The Primary Care Leadership Track at the Duke University School of Medicine: Creating Change Agents to Improve Population Health

Barbara Sheline, MD, MPH, Anh N. Tran, PhD, MPH, Joseph Jackson, MD, Bruce Peyser, MD, Susan Rogers, MDiv, and Deborah Engle, EdD

Abstract

Problem
Physicians need training in community engagement, leadership, and population health to prepare them to work with partners within the community and to adapt medical care to address population health needs.

Approach
With an overall goal of training primary care practitioners to be change agents for improving population health, the Duke University School of Medicine launched the Primary Care Leadership Track (PCLT) in 2011. The four-year PCLT curriculum requires students to contribute to existing community health initiatives, perform community-engaged research, and participate in leadership training. The clinical curriculum incorporates a longitudinal approach to allow students to follow patient outcomes. In addition, students regularly interact with faculty to explore population health issues, review patient cases, and adjust individual learning opportunities as needed.

Outcomes
The first cohort of PCLT students will graduate in 2015. Prospective comparisons with traditional track students are planned on performance on standardized tests and career choices.

Next Steps
The authors created the PCLT as a laboratory in which students can engage with the community and explore solutions to address the health of the public and the future delivery of health care. To meet the goal of training change agents, PCLT leaders need to expand opportunities for students to learn from providers and organizations that are successfully bridging the gap between medical care and public health.

Problem
In the 21st century, clinical training alone is no longer adequate to ensure that physicians are prepared to meet the health needs of the U.S. population. Physicians require a broad assortment of skills to improve population health, whether they are helping people manage chronic disease, redesigning clinical care delivery systems, or collaborating with interdisciplinary teams in the community to further preventive health initiatives. Such skills will become all the more necessary as patient-centered medical homes (PCMHs) and accountable care organizations become an integral part of the health care system. Physicians will need to combine clinical acumen with community-engaged strategies and leadership skills to work in partnership with public health departments, local agencies, and community organizations.

At the Duke University School of Medicine (Duke), we created the Primary Care Leadership Track (PCLT) to equip a select cohort of medical students with the knowledge, skills, and attitudes necessary to improve both health and future health care. In this report, we describe the PCLT—a four-year program that incorporates longitudinal clinical and community experiences, community-engaged population research, and leadership training—and share our plans for evaluating outcomes.

Approach
Throughout the development of the PCLT, we were guided by an advisory board consisting of interdisciplinary faculty, students, community health professionals, and patients. The program was first offered to the 2011 incoming class. Prospective students apply simultaneously to Duke and the PCLT and are accepted into the track before matriculation. The track is limited to 8 students of an entering class of 100. In 2013, there were 279 applicants for the 8 PCLT positions.

The PCLT curriculum
The PCLT’s four-year curriculum is designed to help students understand how health improvement is addressed in both the health care system and the community. In addition to participating in patient care activities, students work with community teams in Durham, North Carolina, to improve the health of vulnerable patient populations, such as those who are uninsured, elderly, or Medicaid recipients. Students also participate in community-engaged research while studying population health and training for leadership roles.

The PCLT curriculum (see Figure 1) retains many elements of the traditional Duke curriculum, including basic science in year 1, clinical training in year 2, research in year 3, and electives in year 4. Individual curricular elements, described below, are structured to add flexibility so that students have opportunities for leadership development. Through course work and research, the PCLT curriculum aims to help students achieve the applied (intermediate) level on the Population Health Competency map, which was created at Duke to delineate specific competencies for education in population health for learners at various levels. Competency at the applied (intermediate) level includes demonstrating skills to participate in...
“community-engaged population health activities.”

**Year 1.** PCLT students participate with traditional students in basic science courses, the interdisciplinary prevention course, and the Practice Course (i.e., the doctor–patient skills course). Beyond these courses, first-year PCLT students begin to visit community agencies in Durham that are working to address unmet health needs. In the 2014–2015 academic year, we will launch a leadership curriculum for incoming PCLT students. The initial workshop, during preorientation, will explore shared values, issues of trust and feedback, and taking risks. The first-year students will then attend monthly workshops followed by dinner meeting discussions with PCLT faculty.

**Year 2.** The first four months of year 2 include immersion experiences on hospital wards in medicine, surgery, neurology, pediatrics, and psychiatry. Students also participate in Duke’s required second-year Practice Course, Clinical Skills Course, and Health Care Systems and Global Health. PCLT students participate in additional course work designed specifically for their curriculum, described below.

**Longitudinal integrated clerkship.** After their immersion experiences, PCLT students complete an eight-month longitudinal integrated clerkship (LIC). The goal of the LIC is to allow students to follow patient care over time to understand illness longitudinally. Each week, PCLT students see outpatients with faculty preceptors in family medicine, general internal medicine, and primary care pediatrics and take a shift in the emergency room, urgent care, or the neurology emergency consult service. They also have longitudinal clinical experiences in surgery, obstetrics–gynecology, and psychiatry. (For a sample weekly LIC schedule, see Chart 1.) Preceptors are trained by PCLT faculty to teach and track progressive competencies over time.

Students follow a panel of patients through surgery, specialty care, therapies, obstetric care, and postdischarge care. They have the opportunity to see the successes and frustrations of the health care system through the eyes of these patients and their families.

**Community orientation.** Before starting the LIC, PCLT students complete a two-week orientation to the Durham community during which they are further exposed to services that support people’s health outside the traditional medical system. These include the health department, the YMCA, the homeless shelter, free clinics, LATCH (Local Access to Coordinated Care, a program for uninsured individuals), El Centro Hispano, the federally funded community health center and its outlying neighborhood clinics, and CAARE Inc. (a nonprofit organization supporting wellness for vulnerable populations). The goal is for students to appreciate both the many factors that affect health and the services available in the community.

**Community health team.** After the community orientation, each PCLT student is assigned to a community health team...
on the basis of his or her interests. The goal of working with a community health team is to gain an understanding of how to affect health in the community in a culturally competent manner. Students spend a half-day each week for 30 weeks participating as collaborative members of teams of professionals and community workers (including, for example, nurses, pharmacists, and community health organizers) that are addressing health or health care disparities in Durham.

**Patient-centered medical home.** During the LIC, PCLT students participate with the eight second-year rural track Duke physician assistant (PA) students in a short course on the PCMH. The course opens on a Saturday with a session on the basics of the PCMH. Each PA student then completes an individual PCMH project at his or her rural clinic site. The PCLT students work together to complete a quality improvement project. They collaborate with administrators and providers on a project based on real clinic needs in a level 3 PCMH (a site that is making significant contributions to the triple aim of reducing cost, improving access, and improving the patient experience). All students complete their projects over a period of four months, then come together again on a Saturday morning to share and critique their experiences. The goal of this activity is for PCLT students to understand the concept of the PCMH to address chronic illness and to appreciate PAs as team members in the PCMH model.

**Primary care seminar.** Students meet one half-day weekly with faculty in the seminar to discuss clinical cases. Students create and present detailed biopsychosocial profiles of their panel patients to gain insight into the social determinants of health. They discuss the system issues they have encountered, such as the reasons patients use the emergency room for primary care needs. The seminar supports students’ progress through the LIC and provides them with an ongoing, personal relationship with faculty.

**Population Health Improvement and Leadership course.** Students participate in the Population Health Improvement and Leadership (PHIL) course through Duke’s Department of Community and Family Medicine. The course covers topics in community engagement, population research, problem identification, and solution and evaluation design and implementation. The course meets weekly for one hour during the LIC and includes a monthly journal club. PHIL prepares students to engage in the population health improvement project they will undertake the following year.

**Year 3.** Both PCLT and traditional students complete a scholarly research project, a weekly continuity outpatient clinic, and a medical biostatistics course in their third year. In addition, PCLT students complete an online epidemiology module available through the Association for Prevention Teaching and Research’s Web site (http://www.aptrweb.org/).

For the research project, each PCLT student chooses a population health improvement topic in an area of need identified by community stakeholders and writes a thesis, manuscript, or grant proposal to communicate findings back to the stakeholders. For example, one PCLT student explored factors affecting the health of individuals with disabilities. The student used data collected via a community-based participatory research (CBPR) partnership including multiple universities, community members with disabilities, family members of people with disabilities, and employees from community organizations serving people with disabilities. The student’s preliminary findings will be shared with the community stakeholders both to disseminate information and to solicit input to direct the CBPR group’s further research and analyses. Ultimately, this information may be helpful in designing targeted prevention, screening, and intervention measures that could benefit the health of this vulnerable and understudied population.

**Year 4.** The fourth-year curriculum for PCLT and traditional students is composed of clinical electives and a required capstone course that prepares students to be successful interns. We plan to create PCLT electives for the fourth year; these will include training in motivational interviewing, transitions of care, patient self-management, behavioral health integration, substance abuse counseling, and accountable care collaboration for children with complex medical issues.

**The leadership curriculum.** Leadership training prepares PCLT students to exercise leadership in service to society. The leadership curriculum focuses on self-awareness, communication skills, commitment to the growth of others, and willingness to take risks. Students

---

**Chart 1**

**Sample Weekly Longitudinal Integrated Clerkship Schedule for a Second-Year Student in the Primary Care Leadership Track, Duke University School of Medicine**

<table>
<thead>
<tr>
<th>Morning</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
<th>Sunday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family medicine clinic</td>
<td>Psychiatry clinic</td>
<td>Internal medicine clinic</td>
<td>Community team</td>
<td>___✓</td>
<td>Urgent care/ER option</td>
<td>___✓</td>
</tr>
<tr>
<td>Noon</td>
<td>PHIL course</td>
<td>___✓</td>
<td>Practice/clinical skills course</td>
<td>Primary care seminar</td>
<td>OB/GYN or surgery clinic</td>
<td>Pediatrics clinic</td>
</tr>
<tr>
<td>Afternoon</td>
<td>___✓</td>
<td>___✓</td>
<td>___✓</td>
<td>___✓</td>
<td>___✓</td>
<td>___✓</td>
</tr>
<tr>
<td>Evening</td>
<td>Urgent care/ER option</td>
<td>___✓</td>
<td>___✓</td>
<td>___✓</td>
<td>___✓</td>
<td>___✓</td>
</tr>
</tbody>
</table>

Abbreviations: ER indicates emergency room; PHIL, Population Health Improvement and Leadership; OB/GYN, obstetrics-gynecology.

✓“White space” in schedule provides time for students to follow their patients to other appointments, perform home visits, work with community teams, etc.

✓Students attend the OB/GYN and surgery clinics in alternate weeks.
learn the importance of following as well as leading in the context of community-engaged work. In the 2014–2015 academic year, leadership training will begin in preorientation to year 1, as described above, and we plan to continue it through all four years.

In year 2, students identify their leadership style in an afternoon workshop during the LIC. Students also learn leadership skills through the PHIL course and gain practical experience working with their community health team. As community-engaged research demands collaboration with community members, third-year students receive professional coaching from a leadership trainer throughout the research year.

The PCLT curriculum, especially the LIC, allows students to individualize parts of their clinical learning process and thus becomes a training ground for leadership development as students learn to self-assess and then advocate for training to meet their learning needs. Given the openings in their weekly schedule, second-year students have flexibility to seek opportunities such as observing a clinic for children with obesity or autism, adding extra time with a cardiologist reading EKGs, or following an acupuncturist. PCLT faculty act as mentors during this process through regular meetings with the students.

Scholarship support
PCLT students sign a letter of intent and receive a $10,000 scholarship each year to help them pursue a career in primary care, which is defined as family medicine, general internal medicine, or primary care pediatrics. These scholarships will revert to loans for PCLT graduates who fail to follow a primary care career path for at least five years after medical school graduation. Each PCLT student is required to meet with a financial advisor during year 1 to evaluate personal financial resources and projected debt burden to plan for a career in primary care. The financial advisor is available for consultation yearly thereafter.

Outcomes

Academic performance outcomes
The first cohort of PCLT students will graduate in 2015. To assess whether PCLT students perform as well as traditional students, we are tracking data from summative assessments, including year 1 course grades, year 2 clerkship grades, shelf exam scores, year 3 scholarly project grades, and year 4 elective grades, as well as United States Medical Licensing Examination Step 1, Step 2 Clinical Knowledge, and Step 2 Clinical Skills scores. We plan to conduct a prospective case–control study in which each PCLT student will be matched with one traditional student on the basis of their academic performance during undergraduate education.

Program evaluation
All students complete course evaluations throughout the medical school curriculum. In addition, PCLT students provide feedback to the track’s program directors during monthly meetings. This feedback is used both to make immediate changes to the program, if needed, and to plan for the following year. Students’ aggregated patient encounter reports are used to quantify differences in patient encounter experiences between PCLT and traditional students.

Outcomes assessment
All Duke graduates who match to primary care residency programs will be tracked. We plan to follow PCLT and traditional track graduates who enter primary care fields to attempt to discern who enters leadership positions with a population health focus. This will allow us to explore where PCLT training might have made a difference in the career choices of these graduates.

Student feedback
We asked PCLT students at the end of their LIC to write reflections on their experience. They reported that they most appreciated the close relationships they cultivated with their longitudinal faculty and the experiences that occurred when they followed patients over time. One student commented:

Being able to follow patients over time and through a variety of settings gave me a deeper understanding of illness and of healing. I also developed meaningful relationships with some of the most amazing—compassionate, intelligent, visionary—clinicians I have ever met. I had the opportunity to see many of my patients in follow-up, sometimes for multiple visits. This continuity ... fueled my desire to pursue a career in primary care.

They also rated the time spent with their community health team as one of the highlights of their second year:

[The community orientation] was one of the most meaningful and memorable aspects of this year for me. It changed the way that I viewed the Durham community.

The philosophy of medicine embodied by LATCH is one where you acknowledge the interconnectedness of a patient’s health needs, emotional state, personal comfort, and financial needs and consciously act on all of them. This is so different from traditional clinic-based medicine, and it was a privilege to be able to be a part of it this year.

What is most striking is the poverty of hope.... It reminds me of something said in [the primary care seminar] by a care manager. [She] commented on how providers give up on patients. That is so true. I think it’s really hard, but so important, to keep faith in our capacity for change as human beings. Without that, medicine is futile!

The final student’s comment reflects the need for medical providers to believe that change is possible even in the face of the poor health of the U.S. population (e.g., the obesity epidemic). Coordinated community care and a population health focus that considers social determinants are needed to support the health and well-being of the public.

Next Steps
It is becoming clear that the health of the public in the United States will not be improved by changes in the health care system alone. An individual’s health is influenced more by where and how the person lives, works, and plays than by the care that the person receives in the medical system.’ One of the goals of the PCLT is to increase future physicians’ understanding of the determinants of health as well as of the varying ways to bridge the gap between public health and medical care using medical and nonmedical solutions.

To meet that goal, PCLT leaders need to further explore which providers and organizations are successfully bridging the gap between public health and medical care and whether there are opportunities to get our learners involved in their efforts. One possibility is the Veterans Administration system, which is working on a national strategic plan for population health. We also need to teach students about the financial implications of trying to bridge the gap. As the PCLT is a new
Innovation Report

program, evaluation will be needed to determine if we are meeting our goal of producing change agents in primary care.

In a health care system that is not meeting the health needs of communities, providers who can think creatively and serve as change agents will be a key resource. The first step in training students to act as change agents has been admitting—to ourselves, our faculty, and our students—that we do not have all the answers. We created the PCLT as a laboratory in which students can engage with the community and explore solutions to address the health of the public and the future delivery of health care.

Acknowledgments: The authors wish to thank Jonathan Sheline, MSPH, MD, Justine Strand de Oliveira, DrPH, PA-C, and Blake Wiggins for their support in developing this article. In addition, the authors would like to acknowledge the medical students who completed the LIC during two pilot years and those in the first cohort of the Primary Care Leadership Track: Christopher Danford, Cassandra Kisby, Tracey Spencer, Martina King, Rita Ouseph, Simon Tesfamariam, Maya White, Anna Afonso, Sarah Cassel, Trevor Dickey, Brittany Pierce, and Laura Platt. Without their commitment and feedback, the authors would not be where they are today. Student comments are used with permission.

Funding/Support: The Primary Care Leadership Track has received support from the Duke Endowment and Blue Cross Blue Shield of North Carolina.

Other disclosures: None reported.

Ethical approval: Reported as not applicable.

Previous presentations: Parts of the Primary Care Leadership Track curriculum have been presented at meetings of the Society of Teachers of Family Medicine (Houston, Texas, January 2011; New Orleans, Louisiana, April 2011; San Antonio, Texas, January 2013), Council on Resident Education in Obstetrics and Gynecology/Association of Professors of Gynecology and Obstetrics (Orlando, Florida, May 2012), Consortium of Longitudinal Integrated Clerkships (Thunder Bay, Ontario, Canada, October 2012; Big Sky, Montana, September 2013), and Association of American Medical Colleges (Denver, Colorado, November 2011; San Francisco, California, November 2012).

Dr. Sheline is associate professor, Department of Community and Family Medicine, and assistant dean for primary care, Duke University School of Medicine, Durham, North Carolina.

Dr. Tran is assistant professor and vice chief of education, Duke Division of Community Health, Department of Community and Family Medicine, Duke University School of Medicine, Durham, North Carolina.

Dr. Jackson is assistant professor, Department of Pediatrics, and assistant program director, Primary Care Leadership Track, Duke University School of Medicine, Durham, North Carolina.

Dr. Peyser is associate professor, Department of Medicine, and assistant program director, Primary Care Leadership Track, Duke University School of Medicine, Durham, North Carolina.

Ms. Rogers is senior program coordinator, Primary Care Leadership Track, Duke University School of Medicine, Durham, North Carolina.

Dr. Engle is director of evaluation and assessment, Duke University School of Medicine, Durham, North Carolina.

References