valued AIC model is an improvement of the higher-valued AIC (35). The difference between the two AICs in our models was 21.32, which suggests the moderated model is superior to the main effect model.

Table 2. Multilevel SEM results

Relationships	β	SE
Between level		
Unit faultline strength → Incivility	3.61**	1.37
Collaborative conflict culture → Incivility	0.27	0.24
Unit faultline strength × Collaborative conflict culture → Incivility	-0.76**	0.26
Within level		
ROM → Patient mortality	1.60***	0.12
SOI → HAIs	1.17***	0.28
PLSs → HAIs	0.03***	0.004
Cross-level		
Incivility → Patient mortality	4.24**	1.27
Incivility → HAIs	3.55***	0.98

Note: ***P < 0.001; **P < 0.01; *P < 0.05.

[†]The inverse-logistic function is curved, and so the expected difference in y corresponding to a fixed difference in x is nonlinear. The logistic curve is steepest at its halfway point, and the slope of the curve—the derivative of the logistic function—is maximized at this point and attains the value 10.59. Thus, 10.59 is the maximum difference in Pr (y = 1) corresponding to a 10% difference in x.

Table 3. Overview of OLS regression unit-level results

	Incivility	
	β	SE
Controls		
ROM	0.10	0.06
SOI	−0.01	0.10
PLSs	0.001	0.004
Predictor		
Patient mortality	0.001	0.003
HAIs	0.02	0.01

Discussion

Although adverse events pose serious threats to patient safety and quality of care, nearly half of them are preventable (36). The results of this study illustrate how unit faultlines in hospital settings can have ripple effects that go beyond the immediate team and affect patient safety and care. Empirically, we introduce a multilevel model of unit faultlines and incivility on individual-level patient outcomes, as well as showcase the critical ways in which the cultural context can mitigate these dysfunctional dynamics. Specifically, we identify collaborative conflict-management cultures as a contextual condition that shapes whether diversity has positive versus negative effects. Collaborative conflict cultures mitigate the relationship between faultlines and incivility, illustrating the potent influence of workplace norms on reducing incivility among fractionalized groups and improving their ability to provide quality health care.

An interesting finding emerged from our analyses: Compared to units with weak faultlines, units with stronger faultlines and high collaborative conflict cultures were associated with lower incivility. This suggests that under some conditions, strong faultlines may, in fact, be beneficial to groups. When teams have strong faultlines that facilitate communication and trust within subgroups (37) and are simultaneously embedded in an overarching unit culture that encourages cooperation across the entire unit, these teams may exhibit high-functioning capabilities (cf. 38). That is, within hospital units with strong faultlines, collaborative conflict cultures may reduce incivility by facilitating communication between subgroups and enabling better integration of fragmented subgroups in service of the higher-order organizational mission as well as the cooperative goals of the units. More generally, our findings indicated that diversity can be a double-edged sword, with the potential to be either a threat or a benefit depending on how it is managed. When faultlines emerge, they may be associated with decreased communication and collaboration between subgroups, which can negatively impact patient outcomes. However, shaping a group's culture to engage more collaboratively in conflict management can be an effective means of harnessing the positive outcomes of faultlines.

Table 4. Overview of GLMM results

	Patient mortality		HAIs	
	β	SE	*β*	SE
Controls				
ROM	1.60***	0.16		
SOI			1.17***	0.24
PLSs			0.03***	0.003
Predictor				
Incivility	4.30**	1.62	3.54***	1.06

Note: ***$P < 0.00$; **$P < 0.01$.

This research has important implications for policymakers and leadership within healthcare systems. Organizational culture is malleable and responsive to targeted interventions for change. To foster collaborative conflict cultures in an organization, hospital management can target proximal top–down factors such as leadership behaviors to facilitate the development of collaborative conflict cultures. Indeed, Gelfand and colleagues (28) found that groups with collaborative conflict cultures were typically managed by leaders who demonstrated cooperative conflict-management styles. Further, highly charismatic, agreeable, and transformational leaders also facilitate the development of more collaborative conflict cultures (27). Hospital management can also consider how collaborative conflict cultures can emerge through bottom–up influences (28, 39). According to the attraction–selection–attrition model, people tend to be attracted to and selected into particular organizations as a function of their personality characteristics and values. For example, we expect that organizations with a high percentage of individuals who are agreeable and extroverted will be more likely to develop collaborative conflict cultures. This is consistent with research showing that a combination of agreeableness and extraversion predicts constructive problem-solving conflict-management styles in negotiation (40). Furthermore, collaborative conflict cultures are likely to emerge in organizations where individuals endorse benevolent values, given that these individuals are motivated by the "preservation and enhancement of the welfare of people with whom one is in frequent personal contact" (41). While implementing bottom–up approaches to culture change in hospitals with strong power hierarchies can present challenges, strategic selection and/or training of leaders and employees can still contribute to the development of collaborative conflict cultures in hospitals. It is essential for leaders to provide consistent attention and support for the successful implementation of promoting collaborative conflict cultures within hospitals. This suggests that providing training on collaborative conflict culture and tools to identify and diagnose employees' own conflict-management styles can be useful to hospitals striving to provide optimal patient care.

The impact of faultlines and incivility on life-threatening and ineffective outcomes is likely not unique to healthcare settings. Similar issues may arise in other high-stress professions and industries

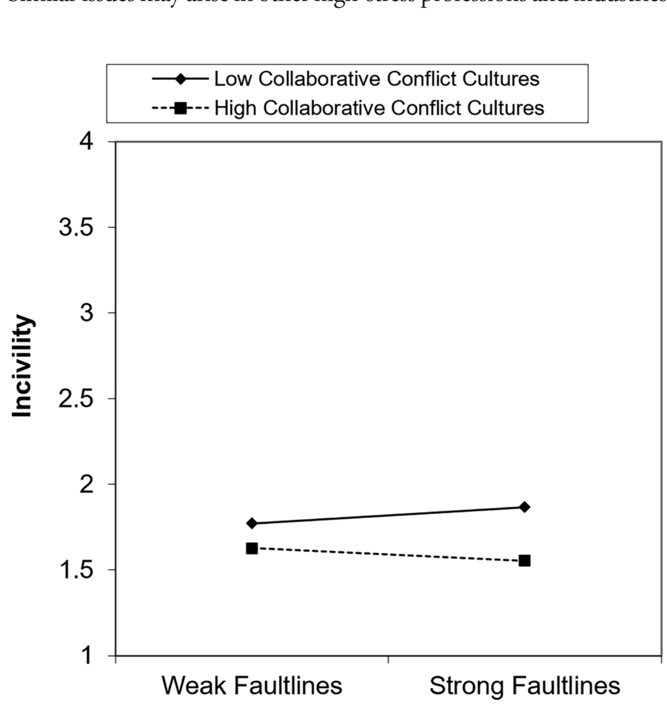

Fig. 2. Interaction of collaborative conflict cultures and faultlines in predicting incivility.

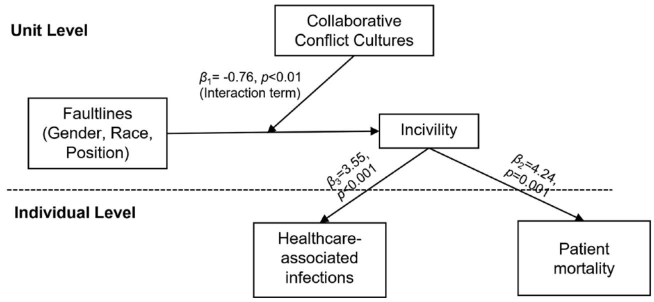

Fig. 3. Path coefficients from multilevel SEM results.

with diverse teams and complex communication dynamics. For instance, in the aviation industry, faultlines can lead to communication breakdowns and coordination issues among flight crews. This can have ripple effects on passengers, such as flight delays, missed connections, and even accidents or errors that directly threaten everyone's safety. Military operations are also examples of high-stress environments where effective teamwork is essential for success. In these settings, workplace conflict culture can play a critical role in shaping the dynamics of fractionalized groups. Our study underscores the importance of considering the diverse work contexts in which teams operate and how group culture can mitigate the negative impact of faultlines and incivility on team performance and critical outcomes.

A strength of the current research is that we tested the negative associations of faultlines as they are represented by objective group characteristics in vivo, rather than examining participants through artificial experimental manipulations. Furthermore, we examined how faultlines resulted in incivility under distinct organizational conditions. Faultlines do not exist in isolation from other factors; they are responsive to other dynamic aspects of the work context. Indeed, our results showed that the probability of unit incivility and patient safety is contingent on the work group's cultural norms: Collaborative conflict cultures buffered the negative impact of strong faultlines. However, it is important to note that the mortality data are reported from the units in which patients were pronounced dead. We cannot rule out the possibility that patients were treated in different units, prior to their final placement where their deaths were officially declared. Additionally, as we collected our data cross-sectionally, a future longitudinal study design will be useful in supporting the causal associations of interest in this study.

While past research has shown how faultlines compromise work performance, the present effort demonstrates how strong faultlines can heighten or minimize worker-related errors, depending on cultural factors. In a world that is quickly globalizing, diverse teams are the future of workplaces, and it is critical to determine how to make this reality advantageous for organizations and the people they serve. Across hospitals and other workplace settings, such as nuclear power plants and commercial flights, errors are precariously linked to life-or-death consequences. To avert these negative consequences, organizations can foster a collaborative conflict culture by developing norms for open dialogue, an emphasis on mutual understanding, and the importance of the collective group's interests. Developing collaborative conflict cultures is a moral mandate to help prevent incivility-based patient errors stemming from strong faultlines.

Materials and Methods

Participants. Our sample totaled 2,944 employees (i.e., physicians, nurses, and staff members) within a large medical center in the United States (response rate: 60% overall, 70% within units) as part of a larger effort to study professionalism in the healthcare system. We only included clinical units that provide inpatient care, resulting in 1,102 participants across 38 units (employees per unit: M = 24.08, SD = 16.36). The study protocol was reviewed and approved by the IRB of a Northeastern US-based university. To maintain the strict confidentiality and anonymity of the data source, the specific name of the university is withheld. Participants provided informed consent to participate in the study, with the majority accessing the survey through Qualtrics. We also distributed printout surveys and obtained written consent forms for those without computer access.

Measures.

Unit-level faultlines. Our calculation of unit-level faultline configuration was based on three attributes of surveyed employees: gender, race, and professional role.[‡] Lau and Murninghan (21) developed the faultline analogy, which suggests that subgroups based on salient attributes found among group members form faultlines. Surface-level and generally immutable characteristics such as gender and race are salient characteristics that lead to the identification of subgroups (42–45). Thatcher and Patel (26) argued that apart from demographic attributes such as gender and race, other important characteristics of group members, such as expertise, should be considered in faultlines research. In the health-care field, a person's professional role is a critical part of one's identity (46); accordingly, we also included the professional role (physicians versus staff members[§]) in our faultline analysis.

While there are a number of existing faultline strength measures, we chose the average silhouette width (ASW) measurement approach (47) as the most appropriate, given our theory and sample characteristics. Overall, the ASW is the most robust and versatile method. The calculations were performed with the *asw.cluster* package for faultline calculation (47) in R (31). This ASW-based faultline strength calculation follows two steps: first, for a given hospital unit, we use Ward's (48) method of agglomerative (hierarchical) clustering (48) to determine a large set of possible subgroup partitions based on three categorical attributes of unit members (i.e., gender, race, and professional roles). The distance between cluster members is calculated as the Euclidean distances:

$$d_{ij} = d\left(\{X_i\},\ \{X_j\}\right) = \left\|X_i - X_j\right\|^2.$$

For the second step, we propose to obtain the optimal solution of the subgrouping set to achieve the highest degree of within-subgroup homogeneity and between-subgroup heterogeneity. Therefore, a second round of adjustments is performed based on ASW. Clusters are then iteratively adjusted using ASW, calculated as:

$$s(i) = \frac{b(i) - a(i)}{\max\left\{a(i),\ b(i)\right\}},$$

where $s(i)$ is the silhouette value of a given point, where $b(i)$ is the distance to the nearest cluster, $a(i)$ is the distance to the center of the current cluster, and the denominator is the maximum dissimilarity from either cluster, bounding the silhouette value between −1 and 1. Averaging the vector s yields ASW, which is 1 when all points are very close to their current cluster centers and very far from the next-nearest cluster. AWS is 0 when the opposite is true, and points are far from the current cluster center and close to the next nearest cluster. An AWS of less than zero would indicate premature termination of the iterative fitting procedure, as a negative AWS would indicate that the average point is closer to the nearest cluster than the current cluster. The closer the value of ASW faultline strength is to 1, the stronger faultlines are, whereas values near 0 indicate ambiguous faultlines.

Collaborative conflict cultures. Collaborative conflict cultures were measured using the four-item scale validated by Gelfand et al. (28). The scale has been used

[‡]The survey data is representative of the complete data on gender, race, and professional role of the employees within units. We obtained complete data for 35 of these 38 units, and the correlation coefficient between faultline scores of the survey data and the scores of complete data is 0.614***. We also reanalyzed the multilevel SEM model using the faultline scores of the complete data, and the significance of the results remain the same. The results of the model are reported in *SI Appendix*, Table S1.

[§]The staff members in our sample comprised of 81% nurses and 19% other healthcare professionals. Our decision to include other healthcare professionals, in addition to nurses, in the calculation of unit-level faultlines was based on their critical role in healthcare teams and their potential impact on patient outcomes. We also calculated the faultline measure using samples containing only physicians and nurses and found a strong correlation between our original faultline measure as well as the physician-and-nurses-only faultline measure, r = 0.835***. Additionally, we performed the same multilevel SEM using only the data made up of physicians and nurses, and the model results remained consistent. We reported these model results in *SI Appendix*, Table S2.

reliably and effectively to assess collaborative conflict cultures at the unit level. Previous research demonstrated that collaborative conflict cultures are distinct from other constructs, such as psychological safety and justice climates, and are positively related to organizational viability, including—cohesion and potency, as well as lower levels of burnout (28).

For each item, respondents were asked to rate the extent to which they agreed with statements concerning how unit members typically respond when conflicts arise within their unit. They used a scale that ranged from 1 (strongly disagree) to 7 (strongly agree). Items included: "In my unit, people examine issues until we find a solution that satisfies everyone," "People examine ideas from all sides to find a mutually optimal solution," "People work out a solution that serves everyone's interests," and "People try and come up with creative solutions that incorporate multiple perspectives." The coefficient alpha for this scale is 0.95.

Unit-level incivility. Four items from the Workplace Incivility Scale (15) measured the frequency of participants' experiences of incivility from superiors or coworkers in the past year. Sample items include: "Addressed you in unprofessional terms, either publicly or privately," "Ignored you or failed to speak to you," and "Withheld information that you needed to do your job correctly." The five-point response scale ranged from 1 (never) to 5 (many times). The estimated reliability for the scale is 0.81.

Individual-level patient outcomes. We focused on two main patient outcomes: patient mortality and HAIs. Patient mortality was obtained from discharge status information. Each individual patient was assigned a value of "0" for survival at hospital discharge or a value of "1" for passing away prior to hospital discharge. Similarly, each individual patient was given either a value of "0" if they showed no signs of HAIs or a value of "1" if they contracted one or more HAIs, including Central Line Associated Blood Stream Infections, Catheter-Associated Urinary Tract Infections, or any disease contracted by a patient while receiving medical care (Nosocomial).

Control variables. We gathered a number of control variables from the two data sources described above. At the individual patient outcome level, we controlled for PLS, APR-DRG SOI, and APR-DRG ROM. The underlying clinical principle of the APR-DRGs is that the SOI and ROM of a patient depend to a great extent on the patient's underlying characteristics, such as age, complications, and comorbidities, and the determinations of SOI and ROM are disease-specific (49). APR-DRG SOI captures the extent of physiologic decomposition or organ system loss of function. APR-DRG ROM is the likelihood of dying. Both SOI and ROM have four assignment levels arranged from 1 (Minor) to 4 (Extreme). At the unit level, we controlled for unit size (i.e., the number of employees per unit).

We also considered how uncivil interactions between hospital staff and patients within units may affect a unit's conflict dynamic. We captured this with the following two survey items: "How often are you concerned about your physical safety when interacting with patients?" and "How often do you interact with patients that are physically aggressive toward you?" We included the means of these two measures as a unit level control variable in our multilevel SEM, and similar results emerged. We reported these model results in *SI Appendix*, Table S3.

Data, Materials, and Software Availability. Anonymized (xlsx) data have been deposited on https://osf.io/3razf/ (https://doi.org/10.17605/OSF.IO/3RAZF) (50).

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