

Original Publication

 OPEN ACCESS

I-PASS Mentored Implementation Handoff Curriculum: Champion Training Materials

Jennifer K. O'Toole, MD, MEd*, Amy J. Starmer, MD, MPH, Sharon Calaman, MD, Maria-Lucia Campos, Jennifer Hepps, MD, Joseph O. Lopreiato, MD, MPH, Shilpa J. Patel, MD, Glenn Rosenbluth, MD, Jeffrey L. Schnipper, MD, MPH, Theodore C. Sectish, MD, Rajendu Srivastava, MD, MPH, FRCPC, Daniel C. West, MD, Clifton E. Yu, MD, Christopher P. Landrigan, MD, MPH, Nancy D. Spector, MD, on behalf of the I-PASS Study Education Executive Committee

*Corresponding author: jennifer.otoole@cchmc.org

Citation: O'Toole JK, Starmer AJ, Calaman S, et al; for I-PASS Study Education Executive Committee. I-PASS Mentored Implementation Handoff Curriculum: champion training materials. *MedEdPORTAL*. 2019;15:10794.

https://doi.org/10.15766/mep_2374-8265.10794

Copyright: © 2019 O'Toole et al. This is an open-access publication distributed under the terms of the Creative Commons Attribution-NonCommercial-Share Alike license.

Abstract

Introduction: The I-PASS Handoff Program is a comprehensive handoff curriculum that has been shown to decrease rates of medical errors and adverse events during patient handoffs. I-PASS champions are a critical part of the implementation and sustainment of this curriculum, and therefore, a rigorous program to support their training is necessary. **Methods:** The I-PASS Handoff champion training materials were created for the original I-PASS Study and adapted for the Society of Hospital Medicine (SHM) I-PASS Mentored Implementation Program. The adapted materials embrace a flipped classroom approach and adult learning theory. The training includes an overview of I-PASS handoff techniques, an opportunity to practice evaluating handoffs with the I-PASS observation tools using a handoff video vignette, and other key implementation principles. **Results:** As part of the SHM I-PASS Mentored Implementation Program, 366 champions were trained at 32 sites across North America and participated in a total of 3,491 handoff observations. A total of 346 champions completed the I-PASS Champion Workshop evaluation form at the end of their training (response rate: 94.5%). After receiving the training, over 90% agreed/strongly agreed that it provided them with knowledge or skills critical to their patient care activities and that they were able to distinguish the difference between high- and poor-quality handoffs, competently use the I-PASS handoff assessment tools, and articulate the importance of handoff observations. **Conclusion:** The I-PASS champion training materials were rated highly by those trained and are an integral part of a successful I-PASS Handoff Program implementation.

Keywords

Handoffs, Faculty Development, Safety, Quality Improvement, I-PASS

Educational Objectives

After reviewing these resources, learners will be able to:

1. Describe the role of the I-PASS champions in implementing the I-PASS Handoff Program.
2. Discuss the importance of handoff observations with formative feedback in promoting successful implementation and sustainment of the I-PASS Handoff Program at their institution.
3. Demonstrate competent use of the I-PASS handoff assessment tools.
4. Articulate key steps for successful implementation of the I-PASS Handoff Program (including training activities, handoff observations, campaign activities, and revisions to printed handoff documents).
5. Identify ways to adapt the I-PASS program to fit the needs of their local environment.

Introduction

Handoffs in patient care are high-risk events for errors in communication between providers. The Joint Commission and the Department of Defense cite handoffs as playing a role in roughly two-thirds of sentinel events in hospitals.^{1,2} Recognizing that handoffs in patient care are a critical skill in which physicians must be adequately trained and supervised, the Accreditation Council for Graduate Medical

Appendices

- A. I-PASS Champion Video Module.mp4
- B. I-PASS Champion Workshop.pptx
- C. I-PASS Champion Workshop Handout.docx
- D. Handoff Observation Video .wmv
- E. I-PASS Champion Workshop Evaluation Form .pdf

All appendices are peer reviewed as integral parts of the Original Publication.

Education now requires all training programs in the United States to teach handoff skills and to monitor the quality of handoffs.³ In addition, the Association of American Medical Colleges has also identified the ability to give or receive a patient handover to transition care as a Core Entrustable Professional Activity that all medical students should be able to perform upon entering residency.⁴ Despite the recognition of handoffs as high-risk events in patient care and the need to train physicians in handoff skills, standardized, evidence-based curricula were lacking when these requirements were implemented.⁵ To address this gap, in 2013, the I-PASS Study Group released the suite of I-PASS Handoff Curriculum materials that were developed for the 11-center I-PASS Study.⁶⁻¹² This curriculum is an evidence-based, standardized approach to teaching, evaluating, and improving handoffs.

During the development of this curriculum for the original I-PASS Study,⁶ it quickly became evident that having faculty members who were well trained in handoff communication skills and how to observe these skills in residents would be necessary to roll out the intervention at each site.¹³ Despite this designation as a critical link, we noted that many faculty members and other clinical leaders who volunteered to serve as champions had never received handoff training during their careers and, therefore, were ill equipped to tackle this monumental task. It was imperative to the project's success that a specialized curriculum be created for these champions that provided training in effective handoff techniques and communication skills, how to conduct handoff observations, how to provide feedback to residents on handoff quality, and, lastly, how champions could assist in the implementation of the entire curriculum and support the I-PASS campaign. These faculty members, also known as I-PASS champions, would be critical to the success of the intervention as they would be responsible for ensuring effective workplace-based assessment of resident handoff skills.

Individuals who have typically served as I-PASS champions include faculty or attending physicians, chief residents, senior residents, nursing leaders, quality improvement leaders, and other key educators at an institution. These individuals generally have experience in the clinical environment with handoff processes and therefore are well positioned to guide more-junior clinicians in their handoff skills and provide feedback. Initially, I-PASS champions are typically trained by the site leaders. This is done early in the implementation process and in advance of training frontline providers, whom the champions will be responsible for observing and providing feedback to. Once an initial group of champions is trained, its members can assist in training other champions, as well as training frontline providers. Champions can also be called upon to assist with or lead other elements of the I-PASS Handoff Program, including data collection from and analysis of the handoff observations, implementation of the I-PASS campaign, and interaction with key leaders and stakeholders.

The original I-PASS faculty champion materials were published in *MedEdPORTAL* in 2013.¹⁰ There have been over 100 requests for the materials since that time. The development of the original champion training materials utilized a rigorous approach following Kern's six steps for curriculum development.^{6,14} As part of the Society of Hospital Medicine (SHM) I-PASS Mentored Implementation Program, the materials underwent review and revision, reflecting the final steps of curriculum development that include evaluation and adaptation based upon feedback received. The updates to the curricular materials for this revised module include the development of training materials for both adult and pediatric providers, as well as the incorporation of more interactive and independent-study curricular elements.¹⁵ In addition to the implementation of the original champion curriculum at the nine original I-PASS Study sites, the newly updated I-PASS champion curriculum has been successfully implemented at 32 adult and pediatric hospitals across North America.

The I-PASS Mentored Implementation Handoff Curriculum champion training materials are an all-inclusive curriculum package for those looking to train faculty members or other experienced clinicians who could serve as I-PASS champions at their institution. The curriculum includes the I-PASS champion video module as well as the I-PASS Champion Workshop and complementary materials. The I-PASS Champion Workshop complementary materials include the I-PASS Champion Workshop interactive guide, the

handoff observation video, and an I-PASS Champion Workshop evaluation form. This resource can be implemented as an independent curriculum; however, we recommend concurrent implementation of the other complementary I-PASS curricular modules that are available in *MedEdPORTAL*.

Methods

The I-PASS Mentored Implementation Handoff Curriculum champion training materials were typically accessed by individuals leading the implementation and training efforts of a handoff program at a given site. Site leaders traditionally were residency program directors, division or section directors, chief residents, faculty members, hospital quality improvement leaders, or designated institutional officials. They were responsible for identifying individuals who could serve as I-PASS champions at their site.

Incorporating a flipped classroom approach to promote efficient training of these adult learners,¹⁶ the training of our champions began with having them view the I-PASS champion video module (Appendix A) independently in advance of the in-person I-PASS Champion Workshop. This was accomplished by showing the video during a meeting time or sending a link to the video (posted on a hospital shared drive or other online format). This 20-minute module provided site champions and faculty members with an overview of the I-PASS Handoff Program and a framework on how to implement all aspects of the program with various groups of providers and how to adapt it to their own institution.

Our champions then attended the in-person I-PASS Champion Workshop (Appendix B), which took place in a conference room with video and audio capabilities. The workshop provided site and faculty champions with an overview of the I-PASS handoff techniques, as well as an opportunity to practice evaluating handoffs with the I-PASS observation tools (contained in Appendix C) using a simulated handoff scenario in the handoff observation video (Appendix D). I-PASS champions also received guidance on how to adapt the program for their institutional needs, overcome barriers, develop a plan for trainings and observations, and review an example of an organizational chart. This in-person training session took about 90-120 minutes. It could be executed in one longer session or be broken up into two shorter sessions. If electing to break the workshop into two shorter sessions, we suggest covering all the initial material through “The Role of the I-PASS Champion: What We Need From You” in the first session, then resuming with “Handoff Observations: Observation Basics & Assessment Tools” and continuing with the remaining material during the second session.

All videos were embedded in the slides; however, if they do not format correctly for future users, they can be embedded in the slides locally. The I-PASS Champion Workshop handout (Appendix C) was printed in advance of the workshop and distributed to champions at the start of the session. The handout contained the necessary information to experience the interactive session, including examples of the I-PASS handoff assessment tools that champions gained competency in using during the session.

After viewing the I-PASS champion video module and participating in the in-person I-PASS Champion Workshop, I-PASS champions at all of the 32 SHM I-PASS sites were asked to complete a survey form (Appendix E) evaluating the curriculum. These surveys were distributed as either paper forms or a link to a REDCap survey tool, via either a tiny URL or a QR code at the end of the in-person workshop. The surveys contained various questions about the champions’ confidence in executing various skills related to the curriculum, as well as the importance of the training to their patient care activities. Responses to these questions were collected on a 5-point Likert scale. The survey results were analyzed by dichotomizing them into strongly agree/agree, neutral, and disagree/strongly disagree. The number of champions trained as a part of the program, as well as the number of handoff observations conducted by these champions, was also collected.

Champion training for the SHM I-PASS Mentored Implementation Program took place a few months in advance of the training of any frontline providers, roughly about 2 to 3 months into the implementation process. Training champions well in advance of training frontline providers was necessary because

champions would be called upon to observe frontline providers prior to full-scale implementation of the program in order to establish baseline data for handoff performance.

Results

Three hundred sixty-six champions participated in the SHM I-PASS Mentored Implementation Program's champion training at the 32 sites across North America. This group included champions with expertise in both internal medicine and pediatrics. These I-PASS champions participated in a total of 3,491 observations of the giver of a handoff ($M = 194/\text{month}$) and 2,444 observations of the receiver of a handoff ($M = 136/\text{month}$) following the start of the program in 2015. Three hundred forty-six champions completed the I-PASS Champion Workshop evaluation form at the end of their training (94.5% response rate). Faculty responses from the evaluation form are detailed in the [Table](#).

Table. I-PASS^a Champion Workshop Evaluation Form Responses ($N = 346$)

Evaluation Question	No. (%) Agreeing or Strongly Agreeing
After participating in the workshop, I am able to:	
Articulate the importance of effective team training strategies to improve handoff communication	337 (97%)
Articulate the elements of the I-PASS mnemonic	334 (97%)
Compare and contrast the qualities that distinguish a poor-quality from a high-quality handoff	329 (95%)
Describe the role of I-PASS champions in implementing the I-PASS Handoff Program	322 (93%)
Discuss the organization of training for various personnel at one's institution	298 (86%)
Articulate the importance of champion observations with formative feedback to the success of the implementation of the I-PASS Handoff Program at one's institution	327 (95%)
Discuss the importance of the I-PASS campaign during implementation and for sustaining culture change	325 (94%)
Demonstrate competent use of the I-PASS handoff assessment tools	327 (95%)
Describe considerations for adapting I-PASS in the local environment	313 (90%)
Articulate key steps for successful implementation of the I-PASS Handoff Program	321 (93%)
This workshop provided me with knowledge and skills relevant to my patient care activities	316 (91%)

^aI-PASS is a mnemonic for the elements of the handoff process: I, illness severity; P, patient summary; A, action items; S, situation awareness and contingency planning; and S, synthesis by receiver.

Discussion

The development of the I-PASS Mentored Implementation Handoff Curriculum reflects a 6-year collaborative effort between medical educators, health services researchers, experts in quality improvement and patient safety, and the SHM to develop an innovative suite of educational materials that has been proven to have a positive impact on the safety, efficiency, and efficacy of shift-to-shift handoffs between providers. The implementation of this curriculum at the nine original study sites was shown to have a significant impact on patient safety and on the educational experience of resident and faculty physicians without adversely impacting their day-to-day workflow.¹⁷ Early data collected from the SHM I-PASS Mentored Implementation Program is demonstrating a similar trend. After receiving the I-PASS Mentored Implementation Handoff Curriculum champion training materials, over 90% of the 346 champions agreed or strongly agreed that the training provided them with knowledge or skills critical to their patient care activities. A large percentage also noted that after receiving the training, they were able to distinguish the difference between high- and poor-quality handoffs, competently use the I-PASS handoff assessment tools, articulate the importance of handoff observations in successful implementation and sustainment of the I-PASS Handoff Program, and articulate key steps for successful implementation of the program.

We believe that the success of the I-PASS Handoff Program at all the intervention sites to date can be directly attributed to the development of a robust curriculum for I-PASS champions. These champions were pivotal in assisting with the implementation and sustainment efforts of the program at the nine original study sites and the 32 SHM mentored implementation sites. We found that stimulating culture change and altering physician practice habits during these projects required regular monitoring of handoff practices and provision of feedback on performance, at both an individual and an institutional level. The data the champions obtained during the initial study and subsequent dissemination efforts highlighted the success of the intervention and helped stimulate tests of change through quality improvement efforts. The observations also helped to reinforce good communication and handoff behaviors early in the project.

During the implementation of this curriculum at the intervention sites, we encountered three key challenges that we believe need to be addressed at other sites to ensure successful adoption. We present some potential solutions to these challenges below.

1. Lack of insight into the need for handoff training: While most I-PASS champions and frontline providers recognized their individual need for additional training and personal development, some did not recognize this skill gap. In addition, some did not support the rigor of the I-PASS champion curriculum or the structure of the I-PASS handoff process. In order to address this deficiency, we provided published data as to the known skill gap in handoffs amongst health care providers, elicited support from high-level institutional leaders, and capitalized on the support of early adopters of the program.
2. Gaining buy-in from champions: In addition to using published data on the impact of poor handoff communication on patient safety outcomes and gaining support from high-level institutional leaders, we also attempted to incentivize champions to participate in the program. The incentives we used included an attestation noting participation that could be added to one's curriculum vitae and provision of continuing medical education and Maintenance of Certification Part 4 credit through the American Board of Pediatrics and American Board of Internal Medicine.¹³
3. Lack of time to train champions: Universally, across all our intervention sites, finding time to train faculty in the champion curriculum was challenging given the clinical, administrative, and research demands busy clinicians faced. In order to address this challenge in this revised version of the curriculum, we embraced more flexible and multimodal training options, including a video module to be viewed prior to an in-person workshop. This flipped classroom approach to training allowed for asynchronous independent learning, followed by a shorter in-person session focusing mainly on application of skills in simulated scenarios.¹⁶

The I-PASS Mentored Implementation Handoff Curriculum champion training materials are a critical element of institutional implementation of the I-PASS Handoff Program and meet the specialized learning needs of project champions. Future work of the I-PASS Study Group will focus on further dissemination of the curricular materials and reflection on how to continue to meet the learning needs of champions in a wide range of specialties and health care institutions.

Jennifer K. O'Toole, MD, MEd: Director, Internal Medicine-Pediatrics Residency Program, University of Cincinnati College of Medicine; Associate Professor, Department of Pediatrics, Cincinnati Children's Hospital Medical Center; Associate Professor, Department of Internal Medicine, University of Cincinnati College of Medicine

Amy J. Starmer, MD, MPH: Director of Primary Care Quality Improvement, Boston Children's Hospital; Assistant Professor, Department of Pediatrics, Harvard Medical School

Sharon Calaman, MD: Associate Professor, Department of Pediatrics, Drexel University College of Medicine; Director, Pediatric Residency Program, St. Christopher's Hospital for Children

Maria-Lucia Campos: Research Study Coordinator, Division of General Pediatrics, Boston Children's Hospital

Jennifer Hepps, MD: Assistant Professor, Department of Pediatrics, Uniformed Services University of the Health Sciences

Joseph O. Lopreiato, MD, MPH: Professor, Department of Pediatrics, Uniformed Services University of the Health Sciences; Associate Dean for Simulation Education, Uniformed Services University of the Health Sciences

Shilpa J. Patel, MD: Associate Professor, Department of Pediatrics, University of Hawaii, John A. Burns School of Medicine; Pediatric Hospitalist, Kapi'olani Medical Center for Women & Children

Glenn Rosenbluth, MD: Associate Director, Pediatric Residency Program, Benioff Children's Hospital; Professor, Department of Pediatrics, University of California, San Francisco, School of Medicine

Jeffrey L. Schnipper, MD, MPH: Associate Professor, Department of Medicine, Harvard Medical School; Associate Professor, Department of Medicine, Brigham and Women's Hospital

Theodore C. Sectish, MD: Program Director, Boston Combined Residency Program in Pediatrics, Boston Children's Hospital; Vice Chair for Education, Boston Combined Residency Program in Pediatrics, Boston Children's Hospital; Professor, Department of Pediatrics, Harvard Medical School

Rajendu Srivastava, MD, MPH, FRCPC: Assistant Vice President of Research, Intermountain Healthcare; Tenured Associate Professor, Department of Pediatrics, Division of Inpatient Medicine, University of Utah School of Medicine

Daniel C. West, MD: Director, Pediatric Residency Program, University of California, San Francisco, School of Medicine; Vice-Chair for Education, University of California, San Francisco, School of Medicine; Professor, Department of Pediatrics, University of California, San Francisco, School of Medicine

Clifton E. Yu, MD: Director, Graduate Medical Education, Walter Reed National Military Medical Center; Associate Professor, Department of Pediatrics, Uniformed Services University of the Health Sciences

Christopher P. Landrigan, MD, MPH: Director of Research, Inpatient Pediatrics Service, Boston Children's Hospital; Director, Sleep and Patient Safety Program, Brigham and Women's Hospital; Associate Professor, Department of Medicine, Harvard Medical School; Associate Professor, Department of Pediatrics, Harvard Medical School

Nancy D. Spector, MD: Executive Director, Executive Leadership in Academic Medicine Program, Drexel University College of Medicine; Associate Dean for Faculty Development, Drexel University College of Medicine; Professor, Department of Pediatrics, Drexel University College of Medicine

Acknowledgments

The I-PASS Study Education Executive Committee members are Amy J. Starmer, MD, MPH, Co-Chair; Nancy D. Spector, MD, Co-Chair; James F. Bale, Jr., MD; Zia Bismilla, MD, MEd, FRCPC; Sharon Calaman, MD; Maitreya Coffey, MD, FRCPC; F. Sessions Cole, MD; Lauren A. Destino, MD; Jennifer L. Everhart, MD; Jennifer Hepps, MD; Christopher P. Landrigan, MD, MPH; Joseph O. Lopreiato, MD, MPH; Elizabeth L. Noble; Jennifer K. O'Toole, MD, MEd; Shilpa J. Patel, MD; Glenn Rosenbluth, MD; Theodore C. Sectish, MD; Rajendu Srivastava, MD, MPH, FRCPC; Adam T. Stevenson, MD; Lisa L. Tse; Daniel C. West, MD; and Clifton E. Yu, MD.

Disclosures

None to report.

Funding/Support

Dr. Calaman reports grants from the Agency for Healthcare Research and Quality during the conduct of the study and other support from the I-PASS Patient Safety Institute outside the submitted work.

Ms. Campos reports grants from the Agency for Healthcare Research and Quality during the conduct of the study.

Dr. Landrigan reports grants from the Agency for Healthcare Research and Quality during the conduct of the study; other support from consulting to facilitate I-PASS implementation at Massachusetts General Hospital, New York Presbyterian Hospital, and MD Anderson; personal fees from Virgin Pulse; and personal fees and other support from the I-PASS Patient Safety Institute outside the submitted work. In addition, Dr. Landrigan has a copyright on the I-PASS Handoff Curriculum.

Dr. O'Toole reports grants from the Agency for Healthcare Research and Quality during the conduct of the study.

Dr. Patel reports grants from the Agency for Healthcare Research and Quality during the conduct of the study and personal fees from the I-PASS Patient Safety Institute outside the submitted work.

Dr. Rosenbluth reports grants from the Boston Children's Hospital during the conduct of the study and personal fees from the I-PASS Patient Safety Institute outside the submitted work.

Dr. Sectish reports grants from the Agency for Healthcare Research and Quality during the conduct of the study.

Dr. Spector reports grants from the Agency for Healthcare Research and Quality during the conduct of the study.

Dr. Srivastava reports grants from the Children's Hospital Association, personal fees from Children's Hospitals, and other support from the I-PASS Patient Safety Institute outside the submitted work.

Dr. Starmer reports grants from the Agency for Healthcare Research and Quality during the conduct of the study and other support from the I-PASS Patient Safety Institute outside the submitted work.

Dr. West reports grants from the Agency for Healthcare Research and Quality during the conduct of the study, personal fees and other support from the I-PASS Patient Safety Institute, and personal fees from the Boston Children's Hospital outside the submitted work. Dr. West also is a cofounder of and has an equity interest in the I-PASS Patient Safety Institute, a mission-driven company with the goal of assisting health systems and hospitals to implement I-PASS to improve patient safety.

Informed Consent

All identifiable persons in this resource have granted their permission.

Ethical Approval

Boston Children's Hospital Institutional Review Board approved this study.

References

1. Landrigan CP. The handoff: a critical point of vulnerability. *Forum*. 2007;25(1):6-7.
2. The Joint Commission. Improving hand-off communications: meeting National Patient Safety Goal 2E. *Jt Comm Perspect Patient Saf*. 2006;6(8):9-15.
3. Accreditation Council for Graduate Medical Education. ACGME common program requirements. Accreditation Council for Graduate Medical Education website. http://www.acgme.org/Portals/0/PFAssets/ProgramRequirements/CPRs_2017-07-01.pdf. Accessed April 18, 2018.
4. *Core Entrustable Professional Activities for Entering Residency: Curriculum Developer's Guide*. Washington, DC: Association of American Medical Colleges; 2014.
5. Gordon M, Hill E, Stojan JN, Daniel M. Educational interventions to improve handover in health care: an updated systematic review. *Acad Med*. 2018;93(8):1234-1244. <https://doi.org/10.1097/ACM.0000000000002236>
6. Starmer AJ, O'Toole JK, Rosenbluth G, et al; for I-PASS Study Education Executive Committee. Development, implementation, and dissemination of the I-PASS Handoff Curriculum: a multisite educational intervention to improve patient handoffs. *Acad Med*. 2014;89(6):876-884. <https://doi.org/10.1097/ACM.0000000000000264>
7. Spector ND, Starmer AJ, Allen AD, et al; I-PASS Education Executive Committee. I-PASS Handoff Curriculum: core resident workshop. *MedEdPORTAL*. 2013;9:9311. https://doi.org/10.15766/mep_2374-8265.9311
8. Calaman S, Hepps J, Spector ND, et al; I-PASS Education Executive Committee. I-PASS Handoff Curriculum: handoff simulation exercises. *MedEdPORTAL*. 2013;9:9402. http://doi.org/10.15766/mep_2374-8265.9402
9. Rosenbluth G, Patel SJ, Destino LA, et al; I-PASS Education Executive Committee. I-PASS Handoff Curriculum: campaign toolkit. *MedEdPORTAL*. 2013;9:9397. http://doi.org/10.15766/mep_2374-8265.9397
10. O'Toole J, Sectish T, Starmer AJ, et al; I-PASS Education Executive Committee. I-PASS Handoff Curriculum: faculty development resources. *MedEdPORTAL*. 2013;9:9540. http://doi.org/10.15766/mep_2374-8265.9540
11. Starmer AJ, Landrigan C, Srivastava R, et al; I-PASS Education Executive Committee. I-PASS Handoff Curriculum: faculty observation tools. *MedEdPORTAL*. 2013;9:9570. http://doi.org/10.15766/mep_2374-8265.9570
12. O'Toole J, Calaman S, Everhart J, et al. I-PASS Handoff Curriculum: medical student workshop. *MedEdPORTAL*. 2014;10:9854. http://doi.org/10.15766/mep_2374-8265.9854
13. O'Toole JK, West DC, Starmer AJ, et al; I-PASS Education Executive Committee. Placing faculty development front and center in a multisite educational initiative: lessons from the I-PASS handoff study. *Acad Pediatr*. 2014;14(3):221-224. <https://doi.org/10.1016/j.acap.2014.02.013>
14. Kern DE, Thomas PA, Hughes MT, eds. *Curriculum Development for Medical Education: A Six-Step Approach*. 2nd ed. Baltimore, MD: Johns Hopkins University Press; 2009.
15. Knowles MS. *Andragogy in Action: Applying Modern Principles of Adult Learning*. San Francisco, CA: Jossey-Bass; 1984.
16. Chen F, Lui AM, Martinelli SM. A systematic review of the effectiveness of flipped classrooms in medical education. *Med Educ*. 2017;51(6):585-597. <https://doi.org/10.1111/medu.13272>
17. Starmer AJ, Spector ND, Srivastava R, et al; for I-PASS Study Group. Changes in medical errors after implementation of a handoff program. *N Engl J Med*. 2014;371(19):1803-1812. <https://doi.org/10.1056/NEJMsa1405556>

Received: June 28, 2018 | Accepted: December 1, 2018 | Published: January 10, 2019