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# A Qualitative Study of Preclinical Medical Students Randomized to Patient-Partnered vs Traditional Clinical Experiences

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<b>Purpose</b>	Longitudinal patient-partnered experiences may promote medical student empathy, but evaluation of such programs is limited. The aim of this study was to compare areas of learning among first-year medical students randomized to a patient-centered track (PCT) or traditional track (TT) longitudinal clinical experience.
<b>Methods</b>	PCT students (n=24) were paired with 2 patients and a physician to participate in their patients' care across multiple settings. TT students (n=56) were paired with a physician preceptor and participated in caring for a variety of patients in a single setting. This qualitative study used a phenomenological approach to template analysis, examining and comparing student reflective essays for areas of learning.
<b>Results</b>	Three domains of learning emerged: 1) Focus of learning (biomedical, patient-centered); 2) Roles and relationships (clinical skills, relationship-building, teaching from preceptor and patients); and 3) Context of care (health systems science, interprofessional care). PCT students described patient-centered learning, relationship-building, and patients' role as teachers. In contrast, TT students emphasized biomedical learning, clinical skills development, and teaching from physician preceptors.
<b>Conclusions</b>	Longitudinal patient-partnered clinical experiences provide rich opportunities for preclinical students to cultivate empathy and develop patient-centered values. ( <i>J Patient Cent Res Rev.</i> 2022;9:290-297.)
<b>Keywords</b>	patient-centered learning; longitudinal clinical experience; empathy; medical education; training

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Patient-centered care has become a high priority for health systems, with studies showing that delivering care that is respectful and responsive to individual patient preferences, needs, and values results in higher patient satisfaction, increased adherence, and improved patient outcomes.<sup>1-5</sup> However, medical school curricula are currently not designed to prepare students to deliver patient-centered care. In fact, multiple studies have demonstrated that empathy erodes during medical training and that students develop more physician-centric attitudes as they progress in their training.<sup>6,7</sup>

Formal curricula focused on empathy is situated predominantly outside of the clinical arena, composed of didactic curricula or communication skills training with standardized patients.<sup>8,9</sup> Patients have a limited direct role in the training of medical students; these roles are generally passive, limited to roles in teaching clinical exam skills, communication skills, and occasionally sharing narratives of personal experiences at a single point in time.<sup>10-12</sup> During the clinical years, the design of traditional block clerkship models restricts students' exposure to patients to a single clinical setting, with fragmented snapshots of patient experiences; few opportunities exist for longitudinal contact with patients.<sup>13</sup>

Longitudinal patient-partnered experiences may be one approach to intentionally promote empathy and patient-centeredness.<sup>12,14-16</sup> It is intuitive that fostering a partnership between students and patients is foundational to developing patient-centered attitudes. Through this

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partnership, students can gain an understanding of patient experiences, perspectives, and needs; build a whole-person orientation; learn to develop and maintain a relationship with patients; and work with patients to support their needs.<sup>17</sup> Data supporting this concept draws largely from the evaluation of longitudinal integrated clerkship (LIC), programs that pair clinical-year medical students with a panel of patients and a defined group of preceptors with whom they work longitudinally to provide comprehensive care across a variety of care settings. This is in contrast to traditional block rotations, during which medical students sequentially complete short rotations across a variety of specialty disciplines with a variety of preceptors. Several studies have shown that students participating in LICs, as compared with students in traditional block rotations, more frequently reported having meaningful relationships with patients and were more likely to maintain their patient-centeredness, as measured by several quantitative instruments; improvements in patient-centeredness may persist after graduation from medical school.<sup>18-22</sup>

However, given the complex administrative burden of LICs, fewer than one-third of medical schools offer such clerkships, and accessibility to LICs within these institutions is generally limited to a small number of students who self-select into such programs.<sup>23,24</sup> Smaller-scale patient-partnered programs in the preclinical years may be another way to offer a similar experience to a broader range of students. Providing these experiences early on in students' medical careers could be formative at a time when students are just beginning to develop their professional identity.<sup>25</sup> A few preclinical programs have paired patients and students in this way for a series of informal meetings typically occurring outside of clinical settings.<sup>15,26-28</sup> Few of these programs have been integrated within the clinical arena, and evaluative data are lacking; to our knowledge, no prior studies of such programs randomized students for participation. The impact of these programs on student empathy and patient-centeredness is not known.

The purpose of this study was to explore and compare areas of student learning after preclinical students were randomly assigned to participate in a 9-month clinical experience that included either longitudinal partnership with 2 patient partners and a physician preceptor or longitudinal partnership with only a physician preceptor.

## METHODS

### Description of the Patient-Centered Longitudinal Experience

In 2015, a team of 2 primary care physician medical educators (J.W.T., A.V.) and a social worker (N.G.) developed the Patient-Centered Longitudinal Experience as an alternative track within the required preclinical

longitudinal training program at the University of Chicago Pritzker School of Medicine (Chicago, IL). The goal of this track was to improve student understanding about how patients experience illness and interact with the health care setting. While the longitudinal program historically paired preclinical students (who we refer to as traditional track, or TT students) with physician preceptors to observe and participate in patient care in a single clinical setting, the new cohort of patient-centered track (PCT) students were paired with 2 patients and a physician to observe and participate in their patients' ongoing clinical experiences across multiple settings (eg, primary care visits, specialist visits, home visits, visits with physical therapy, visits during hospitalization, phone calls). Conceptual frameworks for the different tracks are illustrated in Figure 1.

Both TT and PCT tracks within the longitudinal program shared a set of common overarching course objectives: 1) observe and participate in the patient care activities of a physician; 2) identify the clinical role of at least 1 interprofessional (nonphysician) health care provider; 3) communicate professionally with patients and health care providers; 4) perform history and physical examination skills; 5) experience our health system from the perspective of patients; 6) appreciate the importance of the doctor-patient relationship; and 7) explain how an ambulatory or emergency department functions to provide patient care. However, the PCT model had several additional specific objectives: 1) facilitate development of a longitudinal relationship between students and patients; 2) increase student exposure to their patients' longitudinal clinical course and breadth of interactions in the health care setting; and 3) promote value-added student roles in promoting safety, coordination of care, and continuity of care. All students (PCT and TT) were required to complete a minimum of 6 face-to-face clinical encounters over a 9-month period of time. PCT students also were encouraged, but not required, to contact their patients by phone between clinic visits.

Physician preceptors for PCT were recruited from 3 clinical sites each selected for a patient population with high health utilization and presence of a robust interdisciplinary team: 1) the Comprehensive Care Program, a primary care program with physicians who care for high-need, high-cost patients across ambulatory and inpatient settings;<sup>29</sup> 2) the chronic obstructive pulmonary disease readmissions reduction program; and 3) several high-risk pediatrics clinics. Patient partners were recruited by individual preceptors. PCT preceptors were asked to select patients who had multiple chronic conditions, frequent health care encounters (at least monthly), and who were willing to work with students. Each group of 2 students was paired with 2 patient partners.

Physician preceptors for TT spanned a large variety of specialties (primary care, medical subspecialty, emergency medicine, surgical subspecialties, and psychiatry). TT students were not assigned longitudinal patient partners, but instead saw a variety of patients with their preceptors.

Students were initially given the opportunity to opt into PCT. As supply of PCT preceptors exceeded demand, we randomly assigned the remaining students to PCT or TT. Students who opted into PCT were not included in this analysis to reduce the introduction of bias related to student self-selection.

### Data Collection

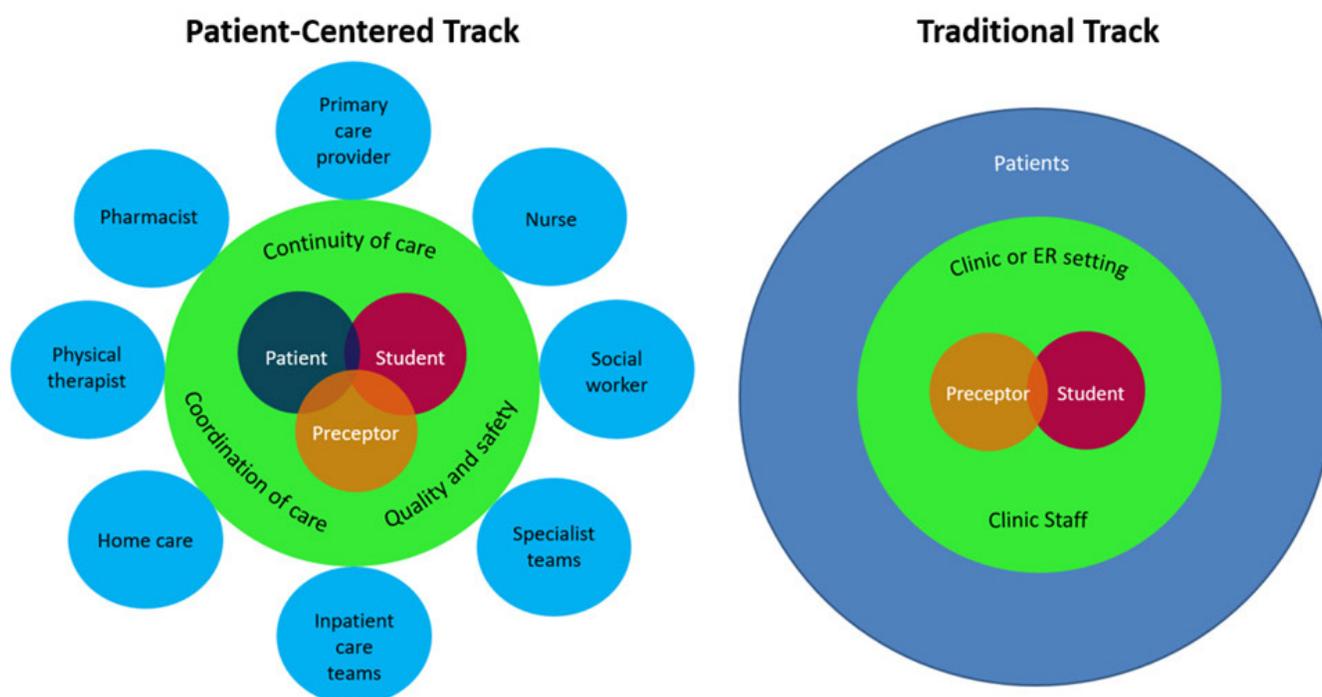
At course completion, all students were asked to write a reflective essay of approximately 250 words responding to the prompt, “Identify and put to paper a key experience that you had while participating in the longitudinal program and why this experience was meaningful to you.” Prior to analysis, a research assistant de-identified the essays and removed specific language referring to participant track assignment.

### Qualitative Analysis

The goal of this qualitative analysis was to explore differences in learning when students have a longitudinal partnership with a patient as compared with longitudinal

partnership with a preceptor alone. We brought a phenomenological approach and constructivist paradigm to thematic analysis.<sup>30</sup> This approach was selected because our research was focused on understanding and comparing the lived experience of the longitudinal training program from the perspective of students within the separate tracks: PCT and TT. This research received exempt status from the University of Chicago institutional review board, as the data were already collected as a part of a mandatory course and student essays were de-identified prior to analysis. This study adhered to criteria established by the Standards for Reporting Qualitative Research.<sup>31</sup>

The qualitative analysis team was composed of 4 primary care physicians (3 general internal medicine physicians and 1 geriatrician) and 1 medical student. Among this team, 4 had participated as a preceptor or student in the PCT, and 1 had participated as a preceptor in the TT. We applied a specific style of thematic analysis called template analysis to code and organize themes.<sup>32,33</sup> Template analysis provides a systematic process for organizing important themes through use of a hierarchical coding template. This technique has previously been applied in qualitative health care research studies.<sup>34-36</sup> Codes were generated through two strategies. First, a limited set of tentative a priori codes was developed by the study team based on the goals of the overall longitudinal program



**Figure 1.** Conceptual framework for patient-centered track vs traditional track. ER, emergency room.

and each respective track. Second, additional codes were added based on new ideas that emerged from review of the essays. An initial coding template was developed after reviewing a set of 6 essays (3 PCT and 3 TT). This coding template organized the codes within a hierarchical structure under tentative overarching themes. Subsequently, investigators independently applied the coding template to all 80 essays (each essay was reviewed by at least 2 investigators). Additional codes were added as needed when new ideas emerged. The template was iteratively modified after reviewing subsequent essays to clearly reflect the relationships between the codes. The qualitative analysis team met every 2–4 weeks during the analysis period to discuss and revise the coding template; discrepancies in coding were resolved through discussion. NVivo 11 software (QSR International) was used to organize the data. Themes and representative quotes were agreed on by the entire research team.

We maintained reflexivity through open dialogue among the research team, discussing and challenging established assumptions. Diversity in the research team was critical to this process, with the intentional inclusion of faculty from both PCT and TT and representation from the student perspective. Member checks (respondent validation) during a Research in Medical Education seminar supported the validity of our analyses.

## RESULTS

### Demographic Data

Of the 90 first-year medical students participating in the longitudinal program, 10 opted into the PCT and were excluded from this analysis to reduce the introduction of bias related to student self-selection. Of the remaining 80 students, 24 were randomly assigned to the PCT and 56

to the TT. We were unable to assign equal numbers of students to each track due to limited preceptor availability for PCT.

A majority of PCT students (71%) were paired with preceptors from primary care fields (general internal medicine, primary care geriatrics, general pediatrics, and family medicine); most TT students (64%) were paired with preceptors practicing in non-primary care specialties. Both PCT and TT students completed a mean of 6 face-to-face clinical encounters during the 9-month clinical experience. In addition, PCT students completed a mean of 3 phone calls with their patients. All students completed reflective essays.

### Overview of Themes (Table 1)

Three thematic domains of learning emerged: 1) Focus of learning (biomedical, patient-centered); 2) Roles and relationships (practice clinical skills, build relationship with patient, preceptor as teacher, patient as teacher); and 3) Context of care (health systems science, interprofessional care). These domains are described in detail, along with representative quotes from student essays, in the following paragraphs.

### Focus of Learning

While both TT and PCT students described biomedical learning as well as patient-centered learning, biomedical learning was more heavily emphasized by TT students, with a focus on learning about new diseases, the pathophysiology of disease processes, interpretation of diagnostic tests, and the data-gathering process.

*“When we reported back to the attending, we applied our knowledge of physiology and pathological neoplasia.”*  
(TT student)

**Table 1.** Comparison of Themes Documented by Patient-Centered Track vs Traditional Track Students

Themes by domain	Traditional track (n=56)	Patient-centered track (n=24)
Focus of learning		
Biomedical	29 (52%)	3 (12.5%)
Patient-centered	15 (27%)	20 (83%)
Roles and relationships		
Student practiced clinical skills	14 (25%)	1 (4%)
Student built relationship with patient	8 (14%)	10 (41%)
Identified preceptor as teacher	26 (46%)	5 (21%)
Identified patient as teacher	12 (21%)	16 (67%)
Context of care		
Health systems science	29 (52%)	11 (46%)
Interprofessional care	14 (25%)	7 (29%)

In contrast, PCT students more frequently described patient-centered learning, highlighting a newfound appreciation for the struggles of living with chronic disease and the burden of navigating the health care system.

*“The visits hit home how debilitating it can be to live with a chronic condition but also how difficult our demands on patients in terms of medical interventions can be.”* (PCT student)

Some students from both tracks noted patients’ strengths and reflected on their resiliency in the face of adversity.

*“We spent about an hour in the room just learning about him and the challenges he faces as a paraplegic. I was very inspired by his story. He told us about his other paraplegic friends who have a very negative outlook of the disease. It is very understandable to be depressed and discouraged when you lose the ability to walk and do everyday tasks. However, [Mr. C] had a much more positive outlook. He tried to live his life like any other person. He lived on his own and did not let his injury prevent him from doing the everyday tasks any other person was doing.”* (PCT student)

### **Roles and Relationships**

While students typically portrayed themselves in observational roles within the reflective essays, some students described active roles. Among TT students describing an active role, the focus was often on practicing clinical skills (eg, interviewing, physical exam).

*“It also gave me a chance to practice talking to patients. I found that each time I did it, I was a little more confident, and a little more able to translate the 7 parts of the HPI [history of present illness] into a cohesive line of questioning.”* (TT student)

In contrast, PCT students more often described their role as relationship-building and noted the value of their presence and care for patients.

*“I really looked forward to our LP [longitudinal patient] visits, and we knew our patient was excited by them as well. I found that I had something worthwhile to give, my time and my attention, and really learned a lot from Y throughout the process.”* (PCT student)

TT students tended to describe their preceptors as their teachers, citing active teaching or teaching by example. In contrast, PCT students often referred to their patients as their teachers, able to share insights about the lived experience of a disease and the notable self-management considerations. Despite noting differing teachers, students from both tracks voiced a similar overall lesson: the value of an empathic doctor-patient relationship. Students often described this lesson in coordination with reflection on their own professional identity formation.

*“It was truly a pleasure to learn from a masterful clinician like Dr. X. She treats all of her patients with patience, dignity, respect, and unconditional support; in turn, they completely trust and confide in her ... I sincerely aspire to build connections like these with my own patients in the future.”* (TT student)

*“We were humbled that our LP’s [longitudinal program patient’s] mother shared her experiences with us and grateful for her willingness to teach us about CF [cystic fibrosis] and her daughter. I believe the insights we gained will help us become empathetic physicians more attuned to patients as individuals and capable of practicing patient-centered care.”* (PCT student)

### **Context of Care**

Students across both tracks described concepts related to health systems science. Students noted first-hand exposure to social determinants of health, including high medication costs, insurance issues, language barriers, poverty, food deserts, and transportation difficulties.

*“We arrived at the unit and asked our preceptor how our patient was doing, concerned because pneumonia could be a potentially deadly illness for our patient. To our surprise, our patient didn’t actually have pneumonia, but rather the electricity at her daughter’s home had been turned off because they were unable to pay the electricity bill. Since our patient requires a ventilator, a humidifier, and parenteral nutrition, she could not safely remain at home with no electricity. In my classes throughout the year we’ve talked generally about the social determinants of health, but I was stunned by how concretely this example showed the impact of socioeconomic status on medical care.”* (PCT student)

Other students described examples of care fragmentation and reflected on the importance of care coordination.

*“This experience illustrates the barriers that patients face trying to navigate a complex health system with many, seemingly unrelated, players. Much of the patient’s visit was spent trying to figure out what had and had not been done by other providers so that [Dr. A] could help the patient without unnecessarily duplicating services ... I left that day feeling pessimistic about how physicians have to spend so much time trying to mend the gaps of our fragmented, overly confusing health system in order to properly treat their patients.”* (TT student)

Some PCT students were able to actively assist patients with care coordination.

*“After an appointment with an outside specialist who, again, stressed the necessity of the surgery, they scheduled another appointment with the ENT specialist. This appointment ended up being fairly redundant, but*

*there was still a lapse in communication with the clinic calling the patient's guardian to choose a date. With the physician, we decided I could help bridge this gap by communicating back and forth between him and the patient's guardian. It was great to have an opportunity to actually advocate for my patient and use the resources I have (time, knowledge of the hospital system, etc) to help her schedule something as important as this surgery.”* (PCT student)

Students in both tracks described witnessing examples of interprofessional care, often sharing positive experiences with collaboration between team members.

*“After completing this experience, I've come to appreciate how a multidisciplinary team that includes multiple physicians, a dietitian, nurse, social worker, pulmonary therapist, and home nurse all work together to manage the health of patients with complex medical needs and provide excellent comprehensive care.”* (PCT student)

## DISCUSSION

Students participating in PCT gained a strong understanding of their patients' experiences with illness and an appreciation for the challenges of navigating the health care system. Through repeated encounters with the same patients across different settings, they honed skills in building and sustaining a relationship with patients. They also developed a commitment to improve the care experience for patients. These areas of learning and role development are the building blocks of empathy and patient-centered care, skills which will be particularly critical in the professional development of future physicians who will be treating a population of patients with a high burden of chronic diseases.<sup>37</sup>

The themes of patient-centered learning and skill development among PCT students are particularly salient when viewed in contrast with TT students, whose learning and roles tended to focus on biomedical knowledge and clinical skills development. Our findings are consistent with data comparing LICs with traditional block rotations. Graduating LIC students have higher scores related to empathy and patient-centeredness as compared with students who completed traditional block rotations.<sup>19,20,22</sup> Qualitative data from LICs also have shown strikingly similar themes to ours, including promoting deeper connection with patients, broadening understanding of all aspects of illness, and inspiring commitment and advocacy on behalf of patients.<sup>21</sup> While the themes are similar across these programs, a major contribution of our work is in extending the evidence base to include preclinical (as opposed to clinical-level) learners, a population among whom such comparative

data are sparse. Further, the smaller scale nature of our educational program (involving 2 patient partners and a single preceptor) could make such a program more easily scalable across settings as compared with LICs for which scalability has been a critical challenge.

While patients usually play a relatively limited or superficial role in most medical curricula, our intention with the PCT was to elevate the voices of patients and validate the importance of patients as experts in their experience of illness. Our finding that PCT students often described their patient partners as their teachers is a testament to the success of this intentional design. These findings lend support to the concept that integrating patients as teachers within the clinical learning environment can meaningfully shape students' learning experiences and students' perspectives on the domains of learning that are valued.<sup>10,26,38</sup> While meaningful patient engagement has been increasingly recognized as important in clinical care (shared decision-making, chronic disease management) and research (development of the comparative clinical effectiveness research-funding Patient-Centered Outcomes Research Institute, growth in patient and family advisory councils), patient engagement has not yet been effectively leveraged in medical education.<sup>11,39</sup>

The low number of students who self-selected into PCT (n=10) during the study period was surprising and notable. A silver lining of this phenomenon was the ability to study the impact of PCT vs TT among students randomly assigned to each track. From the vantage point of several years' perspective, the low level of interest during the study year was an anomaly and related to a suboptimal recruitment strategy. We have since revised our recruitment strategy to highlight the many strengths and unique elements of the PCT and invite a student participant from the prior year to speak about their personal experience in the PCT. These strategies have resulted in a strong uptick in interest, with 25%–50% of students expressing interest in PCT in subsequent years.

## Limitations

This study has several limitations. First, this analysis focused on students' description of a single meaningful experience. While this is an effective strategy to elucidate the most salient learning themes, we may not have captured a comprehensive list of ways in which the PCT and TT programs impacted students. Second, while reviewers were not given access to students' track assignment information, it was not always possible to blind reviewers to student track assignment as the nature of the clinical encounters described often provided revealing clues (eg, PCT students describing

multiple encounters with a single patient). Despite this limitation, the research team utilized several strategies to minimize confirmation bias: 1) inclusion of faculty from both PCT and TT tracks as a part of the research team; 2) independent coding of each essay by 2 team members; and 3) discussion among team members to resolve all coding discrepancies. Third, a larger proportion of students in the PCT track had preceptors from primary care fields. While the scope of practice for primary care physicians may lend them to a more broad-based, comprehensive approach to care, we are not aware of any evidence that would suggest primary care physicians more often model or teach empathy or patient-centered care when compared with specialists. Further, it is important to note that virtually all PCT students with primary care preceptors also attended specialty appointments with their patients, thus exposing them to multiple preceptor perspectives.

## CONCLUSIONS

In summary, a longitudinal patient-partnered clinical experience can provide rich opportunities for preclinical students to cultivate empathy and develop patient-centered values. If we hope to train future physicians to practice patient-centered care, meaningful integration of patients as teachers may be an important first step.

### Patient-Friendly Recap

- Developing empathy skills of medical students is a goal of many preclinical training programs.
- Students were placed in 1 of 2 clinical experience tracks: patient-centered (PCT) or traditional (TT). PCT students were paired with 2 patients and a physician across multiple care settings; TT students were paired with a physician preceptor and saw a variety of patients in a single setting.
- Learning patterns diverged, as those in PCT described patient-centered learning involving relationship-building and the patient's role in teaching, while those in TT emphasized biomedical learning, clinical skills development, and teaching from physician preceptors.
- Patient-partnered clinical experiences help students cultivate patient-centered values.

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## Author Contributions

Study design: Tang, Arora, Farman, Meltzer. Data acquisition or analysis: Tang, Kostas, Verma, Press, Kushner. Manuscript drafting: Tang, Kostas, Verma, Press, Kushner. Critical revision: all authors.

## Conflicts of Interest

None.

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## References

1. Greenfield S, Kaplan S, Ware JE Jr. Expanding patient involvement in care. Effects on patient outcomes. *Ann Intern Med.* 1985;102:520-8. [CrossRef](#)
2. Mead N, Bower P. Patient-centred consultations and outcomes in primary care: a review of the literature. *Patient Educ Couns.* 2002;48:51-61. [CrossRef](#)
3. Stewart M, Brown JB, Donner A, et al. The impact of patient-centered care on outcomes. *J Fam Pract.* 2000;49:796-804.
4. Rathert C, Wyrwich MD, Boren SA. Patient-centered care and outcomes: a systematic review of the literature. *Med Care Res Rev.* 2013;70:351-79. [CrossRef](#)
5. Goldfarb MJ, Bibas L, Bartlett V, Jones H, Khan N. Outcomes of patient- and family-centered care interventions in the ICU: a systematic review and meta-analysis. *Crit Care Med.* 2017;45:1751-61. [CrossRef](#)
6. Chen DC, Kirshenbaum DS, Yan J, Kirshenbaum E, Asestine RH. Characterizing changes in student empathy throughout medical school. *Med Teach.* 2012;34:305-11. [CrossRef](#)
7. Tsimtsiou Z, Kerasidou O, Efstathiou N, Papaharitou S, Hatzimouratidis K, Hatzichristou D. Medical students' attitudes toward patient-centred care: a longitudinal survey. *Med Educ.* 2007;41:146-53. [CrossRef](#)
8. Batt-Rawden SA, Chisolm MS, Anton B, Flickinger TE. Teaching empathy to medical students: an updated, systematic review. *Acad Med.* 2013;88:1171-7. [CrossRef](#)
9. Patel S, Pelletier-Bui A, Smith S, et al. Curricula for empathy and compassion training in medical education: a systematic review. *PLoS One.* 2019;14(8):e0221412. [CrossRef](#)
10. Wykurz G, Kelly D. Developing the role of patients as teachers: literature review. *BMJ.* 2002;325:818-21. [CrossRef](#)

11. Coulby C, Jha V. The role of patient-led education initiatives in medical education. *Innov Entrep Health*. 2015;2:33-40. [CrossRef](#)
12. Jha V, Quinton ND, Bekker HL, Roberts TE. Strategies and interventions for the involvement of real patients in medical education: a systematic review. *Med Educ*. 2009;43:10-20. [CrossRef](#)
13. Evans DB, Henschen BL, Poncelet AN, Wilkerson L, Ogur B. Continuity in undergraduate medical education: mission not accomplished. *J Gen Intern Med*. 2019;34:2254-9. [CrossRef](#)
14. Kumagai AK. A conceptual framework for the use of illness narratives in medical education. *Acad Med*. 2008;83:653-8.
15. Turner JL. The longitudinal patient-centered experience. *Acad Med*. 2001;76:536-7. [CrossRef](#)
16. Karazivan P, Dumez V, Flora L, et al. The patient-as-partner approach in health care: a conceptual framework for a necessary transition. *Acad Med*. 2015;90:437-41. [CrossRef](#)
17. Cheng PT, Towle A. How patient educators help students to learn: an exploratory study. *Med Teach*. 2017;39:308-14. [CrossRef](#)
18. Gaufrberg E, Hirsh D, Krupat E, et al. Into the future: patient-centredness endures in longitudinal integrated clerkship graduates. *Med Educ*. 2014;48:572-82. [CrossRef](#)
19. Bell SK, Krupat E, Fazio SB, Roberts DH, Schwartzstein RM. Longitudinal pedagogy: a successful response to the fragmentation of the third-year medical student clerkship experience. *Acad Med*. 2008;83:467-75. [CrossRef](#)
20. Hirsh D, Gaufrberg E, Ogur B, et al. Educational outcomes of the Harvard Medical School-Cambridge integrated clerkship: a way forward for medical education. *Acad Med*. 2012;87:643-50. [CrossRef](#)
21. Ogur B, Hirsh D. Learning through longitudinal patient care narratives from the Harvard Medical School-Cambridge Integrated Clerkship. *Acad Med*. 2009;84:844-50. [CrossRef](#)
22. Ogur B, Hirsh D, Krupat E, Bor D. The Harvard Medical School-Cambridge integrated clerkship: an innovative model of clinical education. *Acad Med*. 2007;82:397-404. [CrossRef](#)
23. Gheihman G, Jun T, Young GJ, et al. A review of longitudinal clinical programs in US medical schools. *Med Educ Online*. 2018;23(1):1444900. [CrossRef](#)
24. Association of American Medical Colleges. Number of medical schools offering longitudinal integrated clerkships. Accessed November 19, 2020. <https://www.aamc.org/initiatives/cir/402412/01a.html>
25. Henschen BL, Ryan ER, Evans DB, et al. Perceptions of patient-centered care among first-year medical students. *Teach Learn Med*. 2019;31:26-33. [CrossRef](#)
26. Kumagai AK. The patient's voice in medical education: the Family Centered Experience program. *Virtual Mentor*. 2009;11:228-31. [CrossRef](#)
27. Penn State College of Medicine. Patients as Teachers project. Accessed November 19, 2020. <https://med.psu.edu/humanities/patients-as-teachers>
28. Iyer A. Patient Student Partnership program enables U.Va. medical students to foster lasting relationships with patients. *The Cavalier Daily*. Published November 12, 2020; accessed November 19, 2020. [https://www.cavalierdaily.com/article/2020/11/patient-student-partnership-program-enables-u-va-medical-students-to-foster-lasting-relationships-with-patients?ct=content\\_open&cv=cbox\\_featured](https://www.cavalierdaily.com/article/2020/11/patient-student-partnership-program-enables-u-va-medical-students-to-foster-lasting-relationships-with-patients?ct=content_open&cv=cbox_featured)
29. Meltzer DO, Ruhnke GW. Redesigning care for patients at increased hospitalization risk: the Comprehensive Care Physician model. *Health Aff (Millwood)*. 2014;33:770-7. [CrossRef](#)
30. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*. 2006;3:77-101.
31. O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for Reporting Qualitative Research: a synthesis of recommendations. *Acad Med*. 2014;89:1245-51. [CrossRef](#)
32. King N. Doing template analysis. In: Symon G, Cassell C (eds). *Qualitative Organizational Research: Core Methods and Current Challenges*. SAGE Publications; 2012, pp. 426-50.
33. Brooks J, McCluskey S, Turley E, King N. The utility of template analysis in qualitative psychology research. *Qual Res Psychol*. 2015;12:202-22. [CrossRef](#)
34. King N, Carroll C, Newton P, Dornan T. "You can't cure it so you have to endure it": the experience of adaptation to diabetic renal disease. *Qual Health Res*. 2002;12:329-46. [CrossRef](#)
35. McCluskey S, Brooks J, King N, Burton K. The influence of 'significant others' on persistent back pain and work participation: a qualitative exploration of illness perceptions. *BMC Musculoskelet Disord*. 2011;12:236. [CrossRef](#)
36. Tang JW, Foster KE, Pumarino J, Ackermann RT, Peaceman AM, Cameron KA. Perspectives on prevention of type 2 diabetes after gestational diabetes: a qualitative study of Hispanic, African-American and White women. *Matern Child Health J*. 2015;19:1526-34. [CrossRef](#)
37. Raghupathi W, Raghupathi V. An empirical study of chronic diseases in the United States: a visual analytics approach to public health. *Int J Environ Res Public Health*. 2018;15(3):431. [CrossRef](#)
38. Gonzalo JD, Thompson BM, Haidet P, Mann K, Wolpaw DR. A constructive reframing of student roles and systems learning in medical education using a communities of practice lens. *Acad Med*. 2017;92:1687-94. [CrossRef](#)
39. James J. Health Policy Brief: Patient engagement. *Health Affairs*. Published February 14, 2013. [CrossRef](#)

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