

Abstract: Integrating Aviation Team Training Into The Medical Center Environment: Behavioral Outcomes

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Introduction:

To improve team functioning and reduce medical errors, some institutions have initiated aviation-based Crew Resource Management (CRM) training. However, objective outcomes are difficult to quantify. We measured self reporting of errors, perioperative checklist utilization, OR work environment, and perceived personal / institutional behavioral changes after CRM training.

Methods:

Since 2003, a dynamic, six hour, multidisciplinary Medical CRM course was taught at an academic medical center. Attendance incentives included malpractice premium reductions, free CME credit, registration fee waivers, and paid time for hourly staff. Topics covered CRM rationale, error chains/ nonpunitive reporting, communications, team dynamics, and checklists. A web-based system documented self reporting of errors and near misses to an outside, independent agency. Perioperative checklists were installed in ORs and utilization monitored. OR work environment survey continued annually. A Delphi poll of perceived behavioral and institutional cultural changes was constructed with results obtained from participants at least 2 months after course completion to assess sustainability.

Results:

Five courses trained 402 participants. Self reporting increased from 703 reports/qtr in 2002 to 893 and 1140/qtr subsequently ($p < 0.01$, ANOVA). Consistent checklist utilization rose (75% 2003, 86% 2004, 94% 2005). Nurses led checklist initiation, followed by surgeons and anesthesiologists. Perception of OR environment improved 0.4 points (1-5 scale), with credit given to improved communication, enforcement of a code of behavior, and improved feedback of correction of reported unsafe conditions. In the 10 realms of measured behavioral change, individuals felt they had integrated changes to a greater degree than the institution. ($7.5 + .22$ vs $5.2 + .42$, $p < 0.01$, t test)

Conclusions:

CRM programs influence personal behaviors that lead to a reduction in medical errors and an improved work environment. Perceived institutional cultural

change lagged personal empowerment. Although other, ongoing hospital initiatives may have contributed to some of these findings, CRM programs provide a structured learning experience that enhances personal and team functioning.