Title: How Do We Train Physicians for the Future? Predictors of Resident Vitality in 14 Academic Health Centers

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Purpose: To understand what dimensions of culture in medical residency programs are related to greater vitality among residents nationally? Nationally 50% residents report burnout. Recent scholarship question whether residents can conduct their clinical work and learning with optimal vitality, compassion, competence, and personal safety.

Approach/Methods: In 2015, we surveyed 1708 medical residents (70% response rate), 956 Internal Medicine, 441 Pediatrics, and 311 General Surgery; 879 (51%) women, 268 (16%) under-represented in medicine minority (URMM), and 305 (18%) international medical graduates in 34 residency programs at 14 academic medical centers. We adapted the reliable and validated C-Change Faculty Survey, which measures dimensions of the culture of academic medical centers and has been used in the US, Canada, and Europe. The 78-item C–Change Resident Survey (CRS) measures resident perceptions of 13 dimensions of the culture: Vitality; Self-efficacy in Career Advancement; Institutional Support; Relationships/Inclusion; Values Alignment; Ethical/Moral Distress; Respect; Mentoring; Leadership Aspirations; Work-life Integration; Gender Equity; Under-Represented in Medicine Minority Equity; and Competencies. We collected data on gender, sexual orientation, race/ethnicity, age, US versus international medical degree, presence of children at home <18 years, and PG year. Data were analyzed by hierarchical models to accommodate clustering, including models in which individual dimensions of culture predicted Vitality up to a model in which nine dimensions of culture predicted Vitality.

Results/Outcomes: About 4.7% of all variance in vitality is at the between-program level, while the balance is at the within-program level. When dimensions of culture are added individually to the model, Work-Life Integration explains more within-program variance, 35.5%, than any other single predictor, while Values Alignment explains the most between-program variance, 76.0%. The inclusion of three dimensions of culture, Work-Life Integration, Relationships/Inclusion, and Institutional Support as predictors in a hierarchical model predicted 48% of the variation in Vitality at the within-program level and 90% at the between program level. Demographic variables had very minimal effect on Vitality.

Discussion: Although only 5% of all variation in resident vitality is in program means, the differences are meaningful, and there would be every reason for a program with a low mean
vitality to raise that mean. Variation in program vitality means is largely explained by resident perceptions of the dimensions of culture, foremost among which are Work-Life Integration, Relationships/Inclusion, and Institutional Support. It is reasonable to conclude that efforts to alter residents’ perceptions of these dimensions of the institutional culture will achieve higher mean vitality. Given that most within-program and between program variation in vitality can be explained by a combination of the dimensions of culture, targeted interventions including activities to create a more relational culture and trust, work-life support and values alignment may significantly enhance resident well-being.

**Significance**: The study helps answer the question as to which dimensions of the culture predict resident vitality and well-being and are amenable to improvement. The ACGME CLER initiative is calling for assessment of the culture of residency programs to address concerns about resident well-being. The CRS is a valid instrument for this assessment.

**References**:


