Strategic leadership: A study of strategic health leadership (SHELDR) practices among former US military Surgeons General

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Abstract This study identifies leader development gaps and strategic health leadership (SHELDR) competencies, explores how a cohort of strategic leaders applies those competencies and makes recommendations to improve development of future leaders. The literature identifies leader development gaps and applicable strategic leadership theories leading to development of the SHELDR Model. A qualitative case study determines which competencies are most applied (or not applied) by a cohort of former Military Health System Surgeons General (SGs). An expert panel compared and contrasted the SHELDR Model, interview results and recommended how to develop future SHELDRs. Transformation, complexity and collaborative leadership theories provide the foundation for the SHELDR Model. SGs selected develops leaders, develops and promotes vision, builds trust, challenges the status quo and actively listens as competencies applied most often. Systems approach, listening, critical thinking, communication and emotional health are identified as competencies to develop. The SGs and the expert panel generally agree on the competencies. Immersive learning, assignment to strategic-level projects,

critical thinking and role playing are common recommendations on development of future strategic leaders. To successfully transform complex health systems, SHELDRs need specific competencies — strategic-level leadership competencies. Aspiring and current health leaders will benefit from the insights on developing future leaders. Organisation leader development plans should use the SHELDR Model as a developmental and evaluation guide. Research on other cohorts and the SHELDR's interrelationship with the competencies and development of more strategic-minded leaders earlier rather than later with the right methods to support health system transformation and better outcomes is required.

KEYWORDS: strategic leadership, transformational leadership, complexity leadership, collaborative leadership, leader development, leadership competencies

INTRODUCTION

Challenge

Transforming health systems to create healthier populations is challenging. It requires competent leaders at all levels; yet, leadership is a major factor to failed initiatives or poor health outcomes. Development of future strategic-minded health leaders is imperative for successful transformation.[1,2] Insight gained from strategic health leaders is a means to improve leadership development and enhance transformation success; however, few publications on the studies of cohorts of senior health leaders exist. For example, publications such as *Management Lessons from the Mayo Clinic,*[3] Toby Cosgrove's *Cleveland Clinic Way*[4,5] and former Kaiser Permanente CEO George Halverson's *Healthcare Reform Now*[6] offer insight on transforming health systems but not on their leadership competencies or style, especially at the strategic level. As another example, transformation of the Veterans Health Administration (VHA) in the late 1990s is well known; however, little is known about the VHA's senior leadership skills, especially the skills under the VHA's top leader at the time, Dr Kizer.[7] In a more recent example, the leadership competencies of the late Bernard Tyson, CEO Kaiser Permanente, may never be known. With the exception of a few programmes, such as Cleveland Clinic's Global Education Program, formal health leader development programmes are rare. Lack of effective health leader development is caused by minimal involvement on the part of the leader, chronic use of industrial era leadership models, poorly defined competencies for developing strategic-minded leaders and lack of formal development programmes or methods with emphasis on strategic-level leadership in the current healthcare environment.[8–13]

Call for action

Identification of leader development gaps and significant strategic health leader competencies, insight from cohorts of strategic-level leaders and the competencies they applied or wish they applied (more of) during times of transformation and better methods to improve future leader development is imperative. The Military Health System (MHS) offers a strategic leader cohort: former Surgeons General (SGs). Study of these leaders offers an opportune cohort and underscores the lack of studies or publications for these cohorts. For example, a singular study, 'Leadership Success and the Uniformed Services University: Perspectives of Flag Officer Alumni',[14] demonstrated the value of capturing experiences from senior health leaders; however, follow-up studies have not

been completed. This study will provide (1) an in-depth review of needed strategic-level competencies, (2) of how former SGs applied or did not apply strategic leadership competencies and (3) a template for replication on studying similar cohorts.

PURPOSE

The purpose of the study was to identify leader development gaps and salient strategic health leadership (SHELDR) competencies, explore how a cohort of elite strategic leaders applied those competencies and recommend improvements on developing future leaders. Within health-care organisations, strategic leadership involves setting and working toward goals such as improving the health of populations served and the experience of care and reducing the per capita costs. It is about capitalising on opportunities in a dynamic environment, adapting processes to be patient centred, cost effective and reliable. For the study, strategic health leadership was defined as follows:

> *The ability to apply strategic thinking to seek and find opportunities in a turbulent environment, express an aspirational vision, develop strategies to inspire and influence others to translate vision and strategy into everyday practice and culture, and develop future strategic-minded leaders earlier, more often, and in the right quality using the right methods.*[15–22]

By using this definition and results of the most salient SHELDR competencies, health leaders and researchers can acquire more insight into why and how cohorts of strategic leaders applied them, did not apply them or wished they had developed earlier in their careers. Doing so drives better ways and means to develop future leaders. This study provided insight into how former SGs applied strategic leadership competencies. The study concluded with recommendations for developing future strategic-minded leaders earlier, more often and in larger numbers.

THREE-PHASED LITERATURE REVIEW

Phase 1

To build credibility with an elite group of leaders, Phase 1 relied on a comprehensive literature review and thematic analysis using the NVIVO qualitative software program to categorise leader performance and development gaps and leader development best practices.[23,24] For example, many senior leaders admit they struggle with transformation, complexity and continuous change. Many have even been derailed for various reasons too.[25–28] Several studies cited health leader development and performance gaps exist at higher levels of progression; yet, feedback became sparser once individuals progressed in their leadership roles. Some admitted they did not why they selected their direct reports.[29–32]

The thematic analysis consistently cited the root causes as a mismatch between 20th-century leadership theories, biased selection criteria (or none) and an inability to navigate complex, dynamic and ambiguous health system transformation settings.[33–37] Reports by the American College of Healthcare Executives,[38,39] the RAND Corporation study on MHS Leadership,[40] MHS work groups[41] and on reforming the Veterans Affairs[42] recommended integrating transformational leadership, complexity and collaborative leadership theories and competencies into strategic leader development programmes.

Phase 2

To support the case study methods and interview process, Phase 2 resulted in the development of the SHELDR Model and 17 competencies. Initially, the Bass Transformational Leadership Model (BTLM) appeared to be the foundation for evaluation and the study[43–45]; however, given the BTLM's disadvantage of being too focused on individual personality traits such as charisma and lack of competencies in solving complex problems across

organisation boundaries or embracing ambiguity,[46–49] further investigation was required. A thematic analysis using the NVIVO software program identified the most frequently cited competencies in 76 screened sources (i.e. peer-reviewed articles, reports and textbooks) with strategic, transformational, complexity or collaborative leadership in the title or abstracts. Two thousand forty-five references or specific words, phrases or word stems (i.e. ability to leader across organization boundaries) to competencies and contextual explanations were coded into 70 subcategories, aggregated into 17 general strategic leadership competency categories and given a themed title of the coded sub-competencies, resulting in the SHELDR Model.[50] The SHELDR Model is summarised in Table 1.[51–54]

Phase 3

To achieve acceptable confidence in the findings, Phase 3 consisted of a cross-check of 22 CEO or CEO-equivalent interviews in the *Journal of Healthcare Management* using a similar thematic approach and found similar competencies compared to the SHELDR Model. The same technique was used to analyse and aggregate similar competencies from the National Center for Healthcare Leadership,[55] Center for Creative Leadership[56–59] and a Federal Health Agency Work Group.[60–62] While not perfect, the SHELDR Model served as the study's evaluation framework — the case study method — and recommended leader development strategies.

METHODS

Group case study

By using the gaps from Phase 1 as the foundation, and production of the SHELDR Model in Phase 2 as the evaluation tool, the researcher evaluated how a cohort of strategic leaders applied the competencies. A qualitative group case study using an elite in-person interview method was applied using the NVIVO research software.[63–68] The SHELDR Model served as the evaluation framework. The sample size was determined to be at least 12, a minimum of 2 from each Service of the 24 living former SGs. Twelve expert panel members (EPMs) (ie former CEO, CEO, SVP, author or consultant equivalents with strategic leadership experience) were utilised to compare and contrast results using a similar interview instrument and make recommendations for leader development.

Choice of study population

MHS SGs faced challenges, constraints and opportunities similar to those of civilian health-care leaders and hence their leadership experience of complex systems provides lessons for aspiring health leaders in any health sector. The MHS supports contingencies (humanitarian disasters to armed conflicts), provides care to 9.6 million beneficiaries at 650 medical facilities worldwide, and through provider networks,[69] and conducts operational research.

Following the Cold War, the Defense Health Program[70] was created to address the complexity of the MHS by centralising budgets and creating regionalised managed care contracts and networks. Since 9/11, the MHS has reduced the died of wounds rate to less than 3 per cent and moved patients from the battlefield to the United States in less than 3 days versus 45 in Vietnam.[71–74] The SGs and their teams guided adoption of managed care principles,[75] rightsized (ie outsourced) medical facilities or certain services, adapted to organisational change[76] and improved the health of the population, quality of care while responding to budgetary constraints, operational and patient safety concerns.[77,78]

Table 1: Strategic health leadership competencies as of November 2016

Component	Competency description
A. Integrates needs of others and the organisation: attends to follower and organisation (inter and intra) needs; actively listens to understand, then be understood. Builds on inter- and intra-personal relations. Develops current and future leaders. Helps others succeed.	1. *Actively listens to others:* engages in, and understands the concerns and needs of individuals and teams; conveys empathy to uncover possibilities; provides support by removing barriers and obstacles. 2. *Develops leaders and teams of leaders:* coaches, guides and mentors leaders and teams. Encourages self-development and intrinsic motivation. Gives constructive feedback. Assures education and training opportunities. 3. *Celebrates:* recognises individual and team contributions, innovations and progress. Encourages acknowledgment of success and setbacks to improve, learn and innovate continuously. 4. *Stewardship:* judiciously allocates and aligns resources (ie money, personnel, information, equipment and infrastructure) with strategy, efficiently and effectively.
B. Encourages aspirational and critical thinking: challenges assumptions (others, self, organisation); takes calculated risks; integrates ideas from inside or outside the organisation. Applies critical thinking — agile, adaptive and systems thinking — for a sustainable positive effect.	5. *Critical thinker:* applies agile thinking to anticipate or find opportunities in dynamic, uncertain, complex and ambiguous (DUCA) situations. Uses adaptive thinking to solve problems or shift momentum to apply sustainable solutions. 6. *Applies systems approach:* assesses situations systematically; understands interconnections between systems and processes to develop strategy, solve problems and make complex decisions. 7. *Challenges the status quo:* challenges assumptions of others, self and organisation. Asks probing questions from multiple perspectives. Develops new ideas, concepts, solutions and better processes. 8. *Creates a culture of innovation:* creates a safe, amiable culture designed to encourage novelty and new ideas. Manages risks with experimentation, alternative perspectives, test and evaluation and prototyping.
C. Informs, inspires and influences: develops and articulates a futures-based aspirational vision and strategy despite a DUCA environment. Inspires followers to achieve the vision or the strategy and take independent initiative at all levels.	9. *Develops vision:* senses signals, anticipates the future. Develops aspirational vision, strategy, plans and capabilities to meet the needs of customers, suppliers and other stakeholders. 10. *Communicates proactively:* engages followers, teams, partners and stakeholders to aspire to a higher vision with inter- and intra-personal communication or outreach. Makes vision clear, meaningful and understandable. 11. *Executes strategy and leads change:* sets the tone, pace and example to lead change. Aligns and integrates concepts, strategy, capabilities, organisations and processes into common practice and culture. 12. *Empowers others:* shares leadership collectively. builds, aligns and sustains diverse teams of leaders to achieve the vision, outcomes and effectiveness. Measures progress and results.

Table 1: Strategic health leadership competencies as of November 2016 (*continued*)

D. Promotes professionalism and builds character: serves as a role model for high ethics and morals; instils pride; gains respect and trust with proactive communication and collaboration. Leads by example, through continuous self-development.	13. *Collaborates:* builds mutually beneficial relationships and common goals within and across organisations. Partners with networks and communities of practice and stakeholders. 14. *Applies ethics:* serves as a role model for unwavering ethical decision-making and respect for autonomy. 15. *Develops trust:* builds and sustains trust through example, integrity, accountability and transparency with individuals, across organisational boundaries and with stakeholders. 16. *Lifelong learner:* seeks, leverages, uses, generates, shares knowledge. 17. *Resilient:* bounces back from adversity through optimism and improving personal health, wellness and management of stress.

Data collection

By using the SHELDR Model, data collection and analysis was accomplished with six semi-structured and two structured interview questions (IQ) for the former SGs; three semi-structured and two structured telephonic IQs for the EPMs. Data analysis consisted of thematic analysis using emergent and provisional coding methods[79–81] of the SG and EPM interview transcripts. Appendix 1 provides the IQs.

Reliability and limitations

In addition to the cross-check in Phase 3, self-reported bias, small sample content validity and coding interpretations of data and misperceptions of military leaders were addressed. Interviews averaged 1.5 hours; each transcript (average 20–25 pages) was coded based on the SG's responses, reconciled by three co-coders and categorised. Reliability was achieved with strict interview and co-coder protocols and a historical document review. Utilisation of 3 co-coders and 12 EPMs minimised bias and enhanced confirmability through independent reviews. Coding criteria were set at 61–80 per cent being substantial agreement and 81–100 per cent being near-perfect agreement before and after reconciliation. Review (triangulation) of official and unofficial documents from historian and public affairs offices and websites were used for interviewer preparation and verification of issues and accomplishments cited in the interviews as a crosscheck to minimize confirmation bias.

EPMs did not review transcripts, only de-identified summaries. The study did not establish causal relationships, evaluate if subordinates were influenced, measure SG effectiveness or assess the impact of Service history, culture and missions on the SG's leadership.

RESULTS AND DISCUSSION

Overview

Following the identification of leader development gaps and the development of the SHELDR Model, 14 former SGs (5 Army, 2 Navy and 7 Air Force) and 12 EPMs were interviewed to determine how they applied or did not apply the SHELDR Model competencies. An analysis of the findings or areas of agreement and disagreement between the SGs and EPMs followed. For understanding, each figure provides the reader with an example at the bottom of the graph. For example, general observations in Figure 1 summarise a synthesis of the competencies most referred to during the interviews, followed by an example as illustration.

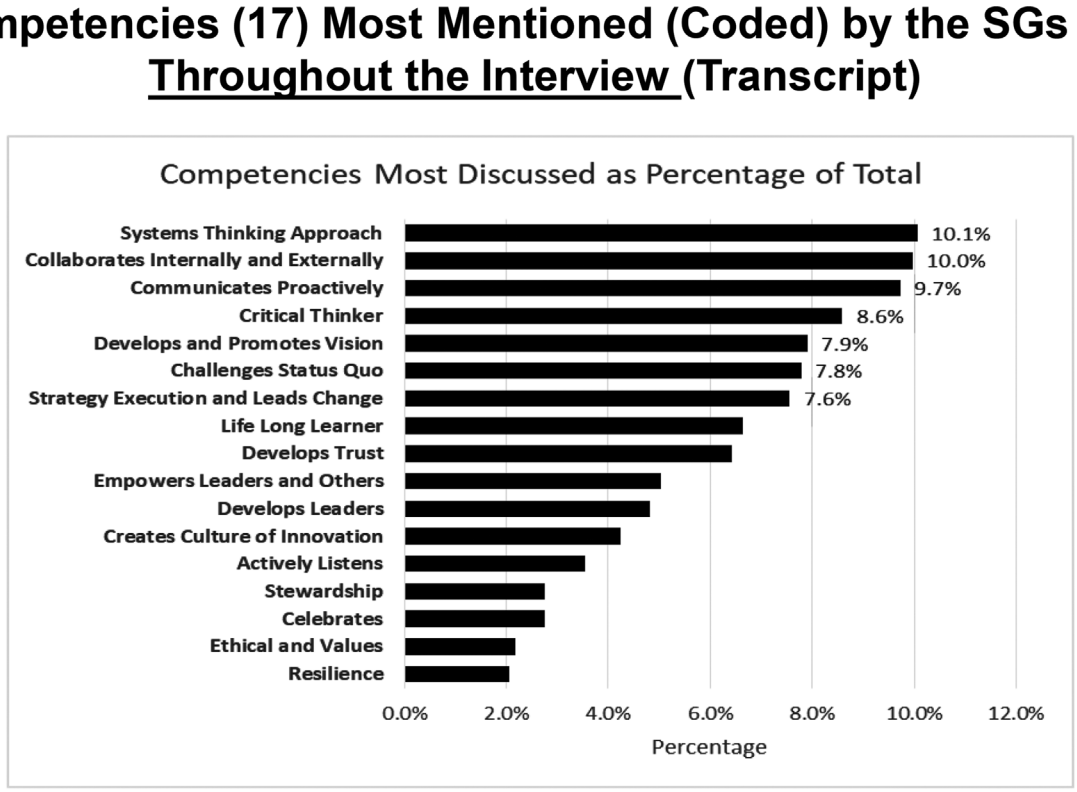

Figure 1: Competencies most mentioned or referred to by the during the interview participant

The SGs applied the SHELDR competencies throughout their career, especially at the senior leader level. The SGs varied on application of the SHELDR competencies. Critical thinking, trust and emotional health became significant themes throughout the interviews.

As a corollary, Appendix 2 summarises the SGs' crucibles of experience (ie events or persons). The crucibles shaped their leader development and resilience throughout their career. Twenty-four per cent of the SGs' crucibles happened in early to mid-career; 28 per cent stated they had the help of influential mentors. Most SGs were developing SHELDR competencies early in their careers, both informally and formally. Systems approach, critical thinking, lifelong learning, challenge the status quo and strategy execution accounted for 42 per cent of the SHELDR competencies applied throughout their formative years. While not specifically mentioned, resilience was a common trait inherent in all SGs.

Competencies applied

Specific observations were driven by two IQs designed to identify the top 5 out of 17 SHELDR competencies required for successful leadership of complex organisations. Figure 2 summarises the competencies applied by the SGs' and the EPMs' selection of the top competencies they considered most important at the strategic level.

There were similarities in the selections cited by the SGs and the EPMs. SGs emphasised develops leaders, develops and promotes vision, develops trust, challenges the status quo and actively listens. The selections accounted for 47 per cent of

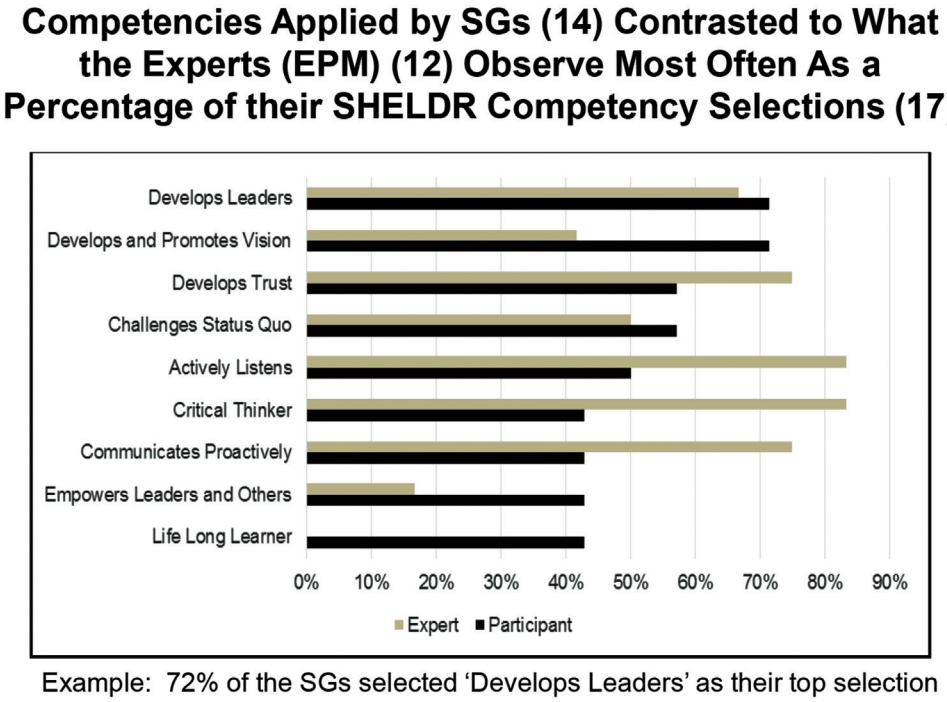

Figure 2: Top competencies applied

their competencies. Differences centred on critical thinking, empowerment and lifelong learning. Trust was gained through character and emotional grounding, early experiences (reputation) and development style and presence. Four SGs emphasised the interdependencies between competencies as part of a systems approach to leadership. According to the EPMs, critical thinking, actively listening, communicating proactively and building trust are competencies they observe most. Challenging the status quo, systems thinking, visioning and culture of innovation were cited as necessary. EPMs noted that several competencies are complementary or need to be applied in tandem, such as a systems approach and a culture of innovation.

Competencies not applied or wish they had more of

SGs were asked to select the top 5 of the 17 SHELDR competencies they wish they had applied in greater quantity during their tenure or had developed before assuming their position. EPMs were asked similar IQs in the context of what they observed or experienced. Figure 3 summarises the responses. It should be noted, this question was the most difficult to ascertain answers. For example, while some SGs selected communication as a competency they most applied, they may have selected the same competency as one they could have applied more often, developed differing approaches to application, or improved on.

The results provided insight into the need for improving leader development. The SGs cited systems approach, active listening, critical thinker, communicates proactively, resilience and emotional health as areas to improve. These results accounted for 47 per cent of 17 SHELDR competencies. Several SGs added suggestions such as mindfulness as a subset of emotional awareness. EPMs identified competencies where strategic leaders falter or fail. Critical thinking,

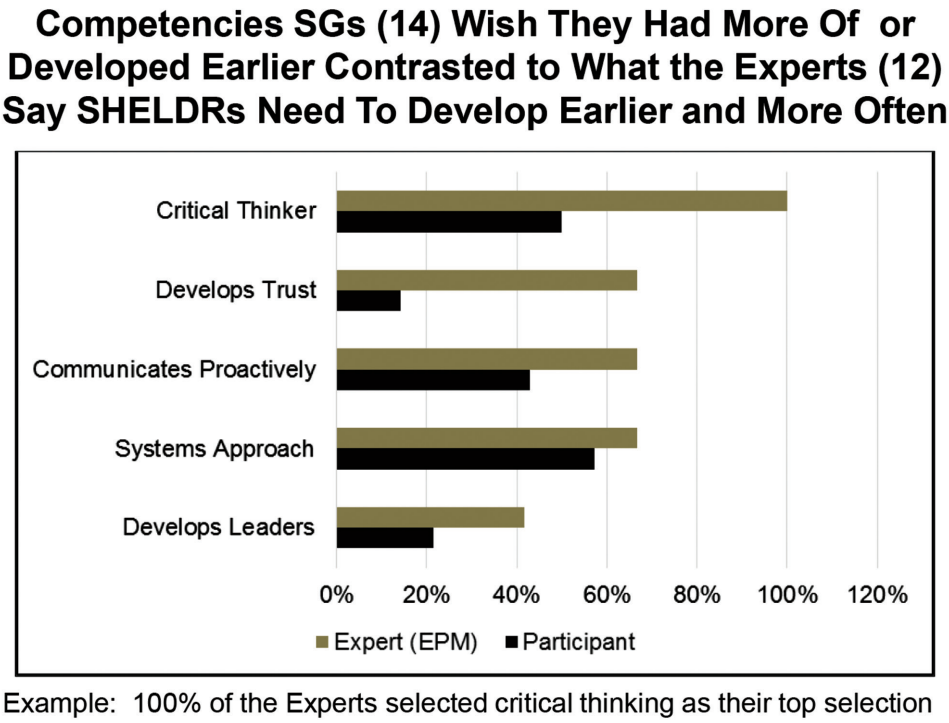

Figure 3: Competencies needed the most

development of trust and communication are most lacking and contribute to dysfunctional teams and organisations, and personal failure.

Two federal domain EPMs expressed the need to revamp the MHS's 1992 Leadership Competencies (36) or build a subset of strategic leadership competencies and align it with the Joint Chief of Staff's strategic leadership attributes.[82,83] The EPMs noted the development of teams of leaders, and building trust was an afterthought for most strategic leaders, and developing trust and teams of leaders was a strength SGs could share with their civilian counterparts.

Recommended leader development strategies

As part of the study, once gaps in leader development were identified and the SHELDR Model was applied during the interviews, EPMs and SGs identified SHELDR development strategies. Appendix 3 summarises the EPMs' recommendations on how to develop SHELDRs. According to the literature review and the EPMs, a formal SHELDR development strategy was the most important step. The strategy should be centred on approved organisational competencies with defined roles, required experience and methods to demonstrate competency as opposed to 'square fillers' or personal relationships.[84–88] For example, the Center for Creative Leadership and the National Center for Healthcare Leadership emphasise the need for collaboration, aligning team member needs with objectives, strategic engagement and rapid experiential learning.[89,90] The leader development strategy should include identification of the number of strategically minded leaders needed: when, where, how many and what developmental methods should be implemented.[91–96]

Fifty per cent of the EPMs' comments centred on formal and informal leadership development strategies, immersive learning and involvement of a strategic-level

or system-wide project as critical developmental actions. Examples include evaluating scenarios, getting assigned to a strategic-level project and applying agile thinking.[97,98] Scenario analysis challenges leaders to think and act as strategic leaders by challenging the status quo, engaging in innovative thinking and actively listening to alternative points of view. One SG described a genomic medicine scenario designed to create alternative futures in 2045, applying foresight thinking and 'backcast' to develop actions to realise a preferred future. The SGs and EPMs underscored the need for collective leadership — such as leading across boundaries — agility to solve problems and adapting to changes in the near and long term.[99–101] Both emphasised the need for continuous learning, self-development and introspection.

Individual development required an emphasis on critical thinking, removing individual cognitive blinders, creating the future and use of role playing to reinforce competencies.[102–104] Two EPMs shared their personal experience that waiting until individuals reach senior leadership levels is not the time to start development. Three EPMs described their leader development programme as 'tiered', beginning with front-line supervision. For example, the US Coast Guard, Office of Personnel Management and Kaiser Permanente developed competencies by levels of leadership, including the strategic levels.[105,106] SGs and EPMs agreed leader development must start earlier, must be conducted more often and be offered in innovative venues.

Critique of the SHELDR Model

A critique of the SHELDR Model centred on the BTLM's usefulness and suggested improvements. BTLM has limitations; however, the model's four components in Table 1 are stable.[107] It is widely used in business, academe, government and the military. It is replicated more than any other transformational leadership model.[108–113] The BTLM does not address the ambiguous, uncertain and collaborative nature of strategic health leadership, such as the need for agility and adaptiveness to create integrated health systems by leveraging social and community health services. The strength of the SHELDR Model is integration of transformation, complexity management and collaborative leadership competencies to enhance the BTLM and complement the dynamic and complex environment health leaders operate in.

The SGs and EPMs agreed the SHELDR Model is a systems-based or interrelated set of competencies. EPMs agreed the competencies are sound. Incorporation of their 32 suggested revisions would improve the model's strengths. Contextual improvements, such as the ability to ask the right questions on issues of global health, financial management, reimbursement and population health, were cited most often. Emotional and cultural awareness, diversity and inclusiveness, talent acquisition and deliberate decision-making needed more explanation. SGs provided 21 suggestions: expand on persistence, negotiation, passion, honour, commitment, courage, enthusiasm, political savvy and emotional health. Both suggested several competencies were interdependent, such as integration of systems thinking and collaboration across organisational boundaries and building trust as a driver of several competencies.

Other leader development factors

It should be noted, confounding factors not part of the study may have contributed to the SGs' selection of their top competencies. According to each SG's career information summary, differences in education, assignments, senior service school attendance, assignment to corporate headquarters positions and the position prior to becoming the SG may have accounted for their selection of the competencies. Army SGs

tended to complete senior service school in-residence more often and get promoted to SG from large medical centres. Air Force SGs were typically promoted from the deputy SG (COO) position or a higher headquarters where collaboration and coordination skills are required on a daily basis. Navy and Air Force SGs tended to spend more time in career-broadening or corporate headquarters staff positions.

Organisational structure, culture and operational leadership positions most likely contributed to the differences between the SGs' selection of competencies. All SGs have had direct control and legal authority for disciplinary actions at medical facility levels; however, once SGs progress to higher levels of leadership, they may or may not retain direct control. The Army has a very clear line of authority from the medical facility, regional headquarters and corporate headquarters in Washington DC, while Air Force SGs have advisory or influential authority at a regional headquarters. These factors can account for or explain differences in the selection of the top competencies applied.

CONCLUSION AND RECOMMENDATIONS

This study identified leader development gaps and salient SHELDR competencies, explored how a cohort of strategic leaders applied those competencies and recommended improvements on development of future leaders. Leaders in and outside the MHS will benefit from this study. The SHELDR Model and the insights shared by 14 former SGs provided ample content for adaptation. Given today's turbulent times, it is clear our nation's health system and patients' health and well-being depend on the ability of health leaders to anticipate the future, inspire others, lead change and develop future leaders. When John Kotter published *Leading Change*, the US health sector and the MHS had entered an unstable era squeezed by tectonic plates — managed care transformation amidst multiple military contingencies and downsizing, outsourcing and regionalisation of health delivery systems.[114] Today, mergers and consolidations to include social services integration or increased integration of the MHS's three Services via the Defense Health Agency have increased complexity and interdependency frequently resulting in dismal outcomes and questions of sustainability. Better prepared strategic-minded health leaders or SHELDRs are needed to lead these organisations through today's turbulent environment and produce better health outcomes.[115–117]

The study's methods, beginning with a literature review on leadership performance and leader development gaps and followed by the development of the SHELDR Model (17 competencies), are transferrable to support studies of other cohorts in other health sectors. The SHELDR Model addressed the shortcomings of the BTLM by integrating complexity and collaborative leadership competencies, thereby creating an improved model of strategic health leadership.

The MHS SGs served as exemplars in strategic leadership. To paraphrase Dr Berwick, 'military medicine put the [Institute of Medicine's] learning health system framework into practice with their transformations on the battlefield'.[118] The SGs learned and persisted through their crucibles and developmental activities to apply the SHELDR competencies throughout their careers. Their vision, vigilance and resilience produced the healthiest force in the world, lowest died of wound rates in history,[119] comparable satisfaction and quality of care ratings and continues to improve reliability of safety.[120,121] Their competencies were not innate but developed throughout their careers. As lifelong learners, most SGs wished they had developed several competencies more effectively before assuming their position as SG.

While environments and cultures differ, the SGs' insights are invaluable to any aspiring health leader and organisation seeking to improve leader development. This study provided an in-depth review of former SGs' strategic leadership competencies applied and not applied and a method and template for replication on studying similar cohorts. For example, the MHS should update its decades-old leadership competencies. The study of other senior health leader cohorts will inform current and future strategic leaders on personal development gaps and actions. With further research, the SHELDR Model can serve as the foundation to develop future SHELDRs and learn from other strategic leaders. Other sectors should consider adopting a version of the SHELDR or the National Center for Healthcare Leadership models. The non-profit and private care sectors, US Public Health Service and VHA would benefit from a study of their former senior health leaders too. By improving leader development, the nation will sustain the aspiration to create reliable and innovative health systems to produce the healthiest population in the world with the best outcomes.

Authors' Note

The views expressed are solely those of the authors and do not reflect the official policy or position of the US Army, US Navy, US Air Force, the Department of Defense, US Government and other organisations mentioned.

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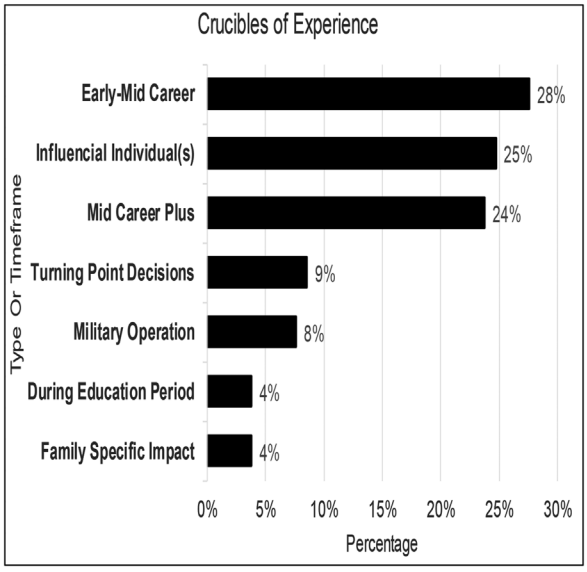
Appendix 1 Interview questions

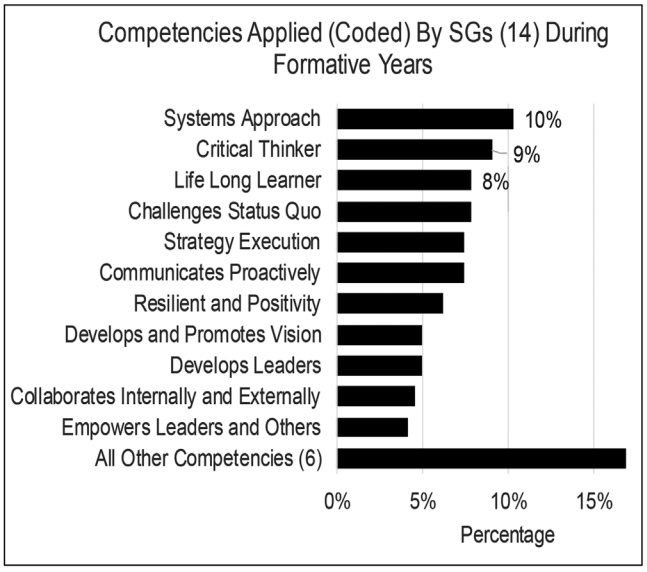
Former military SG	Expert panel members
1. Describe a critical event, crucible of experience, individual or learning activity that influenced and shaped you as a leader. How did this help you develop your leadership skills? 2. Refer to the shortlist of competencies. Summarize at least three of the most significant strategic initiatives you are most proud of throughout your career or as the SG? Describe the leadership dimensions. 3. What type of direction or guidance did you receive from the Chief or Vice Chief of Staff, Assistant Undersecretary for Defense/Health Affairs and other stakeholders on running or transforming your medical service? How did you synchronise and de-conflict their guidance? 4. Refer to the SHELDR competency sheet with detailed descriptions and summary below. What were the top 5 transformational leadership skill (no priority) sets you consistently applied during your tenure as the SG? Why are these the most important? Is there a specific technique(s) you found valuable throughout your career or you utilised as SG? 5. Refer to the list below. What were the top 3 most frustrating barriers preventing you from accomplishing your Service's vision or strategic initiatives during your tenure? What were the associated leadership lessons from these challenges? What was your workaround? 6. Summarise your most significant stressful situation or significant setback (or both) associated with achieving your strategic initiative as the SG. Refer to the shortlist below for your response. How did you bounce back? 7. Refer to the SHELDR skills sheet and the shortlist below. What five skill sets do you wish you had in a larger quantity prior to assuming the position of SG? Why did you choose these five skills? Are there any not on the list? 8. Consider this the 30-second elevator mentoring moment. Based on questions #4 and #7, what specific SHELDR skills or other skills do aspiring health leaders need to develop earlier in their careers before assuming complex and challenging responsibilities? How do they develop those skills?	1. Refer to the detailed list with descriptions and the shortlist of skills. Are they about right? Anything missing? Would you amplify any of them? Are they in the right categories? Would you combine any of them? Other comments? 2. Refer to the SHELDR competency and the summary below. What do think are the five most 'must have, cannot fail' important (no priority) competencies needed to lead a complex health organisation or implement a significant strategic transformational initiative? Are there any missing from the list? 3. Refer to the SHELDR skills sheet and the shortlist below. Use your experience or current observations. What skill sets do you think aspiring leaders should have in a larger quantity (i.e. addressing gaps in training, experience, poor performance at the strategic level) before assuming a position with more significant complexity, such as the CEO of a sizeable multi-health system, institution or federal health agency? Why did you choose these skills? Are there any not on the list? 4. What are some innovative or exemplar methods to develop, educate or train leaders to succeed at leading a complex organisation or system-wide initiative at the strategic level? 5. Do you think the results of this study could be leveraged by health-care education and training communities? Could it be used as a template to study other similar cohorts of leaders? What do you think may be of the limitations of the study methods, objections or misperceptions due to the military health setting and the leaders? Any other comments?

SG, surgeons general; SHELDR, strategic health leadership.

Appendix 2 Crucibles of experience

Crucibles: Events Or Persons Influencing the SGs' (14) Personal and Professional Development and Competencies (17) Applied During Formative Years





Example: 'Systems Approach' accounted for 10% of all coded responses in the transcript

Supplement 2 Crucibles and Competencies Applied in the Formative Years

Appendix 3 Strategic leader development strategy

Example: 30% of the Expert's responses centred on a leader development strategy

Supplement 3 Leader Development Strategies