CONFERENCE RECOMMENDATIONS

April 15–18, 2018 | Atlanta, GA

Improving Environments for Learning in the Health Professions

Recommendations from the Macy Foundation Conference

Over the past decade, significant strides have been made in the United States toward reforming and aligning health professions education and the health care delivery system with the ultimate goal of improving the health of the public. During the same period of time, however, the challenges facing those engaged in these enterprises have been largely overlooked. These challenges, among many others, include: revolutionary changes in the health care industry; increasing demands on practitioners to increase clinical productivity and improve patient safety and quality of care; structural systems of inequities and exclusion; and health disparities. Among health professions learners, educators, and practitioners, these trends are producing increasing rates of burnout, distress, and depression. Even those not experiencing these things will have their learning adversely affected by negative environmental factors. As a nation, we have reached a critical moment and are now faced with an urgent need to dramatically improve the environments in which current and future health professionals learn and work and we all receive care.

Learning environments (LEs) are created when people come together to share knowledge, skills, and information to improve the performance of all involved. These environments can be formal or informal and occur within a particular social, organizational, physical, and/or virtual setting. Learning environments comprise a wide array of structures and formats within organizations that vary by purpose, scope, size, location, availability of resources, leadership, and infrastructure.

Definition of "Learning Environment"

Learning environment refers to the social interactions, organizational cultures and structures, and physical and virtual spaces that surround and shape participants' experiences, perceptions, and learning.

Definition of "Learners"

In a continuously learning and improving health system, every participant is both a learner and a teacher. Participants include undergraduate and graduate health professions students, trainees, and researchers enrolled in formal educational programs as well as practitioners, educators, administrators, staff, patients, families, and community members.

Health professionals want their learning and work to be meaningful, stimulating, empowering, collaborative, and respectful. Yet too many experience the opposite: high levels of depression and burnout as well as distress and marginalization and/or exclusion. The national initiatives designed to create optimal learning and work environments for health professions learners, educators, and practitioners, and ultimately contribute to better outcomes for patients, have not yet achieved the necessary results. They require more meaningful attention, including identifying and broadly disseminating best practices.

This conviction motivated the Josiah Macy Jr. Foundation to host a conference on *Improving Environments for Learning in the Health Professions*. Held in Atlanta in April 2018, the two-and-a-half-day meeting brought together a group of 44 invited experts to identify the elements of optimal health professions LEs and recommend actions needed to better align them with patient needs and societal goals for better health.

"This is possibly the most important conference we've ever had," said George Thibault, MD, president of the Macy Foundation, during his opening remarks. "It certainly represents the culmination of our previous conferences. Actionable recommendations to improve health professions learning environments will be the great enabler or facilitator of many of our previous sets

of conference recommendations—all of which have been directed toward reforming, aligning, and integrating health professions education and clinical practice to improve the health of the public."

Background

For the past decade, the Josiah Macy Jr. Foundation has sought to improve health by better aligning health professions education with societal needs through work focused in five priority areas: interprofessional education and teamwork, new curriculum content, new models for clinical education, education for the care of underserved populations, and career development of future leaders in health professions education. One of the many ways the Foundation has advanced these priorities over the last decade has been through annual, invitation-only conferences that bring together experts to develop recommendations designed to amplify best practices and exemplars.

Recommendations from these conferences have tended to focus on important elements controlled by health professions educators, including faculty and staff development, curricular content, measurement and assessment, and use of educational technologies. Upon review of this previous work, it became clear that one important element surrounds and connects all of it: the health professions learning environment. Further, it is increasingly clear that negative environments for learning can undermine other well-designed and well-intended efforts to improve education, research, and patient care.

The Macy Foundation's recognition of this reality was informed by important work on the clinical LE being done by the Accreditation Council for Graduate Medical Education (ACGME) and its Clinical Learning Environment Review (CLER) program; the National Collaborative for Improving the Clinical Learning Environment (NCICLE) and its work on the interprofessional clinical LE; and the National Center for Interprofessional Practice and Education (NCIPE) and its work at the nexus of collaborative practice and IPE. The decision to examine LEs was reinforced by the crisis levels of burnout being reported among clinicians and learners across the professions. The Foundation's interest lies in all learning environments that are relevant to health care, whether in a physical or virtual classroom, a laboratory, a simulation center, a clinical setting, the community, or anywhere else.

For this conference on *Improving Environments for Learning in the Health Professions*, the Foundation assembled leaders in health professions education and health care delivery, as well as health professions learners, representatives of accrediting bodies, and patient advocates. Conferees discussed two papers commissioned to inform the proceedings. One reviewed the literature and identified interventions designed to improve health professions LEs; the other offered a vision for a high-functioning learning environment. They also discussed three case studies from institutions that have worked specifically to improve their health professions learning environments.[1]

The first commissioned paper, *Interventions Designed to Improve the Learning Environment in the Health Professions: A Scoping Review*, was authored by Larry Gruppen, PhD, of the University of Michigan; David Irby, PhD, of the University of California, San Francisco; and Steven Durning, MD, PhD, and Lauren Maggio, MS(LIS), PhD, of the Uniformed Services University. The paper noted that "learning environment," as it has appeared in the health professions education literature, is a complex theoretical construct that has lacked a unified definition. The authors, therefore, proposed a conceptual framework for LEs comprised of four overlapping, interactive components:

1. *Personal Component*. The individual learner interacts with the LE through activity, develops perceptions of the LE, and engages in personal growth through clarity about goals, selection of relevant and meaningful learning; and in the process develops professional identity and increasing autonomy.

2. *Social Component.* Learners engage with others and navigate multiple relationships that shape their perceptions of and experiences with the LE. These relationships—peer-to-peer, learner-to-faculty/staff, and learner-to-patient—influence what and how students learn.

[1] The commissioned papers and case studies will be included in a comprehensive conference monograph, which the Foundation will publish later in 2018.

3. *Organizational Component.* Organizations provide structure, guidance, and support for learning, including curriculum resources, geographic placements, accreditation rules, as well as organizational culture, practices, and policies.

4. *Physical and Virtual Component.* Learning and practice take place within physical spaces of educational and practice settings. Similarly, informational infrastructures and resources (e.g., online resources, electronic health records, 3D/augmented reality) provide a virtual "space" in which learning is fostered.

The scoping review identified 68 studies of LEs that offered insights regarding the four components described above. In general, the authors found a lack of agreement on the following: how the studies defined LEs, what constituted a valid study design, and what were useful measures of LE performance. They also noted the major interventions to improve LEs evaluated by the studies including accreditation regulations, curricular interventions, faculty/staff development, grading practices, instructional interventions, placements, physical and virtual spaces, and support services. The results reflect the complexity of LEs, the need for conceptual clarity, and a paucity of rigorous research.

The second paper, *Toward Exemplary Learning Environments for the Health Professions*, described a vision for what may be possible. It was authored by Sandrijn van Schaik, MD, PhD, of the University of California, San Francisco; Susan Reeves, EdD, RN, of Dartmouth-Hitchcock Health; and Linda Headrick, MD, MS, FACP, of the University of Missouri-Columbia. According to the authors, such a vision needs to be actionable and embrace the organizational complexity of health care and health professions education. Using concepts from complex adaptive systems, the authors described a powerful vision for innovation and change built around four so-called "simple rules":

1. Health care and health professional education share the goal of improving health for individuals, populations, and communities;

2. In exemplary LEs, learning is work and work is learning;

3. Exemplary LEs recognize that collaboration with integration of diverse perspectives is essential for success; and

4. The organizations and agents in the LEs continuously improve and innovate by learning about themselves and the greater system in which they learn/work.

For each of these concepts, the authors described how the current state of health care and health professions education diverges from this vision for the future and provided ideas about how to reach the vision using specific examples from the literature.

In addition, case studies from health care and education organizations that have worked to improve their LEs serve as examples for those aspiring to create similar changes. Each of the three case studies developed for the conference focused on an institutional commitment to improve health professions learning environments. One described the efforts of Aurora Health Care, an integrated health care system in Milwaukee, Wisconsin, to design "vibrant clinical workplace learning environments to improve patient care, promote continuous learning, and support well-being." Another detailed a series of events that included Hurricane Katrina and the closure of a public health system in Baton Rouge, Louisiana, and that ultimately resulted in the transformation of a tertiary community hospital into an academic health center at Our Lady of the Lake Regional Medical Center. And the third featured the University of Rochester Medical Center's efforts—led by its Institute for Innovative Education—to reimagine the architecture of its LE.

Conference Discussion

Several cross-cutting themes related to exemplary LEs ran through the conference discussion. These themes, described below, give added meaning and urgency to the recommendations set forth in this conference report.

- **Everyone who participates in health professions learning environments shares the same goal: better health for all.** This shared goal—and social contract—is the

purpose of the entire health professions education/health care delivery system enterprise. Movement toward this goal can help bring together the different perspectives that exist within these complex organizations. In the process of creating an exemplary LE, recommitting to this shared goal can help diffuse stalemates and reinforce the compromises necessary to achieve change in structures and culture.

- **Rigorous research and expanded scholarship focused on evaluating and continuously improving health professions learning environments are needed immediately.** This is exemplified by the fact that there is no single agreed upon/commonly used definition of "learning environment" and "learners" within and across the health professions. In fact, the conferees found that the lack of a common lexicon initially inhibited their discussions and they, thus, came together around the definitions contained in this report.

- **Exemplary learning environments—and the organizations of which they are part—are fully committed to diversity, equity and inclusivity.** This means that the executives who lead organizations that include health professions LEs should be held accountable by their governing bodies for ensuring the quality and integrity of their LEs. The full range of human diversity—including race, ethnicity, gender, age, sexual orientation, physical ability, and socioeconomic background—must be reflected in the organization's LEs and fully integrated into its mission, culture, policies, and procedures at the macro, meso, and micro levels. A commitment to diversity, equity, and inclusion in LEs ensures excellence and is essential to developing a health professions workforce that adequately reflects and serves society at large.

- **In exemplary learning environments, all participants—including board members, executives, administrators, practitioners, educators, staff, and students as well as patients, families, and community members—are teachers *and* learners.** They share a dedication to lifelong learning as well as responsibility for the creation and maintenance of an exemplary LE. In particular, patients, families, and community members—when viewed as participants in health professions learning environments—can become more activated, knowledgeable, and empowered to share their expertise. These perspectives are critical to successfully improving systems of care as well as to achieving excellence in the care of individuals.

- **Exemplary learning environments support the well-being of all participants.** In addition to improved health for individuals, families, and communities, the well-being of learners, teachers, and practitioners is one of the outcomes of an optimal learning environment. Individual well-being is powerfully shaped by the LE.

Conference participants reached consensus around the following vision for exemplary LEs, originally put forth by van Schaik, Reeves, and Headrick in their commissioned paper, *Toward Exemplary Learning Environments for the Health Professions*.

The authors of the vision statement below also provided this context: exemplary LEs include "health professions students, health care

VISION *Exemplary learning environments prepare, support, and inspire all involved in health professions education and health care to work toward optimal health of individuals, populations, and communities.*

professionals, non-clinical faculty, staff, and patients and families. Collectively, they and the organizations within which they learn, work, and seek care collaborate to advance their capabilities and create an inviting learning environment that fosters well-being and health for all."

Throughout the conference, the dialogue illuminated many of the essential characteristics of optimal LEs, which are:

1. Values-driven, with frequent discussion and reinforcement of values
2. Inclusive, encouraging a broad diversity of voices and valuing all who participate
3. Relationship-oriented, including nurturing learners' relationships with health professions team members as well as patients, families, and community members
4. Committed to the health and well-being of all participants
5. Connected with organizational leadership to align mission, values, and resources
6. Committed to continuous improvement
7. Broadly defined to include the physical and virtual spaces and organizational infrastructure
8. Transparent, with all relevant stakeholders represented at the table, contributing to decisions and helping to resolve conflicts
9. Igniters of passion and purpose in learning

By discussing, describing, debating, and defining exemplary LEs and exploring their potential for improving the health of the public, the conferees reached consensus around the following recommendations. They are generally organized around the four components of LEs: personal, social, organizational, and physical/virtual spaces, with the organizational and physical/virtual components supporting the social and personal components.

Conference Recommendations

I: Engaging Academic and Health Care Organization Governance

Governance bodies and executive leadership of organizations responsible for health professions education and health care delivery should ensure positive learning and work environments and be held accountable for allocating the resources necessary to achieve this.

II: Engaging Executive Leadership to Provide Organizational Support

Executive leaders of health professions education and health care organizations should create cultures in which resources, policies, and processes support optimal learning environments across the continuum of health professions education.

III: Creating Physical and Virtual Spaces for Learning

Those in positions of responsibility for learning environments in health professions education and health care organizations should ensure appropriate, flexible, and safe spaces (physical and virtual) for learning.

IV: Providing Faculty and Staff Development

Leaders of health professions education and health care organizations should ensure continuous learning and development opportunities for their faculty and staff to improve learning environments.

V: Promoting Research and Scholarship

Those in positions of responsibility for learning environments should be committed to continuously evaluating, improving, and conducting research on those learning environments.

VI: Setting Policy

Health professions education and health care organization leaders and accreditors should engage in policy advocacy for improvements in health professions learning environments.

Recommendations

I. **Engaging Academic and Health Care Organization Governance**

Governance bodies and executive leadership of organizations responsible for health professions education and health care delivery should ensure positive learning and work environments and be held accountable for allocating the resources necessary to achieve this.

Governance refers to the policy-setting and oversight body to which management is accountable. While the form of governance can vary greatly across diverse academic and clinical organizational structures, its leadership remains ultimately responsible for LEs.

Actionable Recommendations

1. *Leaders in governance and management should develop and maintain the knowledge and skills needed to ensure high-performing learning environments.* This requires thoughtful assessment of board members' competencies for oversight of learners' needs and experiences in the organization. Where multiple entities (e.g., health professions education programs and health care organizations) share oversight of the same LE, executive management should work toward optimal alignment of equitable policies that affect the LE.

2. *Governing boards should assess the quality of learning environments annually, set expectations for management for the coming year, and recommend actions designed to improve them.* Sustaining vibrant LEs calls for an annual review of each LE, which includes understanding the LE culture; educational programming to support the LE; and educational outcomes, including the well-being of learners, faculty/mentors, and workers. LEs are complex and therefore require a measurement framework that is multi-dimensional. Examples of performance areas that governance might consider in a measurement framework include the following:

    a. Quality of the learning culture

    b. Learning outcomes and competencies across different members of the work group

    c. Engagement of patients, educators, and practitioners in safety and quality improvement

    d. Interprofessional collaboration

    e. Well-being

    f. Professionalism

II. **Engaging Executive Leadership to Provide Organizational Support**

Executive leaders of health professions education and health care organizations should create cultures in which resources, policies, and processes support optimal learning environments across the continuum of health professions education.

Health professions learners, educators, and practitioners work and learn in a variety of locations and organizations. These organizations are responsible for creating LEs that facilitate learning at all levels from pre-licensure to graduate and continuing professional education. The following recommendations intentionally sharpen an organization's mission to improve the health of individuals, populations, and the communities it serves through optimization of its LEs.

Actionable Recommendations

1. *Executive leaders of health professions education and health care organizations should create and sustain a just, inclusive, and civil culture that fosters respectful relationships in learning environments.* Such a culture ensures equitable treatment of all, successful integration of diverse people and perspectives, and respectful

interactions that support learning and work. In this culture, faculty members and supervisors use role modeling and mentoring to foster opportunities for all LE participants to build welcoming and inclusive relationships. Further, executive leaders should pay attention to the well-being and resilience of learners, educators, and practitioners. To these ends, executive leaders can do the following:

a. Support attendance at team-training programs that develop trust, knowledge, and skill in recognizing, responding to, and mitigating implicit and explicit bias for all LE participants.

b. Implement evidence-based strategies that have effectively promoted workplace civility and psychological safety, such as the U.S. Department of Veteran Affairs' Civility, Respect, and Engagement at the Workplace (CREW) program.

c. Administer policies and procedures that explicate expectations about behaviors reflective of a just, inclusive, and civil culture, as well as interventions with individuals manifesting behaviors that are inconsistent with this culture.

d. Administer policies and procedures for the recruitment of individuals who reflect the population being served and the cultivation of an empowering environment that supports success.

e. Implement specific plans for leadership development, particularly among under-represented groups.

f. Establish human resource policies that support hiring talented people who manifest attitudes and behaviors associated with a just, inclusive, and civil culture.

2. *Executive leaders of health professions education and health care organizations should adopt and sustain a culture that promotes inquiry, equity, quality, and safety in clinical learning environments.* Promoting inquiry, quality, and safety within health care is essential to fostering habits of improvement, preventing errors, and advancing the overall quality of health care. Organizations should develop structured and disciplined cultures of inquiry and equity that foster improvement at the individual, team, and enterprise levels. To these ends, organizations can:

    a. Collect performance data on individuals and teams, on LEs, and on institutional outcomes to drive continuous improvement.

    b. Enhance and value all learners' active participation in health care quality and improvement activities.

    c. Identify or develop tools and resources to improve communication within, among, and between clinical teams and patients about various aspects of care.

    d. Identify or develop and sustain specific approaches to reducing workforce burnout. To achieve this, more research is required to understand the multidimensional causation of burnout within LEs.

    e. Integrate and support interprofessional education and competency development within the organization.

3. *Executive leaders of health professions education and health care organizations should support the training and development of health professions learners across all levels and disciplines as a means of enhancing learning environments.* Mastery of competence requires the investment of time and effort from teachers, mentors, preceptors, and supervisors.

4. *Executive leaders of health professions education and health care organizations should coordinate resources and create balance between service and academic responsibilities for faculty and learners*. Adequate time, space, and resources are needed for high-quality teaching and supervision of health professions learners. There must be an appropriate balance between service obligations and educational opportunities through the management of clinical productivity. Resources should be allocated as needed to assure the well-being of all participants.

III. Creating Physical and Virtual Spaces for Learning

Those in positions of responsibility for learning environments in health professions education and health care organizations should ensure appropriate, flexible, and safe spaces (physical and virtual) for learning.

Learning environments in health professions education and practice may include classrooms, laboratories, simulation centers, clinical facilities, community organizations, and virtual learning platforms. They exist in physical structures that range from mobile health vans and homeless shelters to large and complex health care facilities. Virtual formats include online learning systems, teleconference facilities, virtual reality platforms, and electronic health record systems. Active learning occurs formally and informally on multiple levels that span rural, urban, and suburban areas locally, nationally, and internationally. These learning spaces should ignite passion and drive to optimize learning. Flexibility in the design of these various spaces allows for broader utilization of diverse learning and instructional needs as they change over time.

Actionable Recommendations

1. *Organizations should ensure that learning environment spaces (physical and virtual) purposefully address the key elements of safety, engagement, connectedness, support (infrastructure), access, and climate.* See Table 1 on the following page for more on these core elements.

2. *Organizations should structure learning environment spaces to optimize (a) the co-construction of learning among all learning environment participants and (b) a just, inclusive, and civil culture that fosters mutual respect and inclusion*. Co-construction of learning should include educators, practitioners, learners, patients, families, and community members—with assurances that all roles and voices are visible and heard.

3. Organizations should design learning environment spaces in flexible and adaptable configurations to continuously improve the health and well-being of all participants.

4. Organizations should include all relevant stakeholders in design, implementation, and evaluation of learning environment spaces.

IV. Providing Faculty and Staff Development

Leaders of health professions education and health care organizations should ensure continuous learning and development opportunities for their faculty and staff to improve learning environments.

Organizational leaders should promote environments that value learning and are just, inclusive, and civil for all who learn and work in health care, including patients, families, and community members. Learning can bring joy, stimulate vitality, and build resilience, and all participants should be simultaneously considered teachers and learners. High-performing learning environments contribute to the pursuit of the quadruple aim, the conceptual framework that encourages not only efforts to promote population health, improve the patient experience, and deliver value, but also the need to create joy in work for health care providers. Faculty and staff development is a powerful tool for improving learning environments and should be employed to create a culture of inclusion and joy.

Table 1: Core Elements of Learning Environments with Illustrative Examples of Sites Where Learning Occurs

		Core Elements of Learning Spaces		
		SAFETY	ENGAGEMENT	CONNECTEDNESS
	DESCRIPTION	Learners must feel welcomed, respected, and assured of safeguards to protect their physical and psychological safety.	Learning environments (LEs) should facilitate learner engagement and promote collaborative learning.	LEs must facilitate a sense of belonging within the learning community and promote the social construction of learning that happens when learners and educators feel connected.
Illustrative Examples of Learning Environment Sites	CLASSROOMS	Maintain up-to-date physical plant; ensure lighting in and around buildings; provide escort services after hours; ensure evacuation procedures and alarm systems	Encourage team-based learning, flipped classrooms; case-based learning; learner-generated assignments	Personalize learning materials; co-create learning experiences
	LABORATORIES	Need personal safety protection equipment; ensure safety protocols and resources; provide escort services after hours	Engage learners in each stage of research process	Offer regular lab meetings with whole team; provide guided mentorship by post-doc/senior learners
	SIMULATION CENTERS	Provide up-to-date equipment; ensure first aid supplies available and evacuation protocols are known	Offer experiential learning that includes repeated practice, direct observation and feedback	Use first names; offer team training, where appropriate
	VIRTUAL RESOURCES (online learning, EHR, social media)	Provide secure log-in protocols and secure transmission of educational and patient information; provide guidelines for respectful discourse	Provide electronic learning platforms that include discussion boards, peer learning groups, blogs, social media	Create discussion boards and other means of communication to connect the learning community; provide introductions in video conferences; create work teams that share common goals
	CLINICAL SITES (formal and informal)	Provide lockers, personal space, badges, access measures; ensure policies to protect learners from abusive behaviors; offer escort services after hours	Include learners in all stages of care and engage them in bedside teaching, procedural training, point of contact teaching, conferences and huddles; seek input from learners at all stages	Introduce each member of the team; clarify tasks and communication protocols for sharing information with team members; identify tech resource supports
	COMMUNITY SITES (local, regional, national, global)	Ensure community partners have established safety protocols; certify safe housing, meals, and service opportunities; follow international travel warnings	Offer service learning opportunities (as opposed to pure observation), ensure understanding of social determinants of health and cultural sensitivity	Create dedicated time to learn local culture and create opportunities to share own experience/ perspective; ensure appropriate language skills for communication

The following table provides descriptions and illustrative examples of how the six core elements can be implemented.

Core Elements of Learning Spaces		
INFRASTRUCTURE	**ACCESS**	**CLIMATE**
Spaces require infrastructure support to optimize resources, including support staff, hardware and software, facilities improvement and maintenance, leadership, financial support, and accountability structures.	Learners and educators need access to a variety of spaces, technology, and resources to support learning. Consider ADA compliance and health equity issues.	In the design of facilities and virtual spaces, consider sensory cues of art, music, institutional symbols, history, and collaboration—all of which create a tone. These should represent diverse perspectives that promote a feeling of inclusion.
Provide media and technology support (e.g., media presentations, video conferencing)	Offer room scheduling technology; ensure technology-rich environments when needed (e.g., easy video conferencing); ensure ADA accommodations	Provide inclusive art on the walls; imagery used in slides; visual representation of teams—all of which depict and affirm diversity
Ensure appropriate lab equipment, storage and bench space that matches research requirements	Ensure proximity to collaborating labs, eating and social areas, and core research resources shared among the research community; ensure ADA accommodations	Create dedicated group work spaces between labs to facilitate networking and sharing of ideas
Provide simulation specialists, simulation and gaming technology	Provide simulation technology that matches learning needs; ensure ADA accommodations	Ensure that mannequins and equipment reflect diversity
Support learning management systems and support staff; create a learning space within the electronic health record (EHR)	Provide visual, auditory, and physical accommodations (e.g., offer closed caption on videos and multimedia materials)	Utilize websites that are diverse in perspective, sources, and content
Provide dedicated learning spaces proximal to bedside; ensure IPE spaces for team huddles and rounds	Offer electronic resources and learning portals to augment clinical instruction and patient education	Offer pictures on walls that show diversity; provide auditory cues where appropriate
Ensure local support staff and resources to facilitate experiential learning; provide transportation, food, and lodging, as needed	Create memoranda of understanding between programs and partners that outline issues of access and support, as well as finances to support expenses (e.g., travel, housing, where appropriate)	Integrate objectives focused on local culture into curriculum; ensure faculty discuss climate issues with learners

Actionable Recommendations

1. *Organizational leaders should ensure that structures and processes exist to provide faculty and staff development to improve learning environments and create a culture that is just, inclusive, and civil.* This should include, at a minimum, development of skills that enable faculty to do the following:

    a. Set clear expectations and incorporate learners' goals and objectives

    b. Appreciate and ensure diversity, equity, civility, and inclusion within the LE, including the development of skills around engaging historically marginalized groups

    c. Understand health disparities and social determinants of health

    d. Teach and model respectful communication skills

    e. Demonstrate interprofessional competencies

    f. Demonstrate professionalism

    g. Encourage self-awareness and reflective practice

2. *Organizational leaders should provide resources for the professional development of those with formal teaching roles and responsibility for educational design and assessment of learning outcomes.* This includes consultation from expert educators as well as adequate time, appropriate recognition, and rewards for attention to learning and well-being.

3. *Organizational leaders should monitor key aspects of learning environments (e.g., evidence of respect/non-discrimination, collaboration, safety, and improvement culture) and provide feedback to faculty and staff in order to drive improvement as well as future faculty development offerings.* Organizational leaders set the context for everyone's learning when they use data about LEs to continuously improve.

V. Promoting Research and Scholarship

Those in positions of responsibility for learning environments should be committed to continuously evaluating, improving, and conducting research on those learning environments.

A solid evidence base of research on LEs is needed in order to guide interventions intended to improve them. Thus, LEs should be the focus of sustained and well-funded evaluation and research. Studies of LEs should use rigorous research methods that are well designed, executed, and disseminated.

Actionable Recommendations

1. *Investigators should focus research and scholarship on ways of understanding and improving learning environments.* Studies of LEs should be guided by the framework described in the commissioned review paper by Gruppen et al. previously summarized in the "Background" section of this report. Recognizing the complexity of LEs, the elements in Table 2 (see next page) should be considered when designing evaluation, research, and scholarship.

2. *Investigators should use rigorous methodologies consistent with research questions and outcomes to be evaluated.* A broad range of methodologies should be considered when investigating and improving LEs (qualitative, quantitative, and mixed methods). Prior studies have largely focused on learner perceptions of LEs. Future studies should elucidate the contributing elements to positive and negative LEs, and where possible, incorporate the voices of participants in LEs. Investigators should clearly describe the interventions studied and select research methods that are rigorous and relevant to the question. Journal editors are encouraged to require authors to define what they mean by "learning environment,"and describe their specific LE(s).

3. *Organizations that collect information on learning environments should, where possible, make disaggregated data accessible to evaluators and researchers for subgroup analyses.* To address diversity, equity and inclusion goals,

investigators should collect data to examine the potential differential impact on subgroups. Thus, organizational data collected on LEs should be disaggregated, where feasible, to enable subgroup data analyses.

4. *Academic and health care organizations, professional and accreditation organizations should advocate for government and foundations to increase their funding for learning environment studies.* There is very limited funding available from federal and state governments or from philanthropic foundations to study LEs. Advocacy is needed to improve funding for this important area of scholarship.

VI. Setting Policy

Health professions education and health care organization leaders and accreditors should engage in policy advocacy for improvements in health professions learning environments.

Table 2: Elements to Consider in Designing Studies of LEs and Interpreting and Reporting Results

Components of Learning Environments	ELEMENTS TO BE CONSIDERED
Personal	• Who are the individuals ("learners," e.g., trainees, teachers, supervisors, staff, patients, etc.) in the LE being studied? • How are LEs described, taking into consideration elements of diversity and equity (e.g., personal histories, race/ethnicity, disability, gender identity, academic and/or work backgrounds)? • How would the individuals describe themselves? • How will individual learning, or performance, be assessed? • What are learners' perceptions of the LE?
Social	• What types of interpersonal interactions, including collaborations and conflicts, occur in the LE (consider patients, as well as intraprofessional, interprofessional, and staff members in the LE)? • What are the instructional strategies and pedagogical approaches used in the LE (consider formal, informal, and hidden elements)?
Organizational	• What organizational structures, practices, language, rituals, policies, norms, and routines are being investigated? • How aligned are the educational and clinical missions and practices? • What are the organizational resources, structures, and leadership? • What populations are served (patients, learners)?
Physical and Virtual Spaces	• What are the locations and qualities of the LE being studied (classroom, virtual, simulation, clinical workplace)? • What characteristics of the physical/virtual space influence learning? • What is the role of technology in the LE?

Enhancing the quality and performance of health professions LEs will require efforts beyond individual organizations. There must be advocacy for new policies aimed at funding, supporting, measuring, and improving LEs for health professionals to help them achieve their full professional potential. Health professions membership organizations and accrediting organizations (for professional learning and health care organizations) must form coalitions and partnerships to address state and federal governments' funding issues and other policy restrictions to creating optimal LEs.

Actionable Recommendations

1. *Health professions education and health care organizations, the federal government, and foundations should work together to establish a sustainable collaborative to advance the nation's learning environments.* With nearly all LEs serving as shared—and sometimes contested—spaces, it is essential to find mechanisms for collaboration on improving LEs. The National Collaborative for Improving the Clinical Learning Environment (NCICLE) is an example of a recently organized collaborative. Such a collaborative could explore how to create optimal LEs and advocate for expanded federal government support of health professions education.

2. *Health professions education and health care organizations should collaborate around a shared purpose—improved health outcomes—and align educational actions and resources*. They also should reach out to all other organizations that have a stake in the success of health professions education. Patients, families, and community members should be involved in shaping LEs to reflect the communities being served.

3. *Health care accreditors (both for professions and health care organizations) should establish ongoing collaborative efforts to minimize conflict and maximize alignment of learning environment standards.* Historically, each of the health professions has established standards for the LEs in which its learners participated. Across health professions, these standards have sometimes worked in harmony and sometimes in conflict. Relevant accrediting bodies should develop an ongoing collaborative effort to streamline and harmonize accreditation standards for their respective and often overlapping LEs.

4. *Federal agencies concerned with health should create and fund programs to accelerate excellence in our nation's learning environments.* While LEs powerfully shape the professional development of health professionals, there is a paucity of well-designed research that guides either best practices or innovation due to lack of funding. Studies of LEs to date have primarily relied on local funding and led to single program and single learning environment studies. Larger studies are needed to examine and compare multiple LEs and interventions designed to improve them. Such studies will only occur with large scale funding from federal entities (such as the Centers for Medicare and Medicaid Services, Health Resources and Services Administration, Veterans Affairs Administration, and the Department of Defense) and/or foundation support.

Conclusion

This is a critical moment in health professions education reform. To achieve the goal of aligning education and health care delivery to improve the health of the public, we must focus more attention on the environments in which both learning and work occur. Patients, learners, educators, and practitioners will all be the beneficiaries of this endeavor. The recommendations from this conference serve as an urgent call-to-action for health professions education and health care organizations to transform the environments in which current and future generations of practitioners, educators, and learners work and learn—with the ultimate goal of better health for all.

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