



Interprofessional Academic Health Center Leadership Development: The Case of the University of Alabama at Birmingham's Healthcare Leadership Academy



Grant T. Savage, PhD, MA ^{a,*}, W. Jack Duncan, PhD, MBA ^b, Kathy L. Knowles ^c, Kathleen Nelson, PhD, BS ^d, David A. Rogers, MD, MHPE ^e, Karen N. Kennedy, PhD, MBA ^f

^a MISQ Department, School of Business, University of Alabama at Birmingham, Birmingham, AL, 35294-4460, USA

^b Health Care Organization and Policy Department, School of Public Health, University of Alabama at Birmingham, Birmingham, AL, 35294-0022, USA

^c Office of Faculty Development, School of Medicine, University of Alabama at Birmingham, Birmingham, AL, 35294-3412, USA

^d Department of Pediatrics, Keck School of Medicine, University of Southern California, Los Angeles, CA, 90027, USA

^e Department of Surgery and Office of Faculty Development, School of Medicine, University of Alabama at Birmingham, Birmingham, AL, 35294-3412, USA

^f MIDE Department, School of Business, University of Alabama at Birmingham, Birmingham, AL, 35294-4460, USA

ARTICLE INFO

Article history:

Received 22 May 2013

Accepted 13 July 2013

Keywords:

Interprofessional training

Leadership

Networks

Organizational development

ABSTRACT

Aim: The study describes the genesis of the University of Alabama at Birmingham's Healthcare Leadership Academy (HLA), highlights the HLA's outcomes, discloses how the HLA has changed, and delineates future directions for academic health center (AHC) interprofessional leadership training.

Background: While interprofessional training is recognized as an important component of the professional education for health professionals, AHCs have not focused on interprofessional leadership training to prepare future AHC leaders. As professional bureaucracies, AHCs require leadership distributed across different professions; these leaders not only should be technical experts, but also skilled at interprofessional teamwork and collaborative governance.

Methods: The HLA is examined using the case method, which is supplemented with a descriptive analysis of program evaluation data and outcomes.

Results: The HLA has created a networked community of AHC leaders; the HLA's interprofessional team projects foster innovative problem solving.

Conclusions: Interprofessional leadership training expands individuals' networks and has multiple organizational benefits.

© 2014 Elsevier Inc. All rights reserved.

On one hand, there is widespread recognition that health care often occurs through interprofessional teams and that health care professionals must be trained to work collaboratively in teams to achieve optimal patient outcomes (Interprofessional Education Collaborative Expert Panel, 2011). Dedicated interprofessional team-based training programs are proliferating, with increasing attention to the role that interprofessional training may play in preparing health care students to work and lead these types of teams (Clifton, Dale, & Bradshaw, 2007; Price et al., 2009; Thistlethwaite & Moron, 2010; Zorek & Raehl, 2012).

On the other hand, there is growing recognition that the complexity of scientific issues require that biomedical researchers abandon the model that supports and celebrates the successful individual and substitute a model that encourages collaborative research (Bindler, Richardson, Dratha, & Wordell, 2012; Kimberly,

2011). Such collaborative research requires effective interprofessional, interdisciplinary, and, increasingly, transdisciplinary teams (Stokols et al., 2003). Moreover, leadership of these interprofessional and transdisciplinary research teams has been identified as a key element for their success (Stokols, Misra, Moser, Hall, & Taylor, 2008).

Ironically, many of the efforts to draw attention to the need for effective teamwork come from academic health centers (AHCs). As institutions that train health professionals, engage in biomedical research, and provide primary to quaternary health services, AHCs include a range of professional schools that, until recently, have paid little attention to preparing their own faculty and administrators for work in interprofessional teams. Indeed, only a few institutions have considered the need for preparing leaders to work in interprofessional teams that span an AHC.

Traditionally, AHCs have been characterized as professional bureaucracies (Mintzberg, 1983) that rely on a diverse set of healthcare professionals with considerable autonomy in executing their jobs in relatively independent organizational units. More accurately, AHCs comprise loosely coupled systems (Weick & Sutcliffe,

* Corresponding author. MISQ Department, University of Alabama at Birmingham, Birmingham, AL 35294-4460, USA.

E-mail address: gsavage@uab.edu (G.T. Savage).

2011; Feldman, 2010; Orton & Weick, 1990) where actions in one part of the system can have little effect on other parts of the system, or the same actions may unpredictably trigger greatly exaggerated consequences. In these types of organizations, leadership must be distributed; ideally it should be shared across different professions (Carson, Tesluk, & Marrone, 2007). Having technical experts share leadership requires not only good teamwork (Edmondson, 2003; Schulte, Cohen, & Klein, 2012) but also a model of collaborative governance and networked leadership (Barsade et al., Forthcoming). Hence, AHC leaders who are able to collaborate and work effectively in interprofessional teams will be best prepared to meet the daunting challenges facing AHCs (Feldman, 2010; Kohn, 2004).

The senior leaders of the UAB School of Medicine recognized the need to train emerging AHC leaders. They approached the school of business and proposed a partnership to create a leadership development program for emerging health care leaders in the university. The initial model that motivated this program was the Woodruff Leadership Academy at Emory University (Korschun, Redding, Teal, & Johns, 2007). The overarching goal of the UAB Health Leadership Academy (HLA) was to develop essential skills for leaders in the 21st century academic medical center (Aaron, 2001). The HLA was purposely designed to include faculty and staff leaders in the clinical and research enterprise and extended to all of those UAB Schools involved in health care. The purpose of this case study is to describe the genesis of the HLA, to highlight some of the outcomes associated with the program, to indicate how it has changed since its inception, and to delineate future directions for AHC interprofessional leadership training programs.

1. Case study: healthcare leadership academy

1.1. Genesis

Established in 2009, the healthcare leadership academy (HLA) at the University of Alabama at Birmingham (UAB) is a certificate granting, formal training program co-sponsored by the school of medicine and the school of business. Facing declining resources and limited funding, the senior associate dean of faculty development in the medical school was asked to explore ways to initiate a leadership academy. In the early spring 2008, the dean of the business school identified a potential funding source for the joint program, and a prominent business leader contributed the funds needed for the start-up of the UAB Healthcare Leadership Academy (HLA).

Co-directors from the medical and business schools were named, and a retired business faculty member with experience in leadership development was retained to assist in the initial start-up of the leadership academy. To begin the curriculum planning, senior leaders in the school of medicine were asked to identify 10 individuals within the academic medical center that currently held positions similar to the ones future graduates of the leadership academy would be expected to fill. Each of these individuals were interviewed and asked, among other things, what types of things they wished they had known before being appointed to their positions. The results were then tabulated, recycled to the interviewees to check for accuracy, and used to develop the initial curriculum of the leadership academy. In addition, curricula from other AHC-sponsored leadership programs were reviewed and an advisory committee of institutional leaders was recruited to review the final curriculum. Based on these results, the four major programmatic goals of HLA were to

1. teach participants about the history and operations of the health system and AHCs;
2. enhance and develop the leadership abilities of the participants;
3. facilitate the development of strategic thinking skills, focusing on opportunities and challenges facing AHCs; and

4. activate participants' evaluation of their own individual aspirations, strengths, weaknesses, and commitment to leadership.

In part, this is and has been accomplished by providing present and future leaders with a broad understanding of their own characteristics and their responsibilities as leaders, a new perspective on the critical leadership and managerial issues they face, and a deeper understanding and awareness of concepts and techniques relevant to management.

Selection of the faculty for the inaugural class was based on the following criteria:

1. An equal emphasis on academic foundations and practical applications of each topic discussed in the academy.
2. Where possible, preference would be given to staffing the leadership academy with the faculty from across the entire university community. Where expertise did not exist locally, efforts would be made to recruit the needed faculty from universities, professional associations, and other agencies across the nation.
3. To ensure that practical applications were a part of each session, administrators and other personnel throughout the UAB community were invited to carefully coordinate with their academic counterparts and apply the academic foundations to the actual operations at UAB.

All prospective instructional personnel were interviewed and presented with a formal list of expectations for faculty participating in the leadership academy.

1.2. Current program and purpose

The HLA is designed for 24 participants at the mid- or early senior faculty and administrative levels who hold or will assume significant administrative responsibility within the academic medical center/health system. Selection is considered an honor, and faculty and staff members are excused from their usual duties during the meeting times of the didactic program. Eligible candidates include individuals who hold or will assume significant administrative responsibility in the schools of medicine, dentistry, nursing, optometry, health professions and public health, as well as the UAB Health System, the Kirklin Clinic, university hospital, and the faculty practice plan. Nominations are sought from the deans of each of the health profession schools; department chairs and center directors of joint health sciences in the school of medicine, including branch campuses; and administrative leaders from across the health system. Participants are reviewed and selected by an advisory board, with careful consideration given to ensure overall diversity. There is no tuition, but the supervisors must find alternative faculty and staff to cover for the HLA participants during their program-related absences.

The curriculum consists of an opening weekend retreat (1.5 days) followed by 6, day long sessions held at an off-campus retreat facility. There are approximately 80 hours of classroom sessions that occur during these seven sessions. The themes for the 6 day-long monthly sessions are (1) know yourself and teamwork; (2) building on a vision; (3) leadership and strategic planning; (4) academic medical center finance and operations; (5) communication and negotiation; and (6) leadership perspectives and skills. Participants must also complete a group project over the course of the program, and present their project reports a month after their final didactic session.

The twenty-four participants are divided into four teams that serve as their project groups. Nominations for team projects are elicited from AHC leadership and program alumni. Participants are also asked to suggest project ideas that are relevant to their own work units and teams. The HLA co-directors and program coordinator make the final decision regarding projects guided by the following criteria: (1) accomplishable in allotted time period (~6 months); (2) importance

Table 1
Session Evaluations by Year (2009–2013).

	2009	2010	2011	2012	2013	Avg.
Session 1: Know yourself & teamwork	N/A	1.7	2.29	2.33	1.74	2.0
Session 2: Building on a vision	1.45	1.35	1.86	1.95	2.13	1.7
Session 3: Leadership & strategic planning	1.44	2.3	1.82	2.33	2.17	2.0
Session 4: AMC Finance and operations	1.89	1.55	1.89	1.78	1.65	1.8
Session 5: Communication & negotiation	1.74	1.53	2	2.19	2.08	1.9
Session 6: Leadership perspectives & skills	1.96	2	2	1.85	1.88	1.9

and utility to the AHC; and (3) generalizable to the larger organization. The projects should lead to specific and actionable recommendations that can be used by AHC decision makers. Mentors and advisors for the group projects may be recruited by the team members or assigned by the HLA co-directors.

The final session for each cohort consists of a half-day celebration/graduation ceremony. This session is comprised of formal presentations of the projects to an audience including leaders of the UAB Health System, supervisors of individual participants, board of advisors members, invited guests, and other interested parties throughout the UAB. In addition a featured speaker who has made contributions to health care typically is invited to speak to the group. These speakers have included internationally known health care scholars from other institutions, consultants, and high ranking executives in professional associations.

2. Results

From 2009 through 2013, 120 faculty members and non-faculty administrators have participated in the HLA.

2.1. Participants

Of the 120 participants, only 2 faculty members were unable to complete the program due to unexpected and conflicting time commitments. The program graduates include 52 female members (43%) and 68 male members (57%), with representation from all six health profession schools, including medicine, nursing, dentistry, optometry, public health, and health professions, as well as administrators from the UAB Health System, University Hospital, the Kirklin Clinic, and the faculty practice plan. Among the HLA graduates, 65% hold faculty positions, with the remaining 35% performing non-faculty administrative roles. The faculty group consists of 28 professors, 36 associate professors, and 14 assistant professors, all with documented leadership responsibilities.

2.2. Program evaluations

Participants evaluate each individual session, assessing the usefulness of the curriculum; they also complete an overall evaluation of the program to ensure that its goals and objectives are being met and to assist in identifying opportunities for improvement. The survey is based on a Likert scale, with 1 being the highest ranking (outstanding) to 6 being the lowest (poor). The HLA opening weekend retreat is one of the highest ranked sessions of the program, with 92% of all participants evaluating it as outstanding or excellent (80% response rate). Some comments from the graduates about the opening retreat include the following:

This was a life changing experience for me. I felt that I started out with a group of strangers, but left with a group of new friends. The Opening Retreat was an absolutely amazing experience. I already feel the tight-knit nature of the group and the belief that we will all learn from one another and help one another. Provided excellent team building experiences while allowing us to learn about fellow participants in the program.

As illustrated in Table 1, the 6, day long didactic and experiential learning sessions have also received consistently high ratings from the participants.

The participants also evaluate the degree to which the HLA meets its programmatic goals; these results are shown in Table 2.

The following comments from graduates about the overall HLA experience highlight networking, interprofessional teamwork, and leadership development:

Clearly, the networking aspect of the HLA program is its crown jewel. I have professional relationships now that I trust will stand the test of time, as well as some pretty cool new friends. The UAB HLA program provided me with the opportunity to gain a system wide perspective and understanding of the complexities of an academic health care center and, for that matter, large health care systems in general. Specifically, we all developed a deep appreciation for the fact that delivering quality patient care requires the efforts of many talented individuals serving in diverse roles. Without a doubt, my HLA experience was invaluable in preparing me for a system-level leadership role. The HLA program afforded me the ability to learn more about myself and how my preferences affect my ability to lead. The opportunity to develop relationships from across the academic health center and the insights gained into the complexities of the UAB Health System and Academic Health Center can only aid me in my desire to be an effective leader within our institution. I joined the UAB Health System as a newcomer to health care having spent the last 24 years with a publicly traded publishing company. This program provided me with a good background in the complexities of health care and academic medical centers and allowed me to meet and work with an exceptional group of people. It would have taken me years to get to know some of the people in the class. I wouldn't give anything for my HLA experience, especially the opportunity to work with my group on our project.

2.3. Team projects

Team projects have covered a wide spectrum, from exploring alternative funding models for GME and CME, to a review of core laboratories for improving utilization, establishing a primary care scholars program, and developing interdisciplinary/interprofessional education and clinical training opportunities across health disciplines. See Table 3 for a complete listing of projects.

The projects with asterisks after the titles have directly influenced policies and practices at the UAB academic health center. Indeed, these projects have been a source of innovation and problem solving for the AHC. For example, the 2009 and 2010 projects on interdisciplinary or interprofessional education led to the creation of the Interprofessional Simulation Center for Innovative Clinical Practice.

Table 2
Summary Goal Attainment Evaluations (2009–2013).

Programmatic Goals	Summary Ratings
Understanding the history and operations of AHCs	1.6
Enhancing and expanding leadership abilities and managerial skills	2.0
Facilitating development of strategic thinking skills, focusing on opportunities and challenges facing academic medical centers	1.9
Examining individual aspirations, strengths, weaknesses, and commitment to leadership	1.9
Recognizing similarities and differences between participants	1.7
Understanding common challenges and frustrations	1.7
Building a community	1.6
Recognizing personal strengths and weaknesses	1.8
Developing relationships through personal interaction	1.5

Table 3
Team Projects (2009–2013).

Year	Project title
2013	<ul style="list-style-type: none"> • Best practices for electronic health record adoption • Faculty mentoring • Faculty satisfaction and retention • Sepsis safety net
2012	<ul style="list-style-type: none"> • Digital medicine: promise and pitfalls • Evaluation of Sutter Health's advanced illness management program* • Primary care scholars program* • Researchers toolkit/survey*
2011	<ul style="list-style-type: none"> • Coordination/Consolidation of expenses/services within UAB Medicine* • Improving faculty satisfaction and engagement* • Investigating the healthcare and cost effectiveness of individualized and incentivized care for patients/UAB employees with Viva Health Insurance • Managing faculty productivity after tenure
2010	<ul style="list-style-type: none"> • Competition: Models of partnership in health care • Incentives for success in the academic health center • Interdisciplinary/Interprofessional education* • Patient/Family centered care at UAB
2009	<ul style="list-style-type: none"> • Benchmarking and gap analysis of current patient satisfaction scores; identify focus areas and action plans to improve scores • Develop alternative models for funding graduate medical education and for continuing education when CMS and vendor/pharma support may not be available • Developing interdisciplinary or interprofessional education and clinical training opportunities across the health disciplines* • Development of care model within the UAB health system for patients with sickle cell disease • Review of core laboratories to improve utilization • "Why UAB?" – Assessing where we are now and how we compare to others

The 2011 project to improve faculty satisfaction and engagement was instrumental in the implementation of UAB Errand Solutions, a physician concierge service. And the 2011 project on consolidating expenses within UAB Medicine resulted in recommendations for specific, targeted energy conservation measures, many of which have been adopted. Many of the projects from 2012 have had a direct impact, including the project on primary care scholars which provided recommendations for the dean's primary care scholars program in the medical school and the project on the researcher's toolkit which provided guidance for the researcher's toolkit maintained by the UAB Office of Sponsored Programs. Lastly, the 2012 project on advanced illness management led to a competitive grant submission.

Moreover, as the following comments underscore, the team projects foster team-building skills, while also encouraging future interprofessional collaborations:

The broad overview of the class was to develop and foster leadership skills in the upcoming leaders of the academic center. It exposed us to different team building skills, taught us to rely upon our colleagues and team members, and recognize the different strengths in our teams. The small group projects allowed a networking with people from across campus who are the up-and-coming leaders; and that in itself, was invaluable for my personal interest in developing a cardiovascular research program across campus.

2.4. Participant promotions

Table 4 lists the titles of the positions for those HLA participants that have been promoted within and outside of UAB. Of the 120 participants in HLA since 2009, 32 participants have been promoted subsequent to their HLA experience. In other words, over 25% of those participating in HLA have received promotions. As noted in Table 4, 25 HLA participants accepted promotions within UAB, while seven HLA participants accepted promotions outside of UAB.

3. Conclusions and implications

As the program evaluation, team project, and participant promotion data highlight, the HLA has been successful in developing a networked community of leaders for the AHC, while also serving as a source for innovative problem solving. These outcomes, however, did not accumulate without constant attention to program improvement. In the following sections we discuss key changes to the HLA, future plans, and implications for interprofessional leadership training.

3.1. Key changes to the HLA

Since its inception, several changes have been made to the HLA based primarily on feedback from participants. One of the first changes, implemented with the second cohort of participants, was to reduce the number of team projects from six (each with four members) to four (each with six members). Feedback from the participants and the uneven level of execution on the projects suggested that it would be better to focus on fewer projects with more members in order to distribute the workload and accomplish more with each project. Some other changes to the team project have focused on better connecting the project teams to AHC sponsors and HLA co-directors soliciting expert advice from faculty and staff consultants as needed.

A structural change, introduced with the third cohort, was to modify the schedule to correlate with the academic calendar, eliminating the summer break that punctuated the end of the didactic sessions (May) and the final project presentations and graduation session (September). In part, this change was precipitated by concerns voiced by participants about the quality of the team projects and the difficulties of coordinating schedules and meetings to finish the team project during the summer break. The current schedule, which has been favorably received by participants, begins in October with the last didactic session in April, with final project presentations and graduation in May. Significantly, and concurrent with the change in the schedule, more time is devoted per didactic session to project work (currently 2 hours per session is set aside for team work).

Another early change, which also occurred with the second cohort, was to replace the Myers Briggs Type Indicator/360 Evaluation, with

Table 4
Participant Promotions Within and Outside UAB (2009–2013).

Location	Position title
UAB	<ul style="list-style-type: none"> • Administrative Director, bone marrow transplant and cell therapy • Assistant vice president for animal research services • Associate chief of staff • Associate dean for graduate clinical programs, school of nursing • Associate dean for health information and business systems • Chair, department of radiology • Chief administrative officer • Chief operating officer • Chief of staff, pediatric surgery • Corporate compliance coordinator • Director, animal resources program • Director, division of clinical pharmacology • Director, division of maternal and fetal medicine • Director, division of pediatric pulmonary medicine • Director, division of pediatric surgery • Director, geriatric medicine section, division of gerontology, geriatrics and palliative care • Division administrator, division of pulmonary, allergy and critical care • Executive administrator, department of anesthesiology • Manager, electronic research administration
Outside UAB	<ul style="list-style-type: none"> • Chairman and professor of biochemistry • Clinical director, pediatric irritable bowel disease center • Director and endowed chair, cystic fibrosis translational research • Distinguished professor for clinical translational research in aging • Private practice (family medicine) • Vice president of pulmonary and critical care services

an Emergenetics® profile. Many of the participants had already been exposed to the MBTI, and perceived less benefit from it than they have subsequently from the Emergenetics® profile. There are seven basic sets of attributes described by this profile: four ways of thinking and three ways of behaving. The four thinking attributes are analytical, structural, social, and conceptual preferences. The three behavioral attributes are expressiveness, assertiveness, and flexibility. These profiles have been helpful in assembling project teams, and each cohort has adopted the terms from Emergenetics® to recognize both similarities and differences among their members.

Most recently, what had been elective skills sessions on philanthropy and media relations, are now incorporated into the primary curriculum. This change for the fifth cohort occurred since fewer than half of the HLA participants were taking advantage of the skills sessions as electives. At the same time, those engaged in the sessions were rating them positively, while those that did not participate typically voiced regrets for not doing so when surveyed after graduation.

3.2. Future plans

The HLA currently extends across eight months, and requires participants and their sponsors to commit about 80 hours of compensated time to complete the program. While the experience is generally recognized – at least by past participants – as an excellent way to establish interprofessional network leadership, the time commitment across so many months limits the number of participants and constrains the program to one offering per year. A possible avenue for expanding the accessibility of the HLA would be to make it more intensive, offering it as a 1-week program. The downside to this approach would be that the team projects would have to be carefully selected and crafted for this compressed time frame. This reduced time may, however, be inadequate for ideation-focused projects for fostering innovation within the AHC. Another concern about a compressed immersive program is that it may not allow time for the formation of the rich interpersonal relationships so valued by past participants.

With success complacency often follows. However, HLA graduates have repeatedly discussed ways to have further opportunities to challenge themselves and to grow as a network of leaders. Developing meaningful ways to do so is certainly under consideration. The challenges include determining program content, duration, and mode. Given that past participants wish to remain connected to each other and to other cohorts, developing a speaker series on leadership, which attracts a wide audience, is one possibility. Another possibility is to develop short (1/2 day) experiential sessions around specific leadership skills, allowing individuals to improve their skills, while also renewing and forging new relationships. A clear caveat for these and other plans is the need to have a sustainable business model for supporting such training initiatives.

3.3. Implications for interprofessional leadership training

Through team building experiential exercises and targeted discussions, the opening retreat serves as a critical element in introducing the participants to one another, cultivating relationships, and setting the stage for the goals of the HLA program. In fact, we have learned that the opening retreat is essential to gain the full engagement of the participants and, therefore, nominees are not considered if they are unable to attend this vital component of the program.

In examining the top ranked aspects of the program, it comes as no surprise that building a community and developing relationships through personal interaction received the highest rankings. Not only are these two of the greatest benefits for the participants, but they also

play a crucial role in developing successful interprofessional interactions and training.

The team projects also are an essential for interprofessional collaboration. The HLA teams are carefully configured to have diverse members, with professional discipline, gender, and personality taken into consideration. Because the projects focus on solving problems of relevance to the AHC and the participants, they serve a dual purpose: (1) they help to legitimize the HLA to stakeholders within the AHC, and (2) they create a meaningful task for interprofessional interaction and help participants hone collaborative skills.

In closing, the goals of the HLA are well summarized by George Graen's (2013) call for developing network leadership skills:

The missing sets of skills for individuals who seek executive leadership are those that are needed to forge strategic alliances with those above, below, and across the hierarchy. These are the prerequisites. Guided leadership training should include: (a) opportunities to practice forging proper strategic alliances and avoiding false ones, (b) developing a program of action around which partners can be engaged, (c) organizing for change, (d) implementing the program developed, and (e) adapting as necessary (p. 373).

References

- Aaron, H. J. (Ed.). (2001). *The future of academic medical centers*. Washington, D.C.: The Brookings Institute.
- Barsade, S., Casciaro, T., Edmondson, A., Gibson, C., Krackhardt, D., & Labianca, J. (Forthcoming). Editors' introduction to the special issue on the psychology of organizational networks. *Organization Science*.
- Carson, J. B., Tesluk, P. E., & Marrone, J. A. (2007). Shared leadership in teams: An investigation of antecedent conditions and performance. *The Academy of Management Journal*, 50(5), 1217–1234.
- Clifton, M., Dale, C., & Bradshaw, C. (2007). *The impact and effectiveness of inter-professional education in primary care: An RCN literature review*. London: Royal College of Nursing.
- Edmondson, A. C. (2003). Speaking up in the operating room: How team leaders promote learning in interdisciplinary action teams. *Journal of Management Studies*, 40, 1419–1452.
- Feldman, A. M. (2010). *Pursuing excellence in health*. Boca Raton, FL: CRC Press.
- Graen, G. B. (2013). The "missing link" in managerial network dynamics. In M. G. Rumsey (Ed.), *The Oxford Handbook of Leadership* (pp. 359–375). Oxford: Oxford University Press.
- Interprofessional Education Collaborative Expert Panel. (2011). *Core competencies for interprofessional collaborative practice: Report of an expert panel*. Washington, D.C.: Interprofessional Education Collaborative.
- Kimberly, J. R. (2011). Preparing leaders in public health for success in a flatter, more distributed and collaborative world. *Public Health Reviews*, 33(1), 290–299.
- Kohn, L. T. (Ed.). (2004). *Academic health centers: Leading change in the 21st century*. Washington D.C.: Institute of Medicine, National Academic Press.
- Korschun, H. W., Redding, D., Teal, G. L., & Johns, M. M. E. (2007). Realizing the vision of leadership development in an academic health center: The Woodruff Leadership Academy. *Academic Medicine*, 82(3), 264–271.
- Mintzberg, H. (1983). *Structure in fives: Designing effective organizations*. Englewood, NJ: Prentice Hall.
- Orton, J. D., & Weick, K. E. (1990). Loosely coupled systems: A reconceptualization. *The Academy of Management Review*, 15(2), 203–233.
- Price, D., Howard, M., Hiltz, L., Dolovich, L., McCarthy, L., Walsh, A. E., et al. (2009). Interprofessional education in academic family medicine teaching units: A functional program and culture. *Canadian Family Physician*, 55, 901.e1–901.e5.
- Schulte, M., Cohen, N. A., & Klein, K. J. (2012). The coevolution of network ties and perceptions of psychological safety. *Organization Science*, 23(2), 564–581.
- Stokols, D., Fuqua, J., Gress, J., Harvey, R., Phillips, K., Baezconde-Garbanati, L., et al. (2003). Evaluating transdisciplinary science. *Nicotine & Tobacco Research*, 5(Sup 1), S21–S39.
- Stokols, D., Misra, S., Moser, R. P., Hall, K. L., & Taylor, B. K. (2008). The ecology of team science: Understanding contextual influences on transdisciplinary collaboration. *American Journal of Preventive Medicine*, 35(25), S96–S115.
- Thistlethwaite, J., & Moron, M. (2010). Learning outcomes for interprofessional education (IPE): Literature review and synthesis. *Journal of Interprofessional Care*, 24(5), 503–513.
- Weick, K. E., & Sutcliffe, K. M. (2001). *Managing the unexpected: Assuring high performance in an age of complexity*. San Francisco: Jossey-Bass.
- Zorek, J., & Raehl, C. (2012). Interprofessional education accreditation standards in the USA: A comparative analysis. *Journal of Interprofessional Care*, 27(2), 123–130.