

45th Biennial Convention (16-20 November 2019)

Evaluation of TeamSTEPPS® Within a Cardiac Procedural Unit to Improve Teamwork and Patient Safety

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BACKGROUND: Communication and teamwork between members of the non-provider patient care team in the cardiac procedural unit were observed to be unbalanced and at times ineffective. Team members additionally expressed concerns regarding efficiency and accuracy in patient hand-off, specifically between units. Staff role satisfaction was deteriorating. The goal of this study was to improve teamwork and communication among the staff of the cardiac catheterization and electrophysiology lab. Participation in this initial, single-unit phase would include the non-physician staff of that unit. **METHODS:** Bandura's Social Cognitive Theory was the theoretical framework utilized for this project. Theory selection was based on desire to evaluate the progression of staff as a unit rather than individuals which was proving ineffective in the past. Leadership assessment of service line communication noted deficits in teamwork and communication skills particularly with patient hand-off most specifically between units. Leadership and departmental educational representatives conferred and based on experience recommended a trial of TeamSTEPPS® (Team Strategies and Tools to Enhance Performance and Patient Safety) program initiation. A literature review was performed to evaluate program applications and available assessment tools. Multiple applications of TeamSTEPPS® are noted but none within a dynamic procedural unit caring for a diverse ambulatory, acute, critical and emergent patients. **INTERVENTION:** Staff was surveyed via the TeamSTEPPS® Teamwork Perceptions Questionnaire (T-TPQ) immediately before and post three hours of TeamSTEPPS® Essential course education. They were additionally surveyed at four- and eight- weeks post education. Documentation of their teamwork perceptions was recorded, and their behavior observed over the eight-week project time frame. **RESULTS:** Analysis by way of repeated measures ANOVA compared mean scores of individuals over time and was performed by matched pairings based on demographics. TeamSTEPPS® education resulted in statistically and clinically significant increases in teamwork perceptions from pre- to post-education and post-education to eight weeks assessments reflective of change and sustainability. **CONCLUSIONS:** TeamSTEPPS® education is effective in improving teamwork and communication perceptions immediately and at eight weeks in a dynamic cardiac procedural unit. **Keywords:** TeamSTEPPS, teamwork, communication, patient safety, T-TPQ, perceptions

Title:

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Keywords:

communication, patient safety and teamwork

References:

- Agency for Healthcare Research and Quality. (2015). About TeamSTEPPS. Retrieved from <https://www.ahrq.gov/teamstepps/about-teamstepps/index.html>
- American Association of Colleges of Nursing. (2006). *The Essentials for Doctoral Nursing Education for Advanced Nursing Practice*. Washington, D.C.: Advanced Higher Education in Nursing.
- Ballangrud, R., Husebo, S. E., Aase, K., Aaberg, O. R., Vifladt, A., Berg, G. V., & Hall-Lord, M. L. (2017). "Teamwork in hospitals": A quasi-experimental study protocol applying a human factors approach. *BMC Nursing*, 16(34), 1-7. <https://doi.org/10.1186/s12912-017-0229-z>
- Bandura, A. (2000, June 1). Exercise of human agency through collective efficacy. *Current Directions in Psychological Science*, 9(3), 75-78. <https://doi.org/10.1111/1467-8721.00064>
- Brasaitte, I., Kaunonen, M., & Suominen, T. (2015). Healthcare professionals' knowledge, attitudes and skills regarding patient safety: a systematic literature review. *Scandinavian Journal of Caring Sciences*, 29, 30-50. <https://doi.org/10.1111/scs.12136>
- Bunnell, C. A., Gross, A. H., Weingart, S. N., Kalfin, M. J., Partridge, A., Lane, S., ... Mann, S. (2013). High performance teamwork training and systems redesign in outpatient oncology. *BMJ Quality & Safety*, 22, 405-413. <https://doi.org/10.1136/bmjqs-2012-000948>
- Capella, J., Smith, S., Philip, A., Putnam, T., Gilbert, C., Fry, W., ... ReMine, S. (2010). Teamwork training improves the clinical care of trauma patients. *Journal of Surgical Education*, 67(6), 439-443.
- Castner, J. (2012, November 3). Validity and reliability of the brief TeamSTEPPS teamwork perceptions questionnaire. *Journal of Nursing Measurement*, 20, 186-198. <https://doi.org/10.1891/1061-3749.20.3.186>
- Consiglio, C., Borgogni, L., Alessandri, G., & Schaufeli, W. B. (2013). Does self-efficacy matter for burnout and sickness absenteeism? The mediating role of demands and resources at the individual and team levels. *Work & Stress*, 27(1), 22-42. <https://doi.org/10.1080/02678373.2013.769325>
- Consiglio, C., Borgogni, L., DiTecco, C., & Schaufeli, W. B. (2016). What makes employees engaged with their work? The role of self-efficacy and employee's perceptions of social context over time. *Career Development International*, 21(2), 125-143. <https://doi.org/10.1108/CDI-0320150045>
- Cost of communication failures in healthcare settings: 5 study findings. (2016). *Becker's Hospital Review*. Retrieved from <https://www.beckershospitalreview.com/finance/costof->

communication-failures-in-healthcare-settings-5-study-findings.html
Ebell, M. H., Siwek, J., Weiss, B. D., Woolf, S. H., Susman, J., Ewigman, B., & Bowman, M. (2004, February 1). Strength of recommendation taxonomy (SORT): A patient-centered approach to grading evidence in the medical literature. *American Family Physician*, 69, 548-556. Retrieved from <https://www.aafp.org>

Gaston, T., & Short, N. (2016). Promoting patient safety: Results of a TeamSTEPPS initiative. *Journal of Nursing Administration*, 46(4), 201-207. <https://doi.org/10.1097/nna.0000000000000333>

Kohn, L. T., Corrigan, J. M., & Donaldson, M. S. (Eds.). (2000). *To err is human: Building a safer health system*. Retrieved from <https://ebookcentral.proquest.com/lib/wilmcollebooks/detail.action?docID=3375380#>

Lee, S., Khanuja, H. S., Blanding, R. J., Sedgwick, J., Pressimone, K., Ficke, J. R., & Jones, L. C. (2017, October 30). Sustaining teamwork behaviors through reinforcement of TeamSTEPPS principles. *Journal of Patient Safety*, 1-5. <https://doi.org/10.1097/PTS.0000000000000414>

Lisbon, D., Allin, D., Cleek, C., Roop, L., Brimacombe, M., Downes, C., & Pingleton, S. K. (2016). Improved knowledge, attitudes, and behaviors after implementation of TeamSTEPPS training in an academic emergency department: A pilot report. *American Journal of Medical Quality*, 31(1), 86-90.

Makary, M. A., & Daniel, M. (2016, May 3). Medical error—The third leading cause of death in the U.S. *BMJ*, 353, 1-5. <https://doi.org/10.1136/bmj.i2139>

Ogrinc, G., Davies, L., Goodman, D., Batalden, P., Davidoff, F., & Stevens, D. (2015). SQUIRE 2.0 (Standards for quality improvement reporting excellence): Revised publication guidelines from a detailed consensus process. *BMJ Quality & Safety*, 1-7. <https://doi.org/10.1136/bmjqs-2015-004411>

Paul, M. E., Dodge, L. E., Intondi, E., Ozcelik, G., Plitt, K., & Hacker, M. R. (2017). Integrating TeamSTEPPS into ambulatory reproductive health care: Early successes and lessons learned. *Journal of Healthcare Risk Management*, 36(4), 25-26.

Peters, V. K., Harvey, E. M., Wright, A., Bath, J., Freeman, D., & Collier, B. (2018). Impact of a TeamSTEPPS trauma nurse academy at a level I trauma center. *Journal of Emergency Nursing*, 44(1), 19-25.

- Pettit, A. M., & Duffy, J. J. (2015, Winter). Patient safety: Creating a culture change to support communication and teamwork. *The Journal of Legal Nurse Consulting*, 26(4), 23-26. Retrieved from <http://www.aalnc.org>
- Plonien, C., & Williams, M. (2015, April). Stepping up teamwork via TeamSTEPPS. *AORN Journal*, 101(4), 465-470. <https://doi.org/10.1016/j.aorn.2015.01.006>
- Riverra-Chiauszi, E., Lee, C., & Goffman, D. (2016, February). Debriefing after adverse outcomes: An opportunity to improve quality and patient safety. *Contemporary OB/GYN*, 61(2), 24-28, 32. Retrieved from <http://contemporaryobgyn.modernmedicine.com>
- Salanova, M., Rodriguez-Sanchez, A. M., Schaufeli, W. B., & Cifre, E. (2014). Flowing together: A longitudinal study of collective efficacy and collective flow among workgroups. *The Journal of Psychology*, 148(4), 435-455. <https://doi.org/10.1080/00223980.2013.806290>
- Sheppard, F., Williams, M., & Klein, V. R. (2013). TeamSTEPPS and patient safety in healthcare. *Journal of Healthcare Risk Management*, 32(3), 5-10. <https://doi.org/10.1002/jhrm.21099>
- Sheskin, D. J. (2011). *Handbook of parametric and nonparametric statistical procedures* (5th ed.). Boca Raton, FL: Chapman & Hall/CRC Press.
- Singleton, J. K. (2017). An enhanced cultural competence curriculum and changes in transcultural self-efficacy in Doctor of Nursing Practice students. *Journal of Transcultural Nursing*, 28, 516-522. <https://doi.org/10.1177/1043659617703162>
- State of New Jersey Department of Health. (2018). Retrieved from <https://nj.gov/health/chs/>
- Teamwork attitudes questionnaire (T-TAQ). (2014). Retrieved from <https://www.ahrq.gov/teamstepps/instructor/reference/teamattitude.html>
- Teamwork perceptions questionnaire (T-TPQ). (2014). Retrieved from <https://www.ahrq.gov/teamstepps/instructor/reference/teampercept.html>
- The Joint Commission (TJC). (2017). The Joint Commission issues new sentinel event alert on inadequate hand-off communication. Retrieved from [https://www.jointcommission.org/the_joint_commission_issues_new_sentinel_event_aler
t_on_inadequate_hand-off_communication/](https://www.jointcommission.org/the_joint_commission_issues_new_sentinel_event_alert_on_inadequate_hand-off_communication/)
- The Joint Commission Center for Transforming Healthcare. (2015). Retrieved from https://www.jointcommission.org/about_us/about_cth.aspx
- Tibbs, S. M., & Moss, J. (2014). Promoting teamwork and surgical optimization: Combining TeamSTEPPS with a specialty team protocol. *Journal of Perioperative Registered Nurses*, 100(5), 477-488. <https://dx.doi.org/10.1016/j.aorn.2014.01.128>
- Vertino, K. A. (2014, February). Evaluation of a TeamSTEPPS initiative on staff attitudes toward teamwork. *The Journal of Nursing Administration*, 44(2), 97-102. <https://doi.org/10.1097/nna.0000000000000032>

- Ward, M. M., Zhu, X., & Lampman, M. (2015). TeamSTEPPS implementation in community hospitals: Adherence to recommended training approaches. *International Journal of Health Care Quality Assurance*, 28(3), 234-244. <https://doi.org/10.1108/IJHCQA-10-2013-0124>
- Weld, L. R., Stringer, M. T., Ebertowski, J. S., Baumgartner, T. S., Kasprenski, M. C., Kelley, J. C., & Novak, T. E. (2015). TeamSTEPPS improves operating room efficiency and patient safety. *American Journal of Medical Quality*, 31(5), 408—414.
- Wong, A. H., Gang, M., Szyld, D., & Mahoney, H. (2016, April). Making an “attitude adjustment”: Using a simulation-enhanced interprofessional education strategy to improve attitudes toward teamwork and communication. *Simulation in Healthcare*, 11(2), 117-125. <https://doi.org/10.1097/SIH.0000000000000133>
- World Health Organization (WHO). (2018). Patient Safety. Retrieved from <http://www.who.int/patientsafety/education/en/>

Abstract Summary:

Development and evaluation of a TeamSTEPPS® Program among cardiac procedural unit staff in a mid-Atlantic community hospital to improve teamwork and patient safety. Implementation resulted in statistically and clinically significant outcomes and demonstrated sustainability.

Content Outline:

(The link for the example is not currently working unfortunately.)

Purpose:

Communication and teamwork in the cardiac procedural unit were observed to be unbalanced and ineffective. Team members expressed concerns regarding efficiency and accuracy in handoffs. The goal was improving teamwork and communication within the cardiac catheterization and electrophysiology lab.

Significance:

TeamSTEPPS® optimizes team performance by improving communication and teamwork skills to effectively improve efficient and rapid responses to changing circumstances. This leads to higher quality and safer patient care by optimizing teams, inclusive of the patient, and eliminating barriers. The four core skills of TeamSTEPPS®: communication, leadership, situation monitoring, and mutual support, are trainable skills that directly affect goal outcomes.

Theory and Implementation:

Bandura's Social Cognitive Theory was the theoretical framework utilized for this project. Leadership assessment of service line communication noted deficits in teamwork and communication skills particularly with patient handoff most specifically between units. Leadership and departmental educational representatives conferred and based on experience recommended a trial of TeamSTEPPS® (Team Strategies and Tools to Enhance Performance and Patient Safety) program initiation. A literature

review was performed to evaluate program applications and available assessment tools. No literature was located regarding cardiac procedural unit implementation. Staff was surveyed via the TeamSTEPPS® Teamwork Perceptions Questionnaire (T-TPQ) immediately before and post three hours of TeamSTEPPS® education. They were additionally surveyed at four- and eight weeks post education. Documentation of their teamwork perceptions was recorded, and their behavior observed over the eight-week project time frame.

Evaluation/Outcome:

TeamSTEPPS® education resulted in statistically and clinically significant increases in teamwork perceptions from pre- to post-education and post-education to eight weeks assessments reflective of change and sustainability. TeamSTEPPS® education is effective in improving teamwork and communication perceptions immediately and at eight weeks in a dynamic cardiac procedural unit.

Implications for Practice:

Communication and teamwork development through evidence-based practice methods increases both professional and role satisfaction for providers and staff. Additionally, such improvements result in improved patient care outcomes, safety, and satisfaction.

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