

### **Saving Lives: A Meta-Analysis of Team Training in Healthcare**

#### **Take Away Points**

- This meta-analysis of healthcare team training research aimed to quantify its effectiveness and examine the factors that enhance or attenuate its effectiveness. The authors conclude team training:
  - Is generally effective regardless of the training design and implementation, training characteristics or work environment.
  - Appears to be more effective when it does *not* involve feedback, and
  - Improves safety climate, and patient outcomes including length of stay, satisfaction and mortality.
- Healthcare team training affects results through acquired knowledge, skills and abilities (KSAs), transfer of KSAs to healthcare work, and enhanced results (i.e., organizational outcomes and patient outcomes).

#### **The Issue**

Medical errors negatively impact individual patients and organizational outcomes with an estimated cost from \$735 to \$980 billion annually in the United States. Research indicates that much of this error is preventable, and suggests that teamwork failures (e.g., poor communication) have been a major source of preventable medical errors, contributing to two-thirds (68.3%) of patient harm events.

#### **Source**

Hughes AM, Gregory ME, Joseph DL, Sonesh SC, Marlow SL, Lacerenza CN, Benishek, LE, King HE and Salas E. (2016). Saving Lives: A Meta-Analysis of Team Training in Healthcare. *Journal of Applied Psychology* Online June 2016; <http://dx.doi.org/10.1037/apl0000120>

With healthcare predicted to be the largest industry in the world by 2018, team training is on the rise in the healthcare industry. Hence, the primary objective of this study is to meta-analytically examine healthcare team training to quantify its effectiveness and understand the conditions under which it is most effective.

#### **Study Methods and Design**

To address the objective, two separate literature searches were conducted to (1) understand healthcare team training effectiveness and (2) test the sequential model of healthcare team training.

#### *Healthcare Team Training Effectiveness*

To identify published and unpublished team training evaluations, the authors utilized several databases including but not limited to PsycINFO, MEDLINE, CINAHL, and PubMed. Eligibility criteria included: (1) written in English, (2) compared pre-training to post-training measures or compared a control with a training group, (3) reported the sample size and enough information to calculate Cohen's *d* effect size, (4) evaluated team training as a single intervention, and (5) were primarily (at least 50%) focused on training teamwork KSAs. Two authors independently coded eligible studies into applicable categories. The meta-analysis combined effect sizes from three types of study designs: (1) repeated measures, (2) independent groups, and (3) independent groups with repeated measures.

#### *The Sequential Model of Healthcare Team Training*

A literature search was designed to identify articles that could be used for meta-analysis of inter-correlations among Kirkpatrick's (1956, 1996) training evaluation criteria: (1) reactions—extent to which

trainees enjoy and/or find the training useful, (2) learning—a relatively permanent change in knowledge or skill, (3) transfer—use of trained knowledge and skills on the job, and (4) results—measure of the final result that occur due to training. To identify articles, the authors found articles that were used by Alliger and colleagues (1997), which outlines the theoretical model originally proposed in traditional training literature. Articles were also chosen if they were published after 1997 and cited one or more of the following Kirkpatrick (1996), Kirkpatrick (1956), and/or Kirkpatrick (1967). Additional articles were sought using the same procedures described above. Lastly, articles chosen for the meta-analysis had to report sample and correlation or enough information to calculate a correlation between at least two of Kirkpatrick's criteria (i.e., reactions, learning, transfer, results). Hunter and Schmidt (2004) meta-analytic procedures were used to estimate meta-analytic inter-correlations among Kirkpatrick criteria.

### Key Findings

- Team training in healthcare is effective as shown in significant improvements across Kirkpatrick's criteria
  - Reaction improved ( $\delta = .53$ ,  $k=5$ , 95% CI: [.33, .73]) indicating individuals enjoyed the training and/or found it useful
  - Learning improved ( $\delta = .89$ ,  $k=63$ , 95% CI: [.66, 1.11]) suggesting that KSAs are acquired during health team training, specifically in affective-based learning, cognitive-based learning, and skilled-based learning
  - Transfer improved ( $\delta = .67$ ,  $k=63$ , 95% CI: [.52, .82]) showing that on-the-job KSAs improved by more than a standard deviation once healthcare training was implemented
  - Results improved ( $\delta = .37$ ,  $k=47$ , 95% CI: [.21, .52]) implying that healthcare team training improves organizational outcomes such as safety and patient outcomes.
- Testing of the sequential model of healthcare team training showed that there is a sequential effect among the Kirkpatrick criteria
  - Contrary to what was hypothesized the sequential effect began with Learning as opposed to Reactions—there was no significant effect of Reactions on Learning
- Healthcare team training is effective under a variety of conditions regardless of the training strategy, team composition (interprofessional/multidisciplinary), same type (student/clinician), and patient acuity of the trainee's unit

### Limitations

This review included a limited number of primary studies in estimates of healthcare team training's effect on reactions. The information provided on training reactions is narrow especially regarding the extent to which training strategy, feedback, simulator fidelity, team composition, sample type, and unit acuity affect trainee reactions.

### Additional Works Cited:

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