

The Growth of Learning Communities in Undergraduate Medical Education

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Abstract

Purpose

To determine the presence and characteristics of learning communities (LCs) in undergraduate medical education.

Method

The authors updated an earlier Web-based survey to assess LCs in medical education. Using a cross-sectional study design, they sent the survey to an LC leader or dean at each Association of American Medical Colleges member medical school (n = 151) between October 2011 and March 2012. The first survey item asked respondents to indicate if their institution had LCs. Those with LCs were asked to

provide details regarding the structure, governance, funding, space, curricular components, extracurricular activities, and areas addressed as part of the LCs. Those without LCs were asked only if they were considering developing them. The full survey instrument contained 35 items including yes/no, multiple-choice, and open-ended questions. The authors analyzed data using descriptive statistics and examined open-ended responses for recurrent themes.

Results

The response rate was 83.4% (126/151). Sixty-six schools (52.4%) had LCs.

Of the 60 remaining schools without LCs, 29 (48.3%) indicated that they were considering creating them. Of the 52 schools that provided the year their LCs were established, 27 (51.9%) indicated they began in 2007 or later. LC characteristics varied widely.

Conclusions

The number of medical schools with LCs is increasing rapidly. LCs provide an opportunity to transform medical education through longitudinal relationships and mentoring. Further study is needed to document outcomes and best practices for LCs in medical education.

Broadly defined, a learning community (LC) is an intentionally created group of students and/or faculty who are actively engaged in learning from each other. These groups are sustained by conveying a sense of membership, influence, and shared emotional connection while also fulfilling individual needs.¹ The concept of LCs was introduced to U.S. colleges in the 1930s with the aim of dividing a larger school into smaller learning units.^{2,3} The modern LC movement in higher education in the United States was established in the 1980s and has been associated with positive outcomes, including student retention and academic achievement.²

The use of LCs in health professions education is a more recent development.⁴ Several trends within medical education, including fragmented teaching relationships and curricula, social isolation due to long hours, and lack of support, have highlighted the need for new learning models.⁵ Proposed solutions to these problems

include the incorporation of longitudinal relationships between faculty and students in small-group settings with more focus on role modeling and continuity.^{6,7} These solutions can be accomplished through the use of LCs.⁸

According to social learning theory, “most human behavior is learned observationally through modeling,” and emphasis should be placed on the importance of a social context for learning.⁹ Social learning theory is particularly applicable to medical education, during which students must develop a professional identity and bedside manner, confront ethical issues, and practice history taking, physical exam skills, and oral case presentations. LCs provide structure for active learning in groups and use social learning theory by encouraging students to learn from one another as well as from faculty mentors who are often selected for their humanism, professionalism, and particular interest in mentoring students. Pairing medical students with humanistic faculty dedicated to teaching allows for longitudinal relationship-based learning that teaches content and skills⁸ and has the potential to begin to address well-known problems in medical education, such as the hidden curriculum,^{9–11} decreasing empathy,^{12–16} burnout,^{17–22} and depression.^{23–25}

In 2005, a group of faculty from medical schools across the country who were using LCs formed the Learning Communities Institute (LCI).²⁶ After attending the LCI’s initial conference, Ferguson and colleagues⁴ conducted a survey the following year to document the emerging use of the LC model in medical education. They were able to identify and describe LCs at 18 U.S. medical schools.

The LCI has met annually since 2005, and membership has grown significantly, suggesting a substantial increase in the number of medical schools with LCs. In the relatively brief time since the first national survey on LCs in medical education in 2006,⁴ the LC concept has transitioned to a common framework for the academic and professional development of medical students across the United States and Canada. We conducted this survey to assess the growth and utilization of this educational model and further elucidate the characteristics of LCs in U.S. and Canadian medical schools.

Method

Survey design

We contacted Ferguson and colleagues⁴ to discuss conducting an updated national survey of LCs in medical education.

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Acad Med. 2014;89:00–00.

First published online

doi: 10.1097/ACM.0000000000000239

On the basis of concepts addressed in their original survey, we completed a thorough literature review, held ongoing discussions with LC leaders from across the country, and developed an updated survey instrument. We pilot tested this survey with LC faculty from 10 institutions and revised it on the basis of their feedback. The University of California, San Diego, institutional review board certified this study as exempt.

Survey administration

We used a cross-sectional survey study design. From October 2011 through March 2012, we sent an e-mail containing a link to a Web-based survey to an LC leader or an educational dean from each Association of American Medical Colleges (AAMC) member medical school (n = 151; 134 in the United States, including 4 in Puerto Rico, and 17 in Canada). When the LCI had current contact information for an LC leader at the institution (n = 22), we surveyed her or him. We thought LCI members would be appropriate survey respondents because they are knowledgeable regarding the details of LCs at their institutions. If the institution did not have an LCI member, we e-mailed the dean of education. We sent follow up e-mails and called nonrespondents to determine the presence or absence of LCs at each school.

Survey content

The initial survey item was as follows:

As we have broadly defined them, learning communities (also referred to as colleges, societies, CELLS, and houses), are intentionally developed longitudinal groups that aim to enhance students' medical school experience and to maximize learning. As defined above, does your medical school have one or more learning communities for students? Yes/No

The survey by Ferguson and colleagues⁴ used the same wording, except that we inserted the word "longitudinal" because we felt it emphasized an important concept of LCs.

Respondents who answered "yes" were then asked if they would like to complete this survey themselves or provide contact information for the best person to provide details regarding LCs at their institution. We asked institutions with LCs to provide details regarding the structure, governance, funding, space, student assignment to communities, curricular components, extracurricular

activities, and areas addressed as part of the LCs. The full survey instrument contained 35 items, including yes/no, multiple-choice, and open-ended questions. Respondents who answered "no" were then asked only if they were considering developing LCs.

Data analysis

We analyzed data using descriptive statistics (Excel 14.2.5, Microsoft Inc., Redmond, Washington) and conducted a content analysis of the open-ended responses for recurrent themes. For all yes/no and multiple-choice answers, we calculated percentages based on the number of responses to each question. We accounted for missing data by decreasing the denominator of respondents appropriately. For all open-ended responses, two of us (S.S., R.S.) independently reviewed and grouped the responses by recurrent themes.

Results

Respondents

Of the 151 AAMC member medical schools, 126 responded, resulting in an 83.4% overall response rate. The response rate was 85.8% (115/134) for U.S. schools, including Puerto Rico (1/4), and 64.7% (11/17) for Canadian schools. The response rate was 81.8% (18/22) among LCI members and 86.0% (111/129) for educational deans. Ten deans chose to name an alternate contact to complete the survey, and the response rate for these "best contacts" was 90.0% (9/10).

Number of LCs

Of the 126 responding schools, 66 (52.4%) had LCs. Among U.S. respondents, 61 (of 115; 53.0%) reported the presence of LCs at their institutions (with none in Puerto Rico), whereas 5 (of 11; 45.5%) Canadian institutions reported so. Of the respondents without LCs, 48.3% (29/60) indicated that they were considering creating them. Therefore, given the 151 AAMC member medical schools at the time of our survey in 2012, a minimum of 43.7% (66/151) of all AAMC schools had LCs, and 62.9% (95/151) had LCs or were considering creating them.

Of the 66 schools with LCs, 56 went on to provide a more detailed characterization. The number of responses to the subsequent survey items varied, ranging from 52 to 56 for the yes/no and multiple-choice questions, with the exception of items regarding funding, which received 45 to 48 responses, and one item on ceremonies conducted as part of the LCs that received only 36 responses.

Growth of LCs

Figure 1 illustrates the growth of LCs among AAMC member medical schools by year of establishment for the 52 reporting schools. From 2005 to 2011, 4 to 6 additional medical schools implemented LCs each year. Fifty-two percent (27/52) of schools who provided the year that their LCs were established stated that they began in 2007 or later.

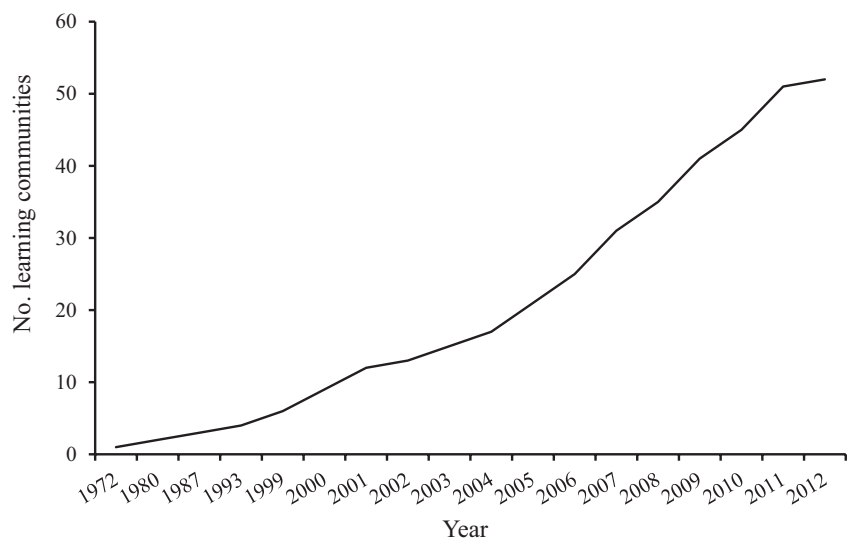


Figure 1 Number of learning communities (LCs) at Association of American Medical Colleges member medical schools in the United States and Canada, according to the results of a 2012 Web-based survey with an 83.4% response rate (126/151). Sixty-six schools had LCs, and 52 provided the year their LCs were established.

Educational focus of LCs

Respondents listed the major emphasis of their LCs as mentoring (50/56; 89.3%), advising (40/56; 71.4%), curricular (34/56; 60.7%), social (29/56; 51.8%), and community service (19/56; 33.9%). The breadth of areas addressed as part of the LCs (n = 53) is shown in Table 1, including curricular elements (n = 51), grading (n = 55), and milestones (n = 36).

Structure and organizational design of LCs

The most common number of LCs per institution was 4 (median 5, mean 10.2, range 1–80, standard deviation [SD] 13.6, n = 56). Most schools referred to the smaller communities within their medical schools as LCs (14/56; 25.0%), colleges (13/56; 23.2%), societies (9/56; 16.1%), houses (2/56; 3.6%), or academic

communities (2/56; 3.6%); however, 28.6% (16/56) of respondents selected “other” and listed terms such as learning groups, advisor communities, mentorship groups, academies, room numbers, or course names. Respondents also described smaller groups as “colleges” organized into larger “societies” or “communities,” as well as smaller “communities” organized into larger “houses.” LCs were most often named after prominent physicians (17/54; 31.5%), alumni (12/54; 22.2%), subjects with local or regional significance (12/54; 22.2%), or colors (8/54; 14.8%); less commonly used names referred to nature, group leaders, letters, room numbers, course names, or core values.

Table 1

Characteristics of Learning Communities (LCs) at Association of American Medical Colleges Member Medical Schools in the United States and Canada, 2012

Characteristic	No. (%)
Areas addressed as part of LCs (n = 53)	
Student well-being	46 (86.8)
Professionalism	43 (81.1)
Career advising	41 (77.4)
Social activities	40 (75.5)
Career mentoring	39 (73.6)
Peer mentoring	34 (64.2)
Leadership development	30 (56.6)
Clinical skills	25 (47.2)
Cultural competency	24 (45.3)
Underserved or community medicine	22 (41.5)
Service-learning	22 (41.5)
Humanities	22 (41.5)
Periodic academic reviews	21 (39.6)
Health disparities	19 (35.8)
Social determinants of health	17 (32.1)
Problem-based learning	14 (26.4)
Interdisciplinary education	14 (26.4)
Peer study sessions	14 (26.4)
Research	7 (13.2)
Patient-centered medical home	4 (7.5)
Curricular elements taught in LCs (n = 51)	
Doctoring/clinical skills	25 (49.0)
Problem-based learning or case-based instruction	14 (27.5)
Electives only	2 (3.9)
Other areas of the core curriculum	26 (51.0)
None	12 (23.5)
LC faculty involved in formal evaluation/grading (n = 55)	
Yes	21 (38.2)
No	31 (56.4)
Not sure	3 (5.5)
Milestones conducted as part of LCs (n = 36)	
White coat	24 (66.7)
Graduation	10 (27.8)
Dean's letter	11 (30.6)
Match day	7 (19.4)
Anatomy ceremony	6 (16.7)
Other	11 (30.6)

An open-ended item allowed respondents to further describe the structure of their LCs. Many LC structures were described; often, LCs were structured around small groups (e.g., doctoring/clinical skills groups), which were at times organized into larger groups, yet others were based in large groups. Table 2 lists more information regarding medical student assignment to the LCs and their governance.

Other characteristics of LCs

Forty-five institutions listed the budget for their LCs, and it varied widely from \$10,000 to \$1,400,000 (mean \$414,219; median \$300,000; SD \$372,500). The number of faculty involved in LCs also varied widely with a range of 1 to 125, with the most common response being 4 (mean 16.4, median 10, SD 21.1, n = 47). The most common percentage of time funded per faculty member was 20% (mean 19.2, median 20, SD 17.9, range 0–80, n = 48). The mean number of staff involved in LC activities was 2.3 (range 1–8, SD 2.0, n = 48), with a mean percent time of 50.3 (range 0–100, SD 34.9, n = 45). Funding ranged from \$0 to over \$5,000 per LC for activities such as social gatherings and service activities (n = 51). Forty-eight percent (25/52) of LCs had assigned space on campus, and 43.4% (23/53) had a Web site describing their communities, including two that had intranet sites only. The governance of LCs included faculty leaders (44/53; 83.0%), the dean of student affairs (38/53; 71.7%), students (33/53; 62.3%), and the educational dean (32/53; 60.4%).

Greatest benefits and challenges of LCs

In response to the open-ended items, respondents described the greatest benefits and challenges of their LCs. The

Table 2

Medical Student (MS) Assignment to Learning Communities (LCs) at Association of American Medical Colleges Member Medical Schools in the United States and Canada, 2012

Assignment to communities	No. (% of 55)
All medical students assigned to an LC	52 (94.5)
Assignment is random	40 (72.7)
Students may switch communities	4 (7.3)
Students are assigned the same faculty advisor for all four years	41 (74.6)
Students are assigned senior students as mentors	27 (49.1)
Communities have vertical integration of MS 1, 2, 3, and 4	44 (80.0)
Interdisciplinary students included in medical student LC	20 (11.0)
Student involvement in some LC activity is mandatory	42 (76.4)
Student involvement in extracurricular LC activity is mandatory	7 (12.7)

greatest benefits included mentoring, role modeling, increased sense of connection, improving student well-being, increasing student–faculty interaction, longitudinal relationships, active learning, teamwork, breaking larger schools into smaller groups, community service, personal and professional growth, personalized education, and diversity. The greatest challenges included funding, time, implementing an appropriate curricular component, keeping clinical students involved, student participation in voluntary activities, maintaining and developing quality faculty members, and space. When asked to comment on the greatest innovation in their LCs within the last two years, respondents named activities such as increased structure for advising/mentoring, community service, competitions, social activities, and structured reflection activities.

Discussion

Our findings indicate that more than half of the 126 respondents, representing at least 44% of all AAMC member medical schools, had LCs as of March 2012. This finding represents a nearly threefold increase, or 48 more AAMC member medical schools with LCs, over the number identified in the most recent national survey conducted from 2006 to 2007, which revealed 18 institutions with LCs (20% of respondents [18/89] or 15% of all medical schools [18/124]).⁴ The rapid growth of LCs is striking, as more than half of existing programs were implemented between 2007 and 2012, and only 5 represent new medical schools. Furthermore, of the 60 responding schools without LCs, nearly half reported plans to implement such programs.

The most common area addressed as part of the LCs was well-being (46/53; 87%). Nearly all medical students suffer from at least one form of distress¹⁸; approximately half suffer from burnout,²² depression is common,^{23,24} and over 10% of students seriously consider dropping out of medical school.²⁰ Instituting LCs is one method to address the Liaison Committee on Medical Education requirement to “promote the well-being of medical students and facilitate their adjustment to the physical and emotional demands of medical education.”^{24,27} Meaningful longitudinal relationships are at the core of the LC concept, creating an environment in which medical students form relationships with each other and faculty over time.⁸ These relationships allow students immediate access to a faculty member who knows them well, is familiar with the curriculum, and is aware of the support services the medical school offers. Pertinent examples of open-ended responses regarding the greatest benefits of LCs included “sense of belonging,” “safe space,” “students don’t fall through the cracks,” “faculty member committed to a group of students, is there to advise, mentor, and catch a student that is struggling,” and “These groups of students form bonds within their group that allow for discussion of very personal and difficult topics. A trust develops between group members.”

Social events are an important part of LCs, and respondents described meals on campus or in faculty homes, athletic competitions, and trivia nights. Such events offer opportunities to enhance student well-being,²⁸ provide informal faculty contact, and bring students together across class years. In Boyer’s²⁹

landmark text envisioning LCs on college campuses, he described ritual and community celebrations as core LC activities offering a sense of wholeness, meaning, and emotional connection. In addition, LCs are incorporated into a variety of milestone celebrations from the white coat ceremony (24/36; 67%) through graduation (10/36; 28%).

When asked to list the major emphasis of the LCs at their institutions (e.g., advising, mentoring, curricular, social activities, community service), nearly all schools (51/56; 91%) chose more than one category. Therefore, the most common LC models address multiple aspects of the medical education experience.

Respondents indicated significant variation in the nomenclature for discussing LCs, including how schools refer to LCs (learning communities, colleges, houses, academic communities, cells), as well as variation in the use of “community” in reference to the larger groups or the smaller subgroups, depending on the institution. This finding complicates any analysis and discussion of LCs across schools. For example, although the most common number of communities per school reported in this study was 4, one institution described 6 “learning societies” subdivided into 80 “communities.”

Our results also indicated variability in the design, taxonomy, and focus of LCs. The annual budgets of LCs ranged from \$10,000 to \$1.4 million per year. LCs whose structure involved curricula generally had larger budgets compared with LCs with predominantly social functions. However, those institutions reporting large LC budgets often included costs that were previously assigned to a different budget, such as financial support for doctoring course faculty.

Respondents indicated that LCs were part of the curriculum throughout the four years of medical school. For example, schools often integrated curricular-based small groups into their LC structure, including doctoring courses, problem-based learning groups, and, although less often, into third-year intersessions, longitudinal clinical courses, or capstone courses. Although small-group learning alone is not sufficient to create an LC, institutions without LCs may consider building on existing structures

and courses by adding longitudinal components that integrate advising, mentorship, and student well-being to create a broader sense of community.

One of the more common curricular components was the doctoring course for first- and second-year medical students. Some institutions use this structure to reintegrate bedside teaching and observed physical exam skills into the curriculum.^{8,30} The majority of respondents (43/53; 81%) indicated that they were teaching professionalism in their LCs.³¹ In addition, LCs provided an opportunity for interdisciplinary training (14/53; 26%) and service learning (22/53; 42%). Although none of the respondents indicated that their clinical rotations were organized by the LC at the time of our survey, the University of Virginia School of Medicine (where one of us, M.K., teaches) has since reorganized all third-year clinical rotations by LC.

In addition, LCs provide a framework for structured advising. Several institutions have developed longitudinal career advising programs that are delivered through their LCs as well as periodic advising sessions on topics such as research opportunities. Respondents indicated that student peer-advising programs complemented faculty advising through the vertical integration of LCs.

Our descriptive study has several limitations. First, we obtained survey data by self-report from one academic leader from each institution. The dean or LCI faculty member may not have been knowledgeable regarding the full details of their LC, budget, or structure. Additionally, a dean may have a different perspective than an LC faculty member. However, we reviewed the data for appropriateness and verified findings when indicated, so our data likely are not skewed. Second, we employed a mixed qualitative and quantitative survey design in an attempt to enhance understanding of the similarities and differences between LCs; however, qualitative responses varied significantly in level of detail. Finally, respondents were not required to provide a response to all survey items, which resulted in a varying number of responses to each survey item. Nonetheless, respondents replied to most survey items, and we described the varying number of respondents per item in this report.

Further studies are needed to critically appraise student and faculty outcomes of LC participation, as well as characteristics of LCs associated with these outcomes. Given that a critical mass of schools now are using this educational design, we must develop a common language, including standard nomenclature and a classification system for describing LCs in the health professions, while beginning more rigorous scrutiny for educational outcomes and identification of best practices.

In summary, LCs in medical education are addressing well-being, clinical skills instruction, professionalism, advising, and mentoring, while offering students continuous and meaningful relationships with faculty and peers. We believe that the recent growth in LCs suggests a broad reorganization of medical education that could have a positive impact on medical students, faculty, and their institutions. The restructuring of medical education to include LCs encourages us to think creatively about how to best use this opportunity to improve and personalize medical education for the next generation of physicians.

Acknowledgments: The authors would like to thank the members of the Learning Communities Institute for their input and participation in the pilot testing of this survey as well as their ongoing collegiality and support.

Funding/Support: None reported.

Other disclosures: None reported.

Ethical approval: This study was certified as exempt by the University of California, San Diego, institutional review board (project no. 111276XX).

Previous presentations: An earlier version of this study was presented at the Association of American Medical Colleges Learning Communities Institute, November 4, 2011, Denver, Colorado.

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