

# Developing a Physician Leadership Program Through Inter-Organizational Collaboration

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**Abstract:** Effective physician leadership is an essential component in modern healthcare, but medical education often lacks accessible, formal leadership training for the physicians who will move into these roles. We describe the development, implementation, and evaluation of a local leadership program developed at our institute in partnership with a local university that can be used as a template for other healthcare systems. The Medicine Institute's leadership team at Allegheny Health Network partnered with a local university to develop a year-long faculty physician leadership program tailored to minimize travel and associated costs while focusing on concepts of clinician leadership, conflict resolution, healthcare finance, and organizational culture. Participants were selected after a formal application process and completed pre- and post-course assignments and surveys. Data analysis included Wilcoxon signed-rank tests and paired t-tests, along with a qualitative analysis of key insights obtained from free-text comments. Fourteen faculty members participated in the leadership program, spread over a one- year period (January 1, 2024 through January 15, 2025). Individual and composite scores showed a statistically significant increase in self-reported awareness, confidence, and understanding after program completion ( $p < 0.05$ ). Key insights gathered from the free-text comments indicated participants had increased self-awareness, enhanced leadership skills, valuable networking, immediate applicability of learned concepts, heightened motivation, and a strong desire for continued engagement. The program successfully reduced some of the common barriers to participation in existing leadership programs such as geographic accessibility, travel related costs, and time constraints. The partnership between two institutions supported improvements in leadership competencies and provided a framework for ongoing professional development, which may serve as a useful model for other organizations seeking to develop physician leaders. Our results support ongoing investment in physician leadership development programs that ensure a steady pipeline of physician leaders in healthcare systems.

**Keywords:** certificate program, health care leadership, collaboration, physician leadership

## Introduction

Physician leadership is the ability to influence and guide others in the healthcare setting and includes strong interpersonal skills to complement clinical expertise. Physician leadership is particularly essential in today's rapidly evolving healthcare landscape to ensure physicians are equipped to address complex administrative and clinical challenges.<sup>1</sup> From bedside to boardroom, the ability to motivate others, communicate clearly to varied audiences, and build care teams that include the patient are all a vital part of modern healthcare.

Traditionally, medical education has focused on clinical expertise, often leaving a gap in leadership training.<sup>2,3</sup> During residency and fellowship training, medical education primarily focuses on clinical competencies as outlined by governing bodies such as the Accreditation Council for Graduate Medical Education. While trainees may develop leadership qualities through mentorship from attending physicians, generally, there has not been a formal curriculum dedicated to leadership training.<sup>2,4</sup> However, these same trainees are later expected to serve as department chiefs, residency and

fellowship directors, medical directors, private practice managers, and overseers of other critical functions within healthcare organizations. Many physicians enter these roles without any formal leadership training, requiring them to learn essential skills on the job through trial and error.

Structured physician leadership programs teach the skills necessary to lead teams, manage resources, and drive organizational change.<sup>5,6</sup> Programs focused on physician leadership and development have many benefits, including improved physician satisfaction, enhanced recruitment and retention, and better clinical outcomes.<sup>7,8</sup> Despite the increasing recognition of the importance of physician leadership, structured leadership training for physicians remains inconsistent across healthcare institutions.<sup>9</sup> Data from the Medical Group Management Association (MGMA) further highlights the shortage of such physician leadership training opportunities in healthcare,<sup>4</sup> despite substantial evidence demonstrating the significant return on investment for leadership development programs.<sup>5</sup> An MGMA poll (2024) revealed that only 23% of medical group leaders reported a formal physician leadership development program at their organizations; majority (75%) responded “no” and 2% were “unsure”.<sup>4</sup>

While some healthcare organizations have established internal physician leadership programs, many physicians seeking leadership development must rely on external resources, including online courses, virtual workshops, or formal degree programs such as a Master of Business Administration (MBA). Physicians may be unaware of available programs or often face barriers to participation in the programs they identify.<sup>10</sup> The barriers include time constraints, costs, travel requirements, and limited mentorship.<sup>10</sup> Some hospitals have dedicated faculty professional development departments, but this may not be the norm across all institutions due to financial constraints, competing priorities, and limited expertise in leadership instruction. These challenges must be addressed to ensure that physicians are equipped with the essential skills necessary to lead effectively within complex healthcare environments.

Recognizing the need for structured physician leadership development, the Medicine Institute (MI), a department within Allegheny Health Network (AHN), sought to provide formal training opportunities for its faculty. AHN is comprised of 14 hospitals and a diverse group of physicians, including many clinicians who are actively engaged in undergraduate medical education and graduate medical education. Similar to the findings in the literature, AHN did not offer accessible leadership training to its providers. To fill this gap in leadership development, we developed, implemented and evaluated a physician leadership program within the MI in our hospital system.

## **Program (Certificate Program in Physician Leadership: CPPL) Development**

### **Program Planning**

The leadership team in the MI—including the Chair, the Academic Officer, and the graduate medical education program managers—engaged in multiple discussions to explore opportunities and identify potential challenges to design a formal leadership program for faculty physicians across all subspecialty disciplines within the MI. The goal was to develop a program that would allow meaningful in-person engagement, remain affordable and local, be feasible for busy clinicians, and effectively teach core leadership skills.

Our team gathered and evaluated resources from AHN and external programs to identify potential opportunities for physician leadership development. These ranged from online courses covering fundamental leadership topics to master’s-level programs in physician leadership development. A comprehensive list of existing programs was compiled for further exploration and five main challenges were identified. They were the rigid structure of formal degree programs, lack of in-person interactions for virtual courses, geographical constraints, a narrow target audience, and the impersonal nature of digital programs offered at AHN. Formal degree programs such as an MBA were recognized as valuable professional development accomplishments. However, tuition costs limited the number of faculty members the department could support. Additionally, such degree programs restrict leadership development to a few faculty members and not to a potentially larger group of physicians. While virtual courses were available, our team decided that in-person sessions were more beneficial for fostering interactive learning, increasing engagement, and building relationships within the department. Existing in-person courses addressed the relationships aspect, but were held in various locations across the country, requiring travel. This presented logistical challenges, including clinical and personal responsibilities as well

as financial burdens and ultimately limit participation. The target audience for the programs was another identified barrier. Some existing leadership programs were designed primarily for Chief Medical Officers and thus precluded the broader faculty involvement we believed to be important. Lastly, our organization offered internal leadership development through several ad hoc courses and LinkedIn Learning. However, these opportunities either lacked an in-person component or a comprehensive curriculum and did not facilitate interactive group discussions, limiting their effectiveness in fostering collaborative learning. The identified challenges guided us to develop a program focused on in-person collaborative learning that was accessible to a wide range of physicians in the MI.

The primary author, who holds a Master's Degree in Medical Management (MMM) from Carnegie Mellon University (CMU), contacted the leadership of the MMM program to explore potential collaboration between the MI at AHN and CMU for developing a physician leadership program. Following multiple meetings between the MI leadership team and the MMM program director, a collaborative initiative was established: the Certificate Program in Physician Leadership (CPPL). Administrative and financial support was provided by the MI, while CMU contributed by making MMM faculty available for curriculum instruction.

The collaboration with CMU allowed us to address many of the limitations we identified with existing programs. Firstly, CMU's MMM program strongly advocates physician leadership development, and our program was designed to support a broad physician audience. This collaboration also introduced our faculty to advanced professional development options, including the possibility of pursuing an MMM degree, but this was not a requirement. Individuals who completed the program were also offered a discounted fee and credits toward finance and communication prerequisites for the MMM program if they chose to pursue it. Secondly, the partnership eliminated the need for travel outside the city since CMU is located within the same metropolitan region. This minimized disruptions to clinical responsibilities and personal commitments and the structure allowed for flexible scheduling, ensuring maximum participation. Thirdly, we addressed costs. The course tuition was funded through faculty continuing medical education, while food, books, and modules were supported by discretionary funds within MI. Lastly, the local, in-person program fostered collaborations within the MI and with faculty at CMU. Therefore, our program effectively addressed the challenges we had identified within existing programs.

This faculty development initiative was marked exempt by Allegheny Health Network's Institutional Review Board.

## Program Curriculum and Course Description

The primary author, serving as course director, and the director of the MMM program (second author) collaboratively designed curriculum with the intent to provide healthcare leaders with essential knowledge and skills to navigate the complexities of modern healthcare organizations.

They identified four curricular topics considered foundational for physician leadership development: Clinician Leadership in Healthcare, Conflict Resolution and Effective Communication, Healthcare Finance, and Culture and Strategy in Healthcare. Objectives and key content areas of the four courses are summarized in [Table 1](#).

Clinician Leadership in Healthcare was structured around the essential stages of a clinician's leadership development. The session was designed to enhance physicians' understanding of leadership styles, provide foundational skills in change management, cultivate emotional intelligence, and critically examine the evolving healthcare landscape and its inherent challenges.

Conflict Resolution and Effective Communication equipped healthcare leaders with the skills and strategies to navigate conflicts and foster inclusive environments. The session combined theoretical frameworks, practical exercises, and real-world case studies to enhance participants' abilities in conflict resolution and effective communication.

Healthcare Finance provided an overview of fundamental financial principles relevant to healthcare management. Participants gained insight into financial management, budgeting processes, and strategic financial planning.

Lastly, Culture and Strategy in Healthcare explored the alignment of organizational culture with strategic objectives to drive long-term success.

Limiting the curriculum to four areas ensured feasibility for busy clinicians while still providing instruction in certain key "differentiating competencies" essential to healthcare leadership.<sup>9</sup>

**Table 1** Core Courses, Objectives, Key Content Areas for the Certificate Program in Physician Leadership

	<b>Objective</b>	<b>Content Area</b>
Clinician Leadership in Healthcare	<ul style="list-style-type: none"> <li>• Gain clarity on their self-identity as clinician leaders.</li> <li>• Acquire new knowledge and a structured framework to support ongoing leadership development.</li> </ul>	<ul style="list-style-type: none"> <li>• Identifying as a Leader: Development of leadership identity, growth mindset, career planning, and personal motivation.</li> <li>• Shadow of the Leader: Influence, presence, and introspection in leadership, including communication skills, emotional intelligence, and managing ambiguity.</li> <li>• Managing Change: Understanding mental models, habits, and formal change management methodologies, including behavioral economics principles.</li> <li>• Feedback Loops: Developing skills in seeking, receiving, and applying feedback effectively while addressing cognitive biases.</li> <li>• Future Readiness: Emphasizing lifelong learning and the role of emerging technologies such as artificial intelligence in healthcare.</li> </ul>
Conflict Resolution and Effective Communication	<ul style="list-style-type: none"> <li>• Understand the dynamics of conflict in leadership contexts.</li> <li>• Develop self-awareness of personal conflict resolution styles.</li> <li>• Enhance active listening skills to improve communication during conflict.</li> </ul>	<ul style="list-style-type: none"> <li>• Feedback skills: Strengthen skills in giving and receiving constructive feedback. Develop strategies for handling mistakes and responding to feedback effectively.</li> <li>• Utilization of the Thomas-Kilmann Conflict Mode Instrument: to assess personal conflict resolution styles and explore ways to leverage them in different situations.</li> <li>• Professional Networking: Understand the value of professional networking in leadership development.</li> </ul>
Healthcare Finance	<ul style="list-style-type: none"> <li>• Develop a foundational understanding of healthcare financial management.</li> <li>• Apply key financial concepts in strategic decision-making.</li> </ul>	<ul style="list-style-type: none"> <li>• Finance Fundamentals: Financial statements, regulations, and rules.</li> <li>• Strategic Planning &amp; Budgeting: Understanding how strategic planning influences budget development.</li> <li>• Budgeting Essentials: Key components of operational and capital budgets.</li> <li>• Capital Budgeting: Differentiating between operating and capital expenditures through hands-on exercises.</li> <li>• Financial Ratios &amp; Performance Metrics: Understanding rating agencies' role and financial performance assessment.</li> </ul>
Culture and Strategy in Healthcare	<ul style="list-style-type: none"> <li>• Evaluate how an organization's mission, vision, and core values shape strategic planning.</li> <li>• Develop skills for implementing strategy effectively within healthcare settings.</li> <li>• Understand how organizational culture impacts strategic success.</li> </ul>	<ul style="list-style-type: none"> <li>• Understanding Organizational Mission, Vision, and Core Values: Assessing and refining mission statements for clarity and impact, aligning leadership decisions with core principles.</li> <li>• Organizational Culture and Strategy Alignment: Defining organizational culture, analyzing its influence on decision-making, and implementing cultural transformation initiatives.</li> </ul>

In addition to the above courses, an observer-based assessment (Leadership Practices Inventory<sup>®</sup> (LPI<sup>®</sup>) 360) was offered.<sup>11</sup> This is a multi-rater assessment tool that provides leaders with feedback on their leadership behaviors from individuals around them, such as managers, peers, and direct reports.

## Recruitment and Selection Process

The program was advertised to the MI physician faculty through regularly scheduled meetings and an Email that outlined the program curriculum sent to all physician faculty within the MI. Enrollment was by application only; applicants were required to submit a personal statement explaining their interest in the program, a letter of support from their division leadership, and an updated curriculum vitae. A key prerequisite was the ability to attend all sessions and the applicants also had to commit to completing all pre- and post-course assignments. Sixteen physicians applied for the program; 2 of them were not able to commit to attending all sessions and hence were not recruited. Fourteen physicians were enrolled in the

program. These were from different disciplines: Pulmonary and Critical Care Medicine (2), Nephrology (1), Endocrinology (1), Rheumatology (2), Gastroenterology (2), General Internal Medicine (4), and Palliative care medicine (2).

## Implementation

The courses were delivered over a one-year period (January 1, 2024–January 15, 2025), with sessions spaced evenly to promote consistency and progressive integration of concepts. Each of the four courses consisted of a full-day (8-hour) session. Two courses were held on weekdays at the AHN campus, while the remaining two were conducted on weekends at the CMU campus. This structure was intended to accommodate participants' clinical responsibilities. To further support engagement and networking, meals were provided during in-person sessions.

Each course required participants to complete pre-course assignments to ensure they arrived prepared for in-person discussions and engagement. Assignments included reading articles, books, or book chapters in preparation for the discussion. Approximately 6–8 weeks after the one-day in-person session, participants submitted a post-course assignment and attended a one-hour virtual session so they could ask questions, reflect on the in-person session, and complete any remaining coursework.

The LPI 360 assessment was administered one time, midway through the program, followed by a four-hour debriefing session and a subsequent one-hour virtual discussion. Whereas the four courses were delivered by CMU faculty, the LPI 360 component was facilitated by an independent consultant.

Upon completion of the program, the participants were awarded a certificate on physician leadership by CMU.

## Program Evaluation

Each course included two self-assessment questions administered both before and after completion. Responses to the five-point Likert scale surveys were converted into a numeric scale ranging from 1 (not at all) to 5 (very) (Table 2).

**Table 2** Survey Comparison Results Administered to the 14 Participants Before and After Each of the Four Courses.<sup>a</sup>

	Before Course Median (IQR)	After Course Median (IQR)	S/T-value (DF)	p-value <sup>b</sup>
<b>Clinician Leadership in Healthcare</b>				
1. How clearly defined was your personal leadership style in your mind?	2.5 (1–3)	4 (4–5)	39	0.0005
2. How well did you understand the role and importance of clinicians in the evolving landscape of healthcare leadership?	3 (3–4)	4 (4–5)	36	0.0081
<b>Conflict Resolution &amp; Effective Communication</b>				
3. How aware were you of your own personal styles for resolving conflicts?	3 (3–4)	4.5 (4–5)	24	0.0342
4. How confident were you in effectively managing and resolving conflict within your team or organization?	3 (3–4)	4 (4–5)	25	0.0098
<b>Healthcare Finance</b>				
5. To what extent did you understand key healthcare finance concepts such as financial statements, budgeting processes, and capital?	1 (1–2)	4 (3–4)	42.5	0.0015
6. How capable were you in analyzing healthcare financial data and applying this knowledge to strategic decision-making?	1 (1–2)	3 (2–4)	27.5	0.0020
<b>Culture and Strategy in Healthcare</b>				
7. What was your understanding of an organization's mission, vision, and core values?	3 (2–3)	4 (4–5)	39	0.0005
8. How well did you understand the influence of organizational culture on decision-making processes within an organization?	3 (3–4)	4.5 (4–5)	33	0.0010
	<b>Mean (SD)</b>	<b>Mean (SD)</b>		
<b>Composite score</b>	<b>21.07 (4.60)</b>	<b>31.64 (4.99)</b>	<b>6(13)</b>	<b>&lt;0.0001</b>

**Notes:** <sup>a</sup>All 14 participants answered questions using a 5-point Likert scale where 1 indicated "not at all" and 5 indicated "very." <sup>b</sup>A p-value < 0.05 was significant.

**Abbreviations:** IQR, interquartile range; SD, standard deviation; DF, degree of freedom.

Cronbach's alpha was computed to examine the internal consistency of the survey items. The Wilcoxon signed-rank test was conducted to compare individual question scores before and after courses. Paired t-tests were used to compare composite scores before and after course completion. All statistical analyses were conducted under alpha level.05, via SAS 9.4.

All the participants completed pre- and post-course surveys. Composite scores were computed by adding all eight-item scores together. Individual survey question scores are presented as median and interquartile range. Composite scores are presented as mean and standard deviation (Table 2). Both the individual question scores and composite scores after course completion were significantly higher than scores from before the course (all  $p < 0.05$ ). The composite score after course was significantly different from before course,  $t(13) = 6, p < 0.0001$ , specifically, composite score after course ( $m = 31.64$ ) was significantly higher than before course ( $m = 21.07$ ) (Table 2). Higher composite scores indicated that the participants had a better understanding of the specific concepts taught in the program. As a whole, participants self-reported increased understanding, confidence, and awareness in each subject area (Table 2). Cronbach's alpha of the survey items was 0.70 before taking the course and 0.87 after taking the course, indicating acceptable and good internal consistency, respectively.

Additionally, free-text comments from program participants were analyzed and synthesized into six key insights. First, participants reported enhanced self-awareness of their leadership styles, strengths, and areas for development, along with improved ability to communicate vision and needs to their teams. Second, they valued connecting with colleagues across the AHN system, noting that peer-to-peer learning fostered collaboration and lasting professional relationships. Third, the program's content was immediately applicable, providing practical tools and strategies that improved interdisciplinary communication, team alignment, and patient advocacy. Fourth, participants described a positive emotional impact, feeling motivated and inspired to drive change within their profession and the healthcare system. Fifth, there was a strong desire to remain engaged with the cohort through mentorship, lectures, and future leadership opportunities. Finally, participants expressed appreciation for the curriculum and the commitment of organizers, emphasizing the program's purposeful and meaningful design.

## Discussion

The defining feature of the CPPL was the collaboration between the MI at AHN and CMU. This inter-organizational partnership was pivotal in the development, implementation, and successful completion of a new, yearlong formal physician leadership program. This collaborative approach provided several key advantages. The local, in-person format eliminated the travel cost and logistical challenges of programs outside our region, while still offering the credibility and depth of instruction on leadership development. The curriculum was created to include key foundational skills in leadership development, while limiting the total number of courses to four over one-year period to make it feasible and manageable for practicing clinicians. Hence, the program was able to overcome some barriers that are often cited as impediments to physician participation in leadership development such as accessibility, relevance, and time constraint.<sup>9</sup> The program created an interactive learning environment with an in-person format that fostered peer discussions, group learning, and professional networking opportunities. It helped synergize AHN's healthcare expertise with CMU's established leadership development acumen and resources, mirroring best practices observed in successful leadership initiatives.<sup>12,13</sup> Importantly, the partnership also broadened opportunities for faculty, offering participants exposure to advanced leadership pathways, including the option to pursue the MMM degree at CMU with transferable credits and discounted tuition. This extended the impact of the program beyond the certificate itself, linking it to a potential sustainable pipeline for further professional growth. One graduate of the CPPL has already enrolled in the MMM program at CMU in 2025.

The increase in participant survey scores after course completion indicates that the program's curriculum helped participants understand essential knowledge and skills to navigate the complexities of modern healthcare organizations. Additionally, participant feedback included appreciation for the program's design and curriculum, reporting increased self-awareness, enhanced leadership skills, valuable networking and collaboration, immediate application of learned concepts, heightened motivation, and strong desire for continued engagement.

While results are promising, limitations include reliance on self-reported survey data and the small size of the inaugural cohort, which restrict generalizability.

We learned several key lessons from implementing the CPPL. The time required for meetings, coordination, and curriculum development was initially underestimated, and indirect costs proved higher than anticipated. While the collaboration eliminated travel expenses and reduced logistical barriers, physicians still needed to carve out time from clinical duties—particularly for weekday sessions—to fully participate. Informal feedback also revealed that some physicians desired additional courses. Although the program was limited to four courses to ensure feasibility, some participants expressed interest in a more extensive curriculum, underscoring the challenge of determining the appropriate scope and depth for such initiatives.

Following the inaugural CPPL and building on the strong collaboration between MI and CMU, we are launching a second one-year cohort beginning in November 2025. This cohort will include 18 physician faculty within the MI and reflects both the success of the initial program and the importance of institutional partnership in sustaining and expanding leadership development opportunities for physician leaders at AHN. Looking ahead, it is essential to assess the long-term impact of the CPPL on physician leadership effectiveness, organizational performance, and patient care outcomes. Such program metrics might include the impact on hospital finances, quality and safety metrics, employee engagement, burnout, and retention.

## Conclusion

The CPPL illustrates how collaboration between healthcare systems and academic institutions can help address some barriers to physician leadership training. The MI–CMU partnership supported improvements in leadership competencies and provided a framework for ongoing professional development, which may serve as a useful model for other organizations seeking to develop physician leaders.

Over the past year, we have gained valuable experience, received constructive feedback, and learned important lessons. Going forward, we will continue to incorporate these insights and refine the program year after year to meet the evolving needs of physician leaders and further enhance their leadership development.

## Ethics Statement

Allegheny Health Network (AHN) Research Institute Institutional Review Board (IRB) reviewed this study. This was determined to be a quality improvement (QI) project by the IRB. Informed consent is not required for QI projects as consent would imply human subject's research. Consent for a QI survey project is considered implied when the person agrees to complete the survey. The goal of this project was to evaluate the benefit of this leadership training program within AHN. While the Declaration of Helsinki implies human subjects research, I can confirm that this project was completed to the best of our ability and in accordance with all ethical and institutional policies followed.

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## Disclosure

The authors report no conflicts of interest in this work.

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