

We are IntechOpen, the world's leading publisher of Open Access books Built by scientists, for scientists

5,300

Open access books available

130,000

International authors and editors

155M

Downloads

Our authors are among the

154

Countries delivered to

TOP 1%

most cited scientists

12.2%

Contributors from top 500 universities



WEB OF SCIENCE™

Selection of our books indexed in the Book Citation Index
in Web of Science™ Core Collection (BKCI)

Interested in publishing with us?
Contact book.department@intechopen.com

Numbers displayed above are based on latest data collected.

For more information visit www.intechopen.com



Introductory Chapter: Teams in Healthcare - A Voyage from ‘Nice to Have’ to ‘the Way to Go’

*Nicholas Taylor, Israel Zigelboim, Farhad Sholevar,
Stanislaw P. Stawicki and Michael S. Firstenberg*

1. Introduction

Modern healthcare is characterized by the growing embrace of multidisciplinary, team-based approaches. This transformation is happening for a good reason. Because the degree of complexity across our health systems may exceed the effective operational capacity of a single provider, increasing reliance on healthcare teams, processes, and workflows is becoming a necessity [1, 2]. Despite the near universal deployment of health information technology, the overall growth in systemic complexity continues to outpace our attempts to address it [3, 4]. The ability to adapt and evolve also plays an essential role in achieving programmatic success [5].

The current team-based approach to healthcare originated in the 1990’s in an attempt to enhance the performance, quality and safety of care delivery [6–8]. Through a series of incremental changes and reforms, significant improvements have been made over time, but the healthcare industry is still far from the safety, quality, and performance records achieved by our counterparts in financial and air transportation sectors [9]. Currently, a significant portion of the overall effort in this area revolves around reinforcing team-based approaches, including the incorporation of continuous quality and performance improvement initiatives into existing, multidisciplinary paradigms across a broad range of care delivery settings [7, 10, 11].

2. How do teams make healthcare better?

Although there is something to be said about the expression, “the whole is greater than the sum of the parts,” our current understanding of full benefits of a ‘healthcare team’ continues to be relatively limited [12–15]. The very presence of a ‘team’ does not inherently equate to enhanced levels of quality or safety. Yet there clearly is an evolving science dedicated to learning more and refining our approach to healthcare team effectiveness [16–18]. As a result, a number of key characteristics associated with optimal team performance have been proposed [15, 19, 20]. We will discuss them in this section.

Although this may be an ‘obvious’ statement, healthcare teams should be able to maintain high levels of functioning at all times [19]. More granular considerations in this area include constant focus on coordination, emphasis on responsibility, and the full commitment to open and honest communication (even if the latter exposes

one's lack of specific/granular patient care knowledge) [19]. Some variability and customization of the overall team approach should be permitted, even encouraged, based on the setting, situation, or available resources. This provides the necessary flexibility to accomplish a much broader range (and types) of tasks. Beyond these fundamental values, effective healthcare teams must be highly skilled in their 'teamwork ability' – inclusive of dedicated education about interdisciplinary, non-hierarchical, consensus-based approaches [21]. In the perfect world, application of the above principles results in seamless delivery of care, with minimal or no biases, without silos, using data-driven, patient centered approaches [22, 23].

Unfortunately, a major assumption in the concept of adopting "team-based healthcare" is that "individuals" inherently desire to be part of a "team." However, as it is well known, such desire is not universal. While it may sound like a rhetorical question when asking, "Why healthcare providers would not want to be engaged in such an evolution?" – It is important to explore some of the potential motivating factors that contribute to the development of "team-based" care. Unfortunately, some of these factors involve certain key harsh realities that strongly influence healthcare providers. Everyone inherently claims that they "want what is best for the patient" – but such a concept is difficult to comprehensively and universally define, especially in the setting in which "individuals" might not want to be part of a "team" for several reasons:

1. They do not feel that their participation in a team (i.e., morning multi-disciplinary rounds) is helpful to the overall care of the patient.
2. They may not want to participate because they do not find the structure and function of the team as being compatible with their daily work-flow, or inherently useful in the context of their multiple competing obligations.
3. Financial (or professional) motives and/or agendas may not be compatible with the team-based culture. This is a consideration that is particularly applicable in various "pay-for-service" healthcare models in which team-based care might not inherently be in everyone's best financial interest. Such situations are becoming more common when team activities – such as patient-care conferences (e.g., "tumor boards" or "heart team meetings") – might be best for discussing patient care plans, but do not generate any immediate financial opportunities for participants while diminishing the latter due to built-in time constraints.
4. Team-based care models are not structured in a way to optimize the common goals – especially in a manner that is respectful of the expertise and time commitments of all participating stakeholders.
5. Leadership (or senior administrators) may not inherently support the concept and applications of team-based approaches. Potential administrative road-blocks can be subtle, such as limiting resources available for the required support staff or not supporting (publicly or privately) the team goals or individual champions.

While there are many reasons why team-based care models either work or do not work – the fundamental key or barrier to success is engagement, support, enthusiasm, and expertise, or lack thereof, by leaders, champions, and those who believe that team-based care is fundamentally better in terms of patient outcomes. This should be contrasted against individuals who may be "siloed" in their inflexible, individualistic, and potentially self-gain motivated models.

3. Healthcare teams and evidence-based practice

The team-based setting is the optimal environment for the implementation of evidence-based practice. Inherent to the team approach in healthcare is the presence of ample cross-checks, safety protocols, and the ability to verify clinical plans via a consensus mechanism [24, 25]. This, in turn, helps facilitate the application of evidence-based practice, which appears to be both safer and relatively free of personal biases and/or opinions [8, 26]. Moreover, 'team healthcare' environment also provides an excellent substrate for determining that a given protocol or clinical pathway does not work, thus prompting constructive changes that tend to be evidence-based and systematic in nature [10]. Again, success is based upon the participation of champions, leadership support at all levels, and the recognition that such paradigm shifts within a 'culture of behaviors' are better for all aspects of the patient care, including both experiences and outcomes – and not just for individuals who continue to advocate that “the old ways,” which might have worked to some degree in the past, are still acceptable across modern healthcare delivery platforms [7, 14, 24, 27].

4. Team approaches help reduce burnout

In addition to the patient-specific benefits of team-based healthcare, growing amount of data point toward tangible provider benefits of team-based approaches, including reduction in burnout [28]. It has been suggested that implementation of certain structural changes, such as fostering communication between team members and cultivating a sense of teamwork and job control are very effective in reducing provider burnout [29]. An important factor in this general approach is the ability of teammates to motivate each other and to encourage accountability for key behaviors, such as regular physical exercise and gym attendance [30]. As with many other areas that depend on highly functioning teams (e.g., airline crews or professional sports), the ability of a team to function effectively and efficiently is the overarching priority, even when a particular team member is temporarily underperforming or sidelined. More complex performance issues, including disruptive team member behaviors, can also be addressed in a professional and collaborative manner with the common team goals maintained as a priority [31, 32].

5. Teams as agents of positive institutional change

Healthcare teams contribute tremendously to structural institutional and systemic changes. In aggregate, such changes tend to occur more gradually and are typically due to consensus-building mechanisms inherent to team approaches. The resulting action plans, in general, tend to be both constructive and more readily embraced by key stakeholders.

Healthcare settings require fluid, coordinated and effective work of various highly integrated teams across the continuum of care. Due to the complex nature and integrated character of the industry, effective “teaming” in healthcare must expand across organizational boundaries [33]. The effective delivery of health services typically requires the integration of special skills, equipment and care that must often be provided around the clock at variable locations. Additionally, the historic hierarchy encountered in hospitals generates status differences which may potentially contribute to misunderstanding, hesitation to communicate any disagreement, as well as difficulty in pointing out errors and opportunities [15, 34–36]. Finally, patients with complex or chronic diseases interact with multiple levels of a cumbersome

health care delivery system (inpatient and outpatient settings, laboratories, imaging centers, etc). This, in turn, creates multiple opportunities for team-based paradigms to facilitate more unified, patient-centered approaches [37].

Deployment of effective “teaming” represents a valuable tool to exert positive institutional change. In doing so it is critical to reframe goals and objectives. Tasks in health care should be framed in a way that allows each team member to focus on the ultimate goal beyond the current intervention – the individual patient outcome. Such approach encourages team members to go beyond their limited area of expertise in order to seek and promote other beneficial interventions or services. In addition, effective teaming requires the use of safety as the quintessential bar to measure team effectiveness. In doing so, the team approach becomes the instrument to break through hierarchical barriers. At the end of the day, every member of the team will agree that providing safe care is a must. It is imperative to create structures and methodologies that foster open communication and trust. Tools such as the SBAR method (situation, background, assessment and recommendation) or the Team STEPPS approach are relatively easy to deploy and track [7, 15, 18, 38, 39].

A comprehensive transformation toward more widespread reliance on team approaches across our healthcare systems will help promote dependability, establish and/or strengthen mutual trust, foster open communication, and enhance collaboration among both individuals and teams. The result commonly translates into improved quality and safety, cost-effectiveness and importantly improved team members’ satisfaction. All of the above are key elements for the success of any health care organization.

6. Teams versus committees versus task-forces

Understanding the differences between teams, task forces, and committees can help further solidify the importance of a collaborative environment with focused goals [40, 41]. While there are a variety of definitions of each, in the context of healthcare, there are certain key differences between the 3 groups [42–44]. Below we summarize the definitions that, in the Editors’ opinion, are most applicable to this current book.

6.1 Teams

1. Typically comprise of individuals linked together for a common purpose;
2. There is a shared leadership model (e.g., collaboration to achieve a specific task);
3. Members often have complementary skills and are encouraged to function as a group;
4. Team members share a common goal or purpose, with mutual accountability [45].

6.2 Committees

1. Typically consist of individuals who are selected to perform a specific function on behalf of a larger group;
2. Committee is technically a structured organizational system – often with agenda, bylaws, and strong leadership;

3. Finally, committees may not have a fixed endpoint or goal, and may be structured to delegate specific tasks to smaller groups (e.g., subcommittees) [46, 47].

6.3 Task forces

1. These are typically small groups with densely concentrated content expertise, usually brought together to focus on a specific goal;
2. Task forces are usually organized on an “as needed basis” – potentially in response to an event;
3. Although there may be limited objective resources to achieve a highly specific goal, task forces are often asked to make recommendations to a Committee before any final changes are executed [48, 49].

It is important to remember that, as in many other functional organizational areas, there are overlaps in structure and function among these different groups. At the same time, each type of team/group participation is needed – for different purposes as noted above – within an organization to ensure stability and objective preemptive or responsive problem solving. Consequently, careful planning and balancing of goals, roles, and priorities is required.

7. Pitfalls of teams and team-based approaches

One of the greatest pitfalls of teams and team-based approaches is the ever-present danger of ‘groupthink’ [50]. Groupthink can be defined as the presence of social conformity within a group tasked with making a collective decision [51]. When analyzed retrospectively, group decisions based on ‘groupthink’ are often influenced by the ‘single loudest voice’ or authority within the group, with the apparent absence of critical thinking and/or the ‘fortitude to question’ exhibited by individual members of that group [50, 52]. At a much deeper level, ‘groupthink’ is a symptom of poor leadership, where the leader (whether positionally assigned or not) may not challenge or empower his or her team sufficiently enough to effectively question the course of the discussion around the prevailing group sentiment [53–56]. Hence, it is imperative that team leadership recognizes the potential for such disruptive forces and – as a sign of strength and wisdom – actively monitors for (and attenuates) the impact of factors and/or individuals capable of “inducing groupthink.” Conceptually, mitigating against “groupthink” sounds easy, but in practice it can be extremely difficult – if not impossible – when the loudest voice is often the one with the greatest perceived influence [57, 58]. Such issues are unfortunately not uncommon in healthcare when significant financial and non-financial agendas might be directly linked to individuals or groups who may then be compelled to act in a manner that might be in their best interest, but not in the interest of the larger group or team. Such situations can be extremely difficult to manage or control – and ultimately require a significant disruptive event (like an institutional financial crisis or exodus of talent) or systemic change.

8. Limitations to team approaches

As the reader embarks on exploring this book, it must be emphasized that certain activities and/or circumstances do not lend themselves to team approaches.

Although this will not be the focus of this edited collection, we want the reader to be aware of those important limitations to team-based approaches. For example, there exists a balance between team-based and non-team-based management in the area of execution capability [59].

It is also important to know when and how to limit team sizes, especially when specific types of tasks or mission-critical endeavors demand such limited approach. In medicine, teams are ubiquitous. There are highly diversified health-care teams inclusive of medical/nursing students, residents, nurses, physicians, case managers, physical/occupational therapists and consulting physicians/teams. Not infrequently, the more complex the patient, the larger the care team tends to grow. At many institutions, there are annual celebrations of Trauma Systems, highlighting the health-care journey of trauma/critical care patients. During such celebrations, the entire health-care team caring for critically injured patients is gradually, person-by-person, brought on stage, with upwards of 100 people responsible for the successful door-to-door care involving each individual trauma survivor [60].

Clearly, utilizing teams to leverage different areas of clinical expertise is necessary. Although these large teams are good at solving problems, the larger the team, the more likely communication failures can occur, increasing the aggregate risk of medical errors [61–63]. Smaller teams, on the other hand, have been shown to be more disruptive and innovative and will be more likely to identify new problems for the larger team to solve [64]. Across all aspects of patient care, limiting team size can reduce some of the less savory aspects of a team approach like conformity bias and social loafing [65]. Ultimately, it is important to select the most optimal team for the job [66] and limit team size when high-impact communication and innovation are critical. Larger teams can then be layered over the smaller teams to use the “wisdom of crowds” and improve decision making [65]. Regardless of team size, it is important to continue to study the different team-based approaches to determine whether we are succeeding in improving patient/system outcomes.

9. Conclusions

Modern healthcare is firmly set on its quest toward better, safer, more efficient, high quality patient care delivery. A critical part of this decades-long transition is the gradual realization that teamwork, based on multidisciplinary, data-driven, evidence-based, patient-centric approaches, is now ‘the way to go’ and much more than a ‘good to have’ luxury. This book is dedicated to the exploration of concepts critical to our better understanding of the dynamically evolving area of team-based healthcare.

IntechOpen

Author details

Nicholas Taylor¹, Israel Zighelboim¹, Farhad Sholevar², Stanislaw P. Stawicki³
and Michael S. Firstenberg^{4*}

¹ Department of Obstetrics and Gynecology, St. Luke's University Health Network,
Bethlehem, Pennsylvania, USA

² Department of Psychiatry, St. Luke's University Health Network,
Bethlehem, Pennsylvania, USA

³ Department of Research and Innovation, St. Luke's University Health Network,
Bethlehem, Pennsylvania, USA

⁴ William Novick Cardiac Alliance, Memphis, TN, USA

*Address all correspondence to: msfirst@gmail.com

IntechOpen

© 2021 The Author(s). Licensee IntechOpen. This chapter is distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/3.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. 

References

- [1] Baker, D.P., R. Day, and E. Salas, *Teamwork as an essential component of high-reliability organizations*. Health services research, 2006. **41**(4p2): p. 1576-1598.
- [2] Rosen, M.A., et al., *Teamwork in healthcare: Key discoveries enabling safer, high-quality care*. American Psychologist, 2018. **73**(4): p. 433.
- [3] Tidd, J. and J.R. Bessant, *Managing innovation: integrating technological, market and organizational change*. 2018: John Wiley & Sons.
- [4] Kellermann, A.L. and S.S. Jones, *What it will take to achieve the as-yet-unfulfilled promises of health information technology*. Health affairs, 2013. **32**(1): p. 63-68.
- [5] Pype, P., et al., *Healthcare teams as complex adaptive systems: understanding team behaviour through team members' perception of interpersonal interaction*. BMC health services research, 2018. **18**(1): p. 570.
- [6] Stawicki, S., *Fundamentals of patient safety in medicine and surgery*. 2015: Wolters kluwer india Pvt Ltd.
- [7] Tolentino, J.C., et al., *Introductory chapter: Developing patient safety champions*. Vignettes in Patient Safety, 2018. **2**: p. 1-23.
- [8] Stawicki, S.P. and M.S. Firstenberg, *Introductory chapter: The decades long quest continues toward better, safer healthcare systems*. Vignettes in Patient Safety, 2017. **1**: p. 1.
- [9] Portner, M., et al., *Learning from others: Examples from air transportation and industrial realms*. Stawicki S et al. Fundamentals of Patient Safety in Medicine and Surgery. New Delhi: Wolters Kluwer Health (India) Pvt Ltd, 2014.
- [10] Saeed, M., et al., *Fact versus conjecture: Exploring levels of evidence in the context of patient safety and care quality*, in *Vignettes in Patient Safety-Volume 3*. 2018, IntechOpen.
- [11] Gracias, V.H., et al., *Critical care nurse practitioners improve compliance with clinical practice guidelines in "semiclosed" surgical intensive care unit*. Journal of Nursing Care Quality, 2008. **23**(4): p. 338-344.
- [12] Makadok, R., *Doing the right thing and knowing the right thing to do: Why the whole is greater than the sum of the parts*. Strategic Management Journal, 2003. **24**(10): p. 1043-1055.
- [13] Salas, E. and M.A. Rosen, *Building high reliability teams: progress and some reflections on teamwork training*. BMJ quality & safety, 2013. **22**(5): p. 369-373.
- [14] Green, A., S.P. Stawicki, and M.S. Firstenberg, *Introductory Chapter: Medical Error and Associated Harm-The Critical Role of Team Communication and Coordination*, in *Vignettes in Patient Safety-Volume 3*. 2018, IntechOpen.
- [15] Brathwaite, S., et al., *Teaching Characteristics and Fostering for Patient Leadership Safety*. Fundamentals of Patient Safety in Medicine and Surgery, 2015: p. 153.
- [16] Thomas, E.J., *Improving teamwork in healthcare: current approaches and the path forward*. BMJ quality & safety, 2011. **20**(8): p. 647-650.
- [17] Wilson, K.A., et al., *Promoting health care safety through training high reliability teams*. BMJ quality & safety, 2005. **14**(4): p. 303-309.
- [18] Papadimos, T.J. and S.P. Stawicki, *Chapter 32: Role of Prospective Approaches in Patient Safety and Patient Safety Research*. Fundamentals

of Patient Safety in Medicine and Surgery, 2015: p. 309.

[19] Mitchell, P., et al., *Core principles & values of effective team-based health care*. NAM Perspectives, 2012.

[20] Latchana, N., J.R. Peck, and S.P. Stawicki, *How and Why Things Go Wrong: The Art of Unbiased Understanding*. Fundamentals of Patient Safety in Medicine and Surgery, 2015: p. 77.

[21] Boon, H., et al., *From parallel practice to integrative health care: a conceptual framework*. BMC health services research, 2004. **4**(1): p. 15.

[22] Erickson, S.M., et al., *Envisioning a Better US Health Care System for All: Health Care Delivery and Payment System Reforms*. Annals of internal medicine, 2020. **172**(2_Supplement): p. S33-S49.

[23] Ochoa, J.G.D. and F. Weil, *From personalization to patient centered systems toxicology and pharmacology*. Computational Toxicology, 2019. **11**: p. 14-22.

[24] Stawicki, S. and A. Gerlach, *Polypharmacy and medication errors: Stop, listen, look, and analyze*. Opus, 2009. **12**: p. 6-10.

[25] Smith, E., et al., *Surgical safety checklist: Productive, nondisruptive, and the "right thing to do"*. Journal of postgraduate medicine, 2015. **61**(3): p. 214.

[26] Stevens, K., *The impact of evidence-based practice in nursing and the next big ideas*. The Online Journal of Issues in Nursing, 2013. **18**(2).

[27] Bach, J.A., et al., *The right team at the right time—Multidisciplinary approach to multi-trauma patient with orthopedic injuries*. International journal of critical illness and injury science, 2017. **7**(1): p. 32.

[28] Smith, C.D., et al., *Implementing optimal team-based care to reduce clinician burnout*. NAM Perspectives, 2018.

[29] Linzer, M., et al., *A cluster randomized trial of interventions to improve work conditions and clinician burnout in primary care: results from the Healthy Work Place (HWP) study*. Journal of general internal medicine, 2015. **30**(8): p. 1105-1111.

[30] Weight, C.J., et al. *Physical activity, quality of life, and burnout among physician trainees: the effect of a team-based, incentivized exercise program*. in *Mayo Clinic Proceedings*. 2013. Elsevier.

[31] Ensor, K., M. Swaroop, and L. Tatebe, *Dealing with disruptive team members: Correcting "bad behaviors" while avoiding disruptions*, in *Fundamentals of Leadership for Healthcare Professionals*. 2018, Nova Science Publishers, Inc. p. 183-199.

[32] Tatebe, L. and M. Swaroop, *Disruptive physicians: How behavior can undermine patient safety*. Vignettes in Patient Safety, 2018. **2**: p. 273.

[33] Edmondson, A.C., *The kinds of teams health care needs*. Harv Bus Rev, 2015. **93**(12): p. 2-5.

[34] Edmondson, A.C., *The fearless organization: Creating psychological safety in the workplace for learning, innovation, and growth*. 2018: John Wiley & Sons.

[35] Papadimos, T.J., et al., *The importance of emotional intelligence to leadership in an academic health center*. International Journal of Academic Medicine, 2016. **2**(1): p. 57.

[36] Marcks, V., K. Hayes, and S.P. Stawicki, *Operating room trauma simulation: The St. Luke's University Health Network experience*. International Journal of Critical Illness and Injury Science, 2020. **10**(1): p. 4.

- [37] Gale, J., S.P. Stawicki, and M. Swaroop, *Patient-Centered Transformation: Case Clinical Examples*. Fundamentals of Patient Safety in Medicine and Surgery, 2015: p. 142.
- [38] Papadimos, T.J., E. Gafford, and S.P. Stawicki, *Empowering Engagement, Patients and Families: Candor, and Disclosure*. Fundamentals of Patient Safety in Medicine and Surgery, 2015: p. 205.
- [39] Gillenwater, T. and L.M. King, *Lessons Healthcare Learned Systems from Best-Performing*. Fundamentals of Patient Safety in Medicine and Surgery, 2015: p. 275.
- [40] Heerwagen, J.H., et al., *Collaborative knowledge work environments*. Building research & information, 2004. **32**(6): p. 510-528.
- [41] Mintzberg, H., et al., *Some surprising things about collaboration-knowing how people connect makes it work better*. Organizational dynamics, 1996. **25**(1): p. 60-72.
- [42] Grigsby, R., *Committee, task force, team: what's the difference? Why does it matter?* Academic Physician & Scientist, 2008: p. 4-5.
- [43] Roach, D. *What Is The Difference Between a Committee and a Team*. 2020 [November 30, 2020]; Available from: <https://likeateam.com/what-is-the-difference-between-a-committee-and-a-team/>.
- [44] Kaur, P. and J.C. Stoltzfuz, *All about governing structures and committees: Collective decision making in healthcare*, in *Fundamentals of Leadership for Healthcare Professionals*, S.P. Stawicki and M.S. Firstenberg, Editors. 2018, Nova Science Publishers: Hauppauge, NY. p. 241-260.
- [45] Katzenbach, J.R. and D.K. Smith, *The wisdom of teams: Creating the high-performance organization*. 2015: Harvard Business Review Press.
- [46] Sah, R.K. and J.E. Stiglitz, *Committees, hierarchies and polyarchies*. The Economic Journal, 1988. **98**(391): p. 451-470.
- [47] Gerling, K., et al., *Information acquisition and decision making in committees: A survey*. European Journal of Political Economy, 2005. **21**(3): p. 563-597.
- [48] Gibson, L.H. and P. Komlos-Hrobsky, *The Task Force as a Teaching Mechanism*. Clearinghouse Rev., 1984. **18**: p. 203.
- [49] Falk, S., *Making citizen task forces work*. Public Management, 1993. **75**: p. 15-15.
- [50] Neck, C.P. and C.C. Manz, *From groupthink to teamthink: Toward the creation of constructive thought patterns in self-managing work teams*. Human relations, 1994. **47**(8): p. 929-952.
- [51] Janis, I.L., *Groupthink*. Psychology today, 1971. **5**(6): p. 43-46.
- [52] Brookfield, S.D., *Teaching for critical thinking: Tools and techniques to help students question their assumptions*. 2011: John Wiley & Sons.
- [53] Bowditch, J.L., A.F. Buono, and M.M. Stewart, *A primer on organizational behavior*. 2007: John Wiley & Sons.
- [54] Foley, M., *Political leadership: Themes, contexts, and critiques*. 2013: Oxford University Press.
- [55] Stawicki, S.P., N. Martins, and M.S. Firstenberg, *Leadership: What it is and what it isn't*, in *Fundamentals of Leadership for Healthcare Professionals - Volume 1*, S.P. Stawicki and M.S. Firstenberg, Editors. 2018, Nova Science Publishers: Hauppauge, NY.

[56] Tang, D., et al., *Leadership in healthcare: From theory to practical application*, in *Fundamentals of Leadership for Healthcare Professionals*, S.P. Stawicki, M.S. Firstenberg, and T.J. Papadimos, Editors. 2019, Nova Science Publishers: Hauppauge, NY.

[57] Hargie, O., *Skilled interpersonal communication: Research, theory and practice*. 2010: Routledge.

[58] Hackman, J.R., *Collaborative intelligence: Using teams to solve hard problems*. 2011: Berrett-Koehler Publishers.

[59] Petrovich, M.V., *The Improvement Hierarchy*. Retrieved July, 2006. 5.

[60] Lehman, P. *St. Luke's honors patients, first responders at 'Night of Heroes' event*. 2019 [December 12, 2020]; Available from: <https://www.mcall.com/news/breaking/mc-nws-st-lukes-hospital-night-of-heroes-20190922-wg3xgru5i5h6zaqimfohimud4m-story.html>.

[61] Stawicki, S.P., et al., *Retained surgical items: a problem yet to be solved*. *Journal of the American College of Surgeons*, 2013. **216**(1): p. 15-22.

[62] Moffatt-Bruce, S.D., et al., *Risk factors for retained surgical items: a meta-analysis and proposed risk stratification system*. *Journal of Surgical Research*, 2014. **190**(2): p. 429-436.

[63] Stawicki, S.P., et al., *Natural history of retained surgical items supports the need for team training, early recognition, and prompt retrieval*. *The American Journal of Surgery*, 2014. **208**(1): p. 65-72.

[64] Wu, L., D. Wang, and J.A. Evans, *Large teams develop and small teams disrupt science and technology*. *Nature*, 2019. **566**(7744): p. 378-382.

[65] Kaba, A., et al., *Are we at risk of groupthink in our approach to teamwork*

interventions in health care? *Medical education*, 2016. **50**(4): p. 400-408.

[66] Mao, A.T. and A.W. Woolley, *Teamwork in health care: maximizing collective intelligence via inclusive collaboration and open communication*. *AMA journal of ethics*, 2016. **18**(9): p. 933-940.