A Multielement Community Medicine Curriculum for the Family Medicine Clerkship
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Abstract
Introduction: Many medical schools provide opportunities for students to learn about health disparities, social determinants of health, and the role physicians play in promoting health equity. The family medicine clerkship exposes medical students to these topics to help them understand the health status of patients. A multielement curriculum was incorporated into the core family medicine clerkship to provide the full medical school class exposure to community medicine and was updated in 2014 to increase the emphasis on clinical correlation of community medicine concepts. Methods: This curriculum consists of a community medicine orientation, a community-based experience, a didactic session, and a reflection paper. The orientation serves as an introduction to the course, and the community-based experience provides hands-on understanding of community medicine. The didactic session encompasses a half-day session of preparatory work, team-based exercises, an interactive lecture, individual reflection, and a seminar-style discussion. Students share their experience with the curriculum in their reflection papers. Results: Since 2014, 286 have students completed the updated curriculum, and reactions have been highly favorable. Most students have agreed or strongly agreed that the sessions met the learning objectives. Student preparation was demonstrated by individual quiz scores (average: 87%, n = 93). Learning and behavior change were evaluated using structured rubric scoring of reflection papers (average: 94%, n = 67). Discussion: Overall, this community medicine curriculum includes a variety of learning experiences for medical students to gain knowledge, attitudes, and skills that are applicable to care in all specialties and may be easily adapted to use in other settings.

Keywords
Social Determinants of Health, Healthcare Disparities, Empathy, Population Health, Community Medicine, Cultural Medicine, Implicit Bias

Educational Objectives
After completing this community medicine curriculum, learners will be able to:
1. Appraise and discuss the impact of at least two elements of a patient's community and cultural context on the patient’s health status and health care access.
2. Describe at least one successful and one unsuccessful example of linking specific patients to appropriate community resources, noting factors that influenced both examples.
3. Acknowledge the presence and risks of explicit and implicit bias (personal and societal) towards members of some groups or populations in clinical encounters.
4. Select and defend at least three strategies for influencing health through education.
5. Identify limitations of individual medical providers to address all aspects of a patient’s psychosocial circumstances.

Introduction
The World Health Organization defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." Yet health disparities persist at every level of the definition. With this in mind, many medical schools provide opportunities for students to learn about

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health disparities, social determinants of health, and the role that physicians play in promoting health equity.\textsuperscript{2} Exploration of the literature suggests that community visits and placements (in both clinical and nonclinical environments) can assist the student in developing communication skills, an appreciation of nonmedical community health support, and an increased understanding of community health.\textsuperscript{3} Many institutions, including our own, offer multiple opportunities for community engagement and public health experiences through elective and extracurricular courses.\textsuperscript{4-6} Courses often include multidimensional curricula using many instructional methods, such as didactic sessions, small-group activities, and community-based hands-on assignments. The common thread that binds such curricula is often the emphasis on compelling students to think about how their patients’ health is influenced by factors beyond the physiological ones. Given the importance of these topics to all physicians, our department of family and community medicine felt it was necessary to go beyond elective and extracurricular opportunities and provide all graduating medical students with exposure to community medicine training as part of the family medicine clerkship.

This community medicine curriculum has been a long-standing component of the family medicine clerkship taught in the third year of medical school at our institution. The curriculum went live in 2003 and was initially designed to promote student reflection on the ways that socioeconomic status, health literacy, and culture impact patients' health and health-seeking behaviors. The curriculum was taught in three 90-minute didactic sessions, and students completed one community-based experience during the 4-week rotation.

In 2014, after feedback from the clerkship director, student session evaluations, and the recommendation of instructors, the session was updated. The update emphasized students' learning needs around social determinants of health, introduced them to community assets and resources available to address health, and taught strategies students could use to identify patient preferences, including those based on culture. These modifications were designed to encourage the students to move from identification of psychosocial contributors to health disparities to a reflection on personal and professional approaches in addressing these contributors. In particular, our instructors utilize Kolb's experiential learning reflection approach.\textsuperscript{17}

The curriculum updates were also intended to increase the emphasis on clinical correlation of these community medicine concepts and to update the resources, readings, and background literature base. They built upon the work of prior faculty and retained the community-based experiences with long-standing community partners such as the public health department, a clinic-based community health nurse, the medical school's student-run free clinic, and a network of public housing complexes. The didactic session was also updated from a seminar-style teaching approach to include a variety of teaching styles, including group learning activities, interactive lectures, and individual reflection. A component on implicit bias, developed by a cross-discipline team, was also added given this feedback.

Methods
The community medicine curriculum is an element of the family medicine clerkship, a 4-week required rotation. Medical students spend 1 day per week participating in group learning sessions; the balance of the time is spent in clinic. Note that while some elements of these group learning sessions are inspired by the team-based learning (TBL) approach, they are not fully TBL sessions. There are four main components of the community medicine course: (1) orientation to community medicine, (2) a community-based experience (e.g., home visit, volunteer at uninsured/underinsured clinic, community health education presentation, in-depth patient interview on social history), (3) a community medicine didactic session, and (4) a reflection paper.

Component 1: Orientation to Community Medicine
At the beginning of the rotation, as part of the students' general clerkship orientation, a faculty member meets for about 20 minutes with the group. The faculty member begins by asking the students to brainstorm factors that affect patient health, encouraging the group to consider a broad range of psychosocial contributors. After this, the faculty member distributes the pocket cards with Kleinman
questions and social context review of systems (Appendix A). By means of introducing the Kleinman questions, the faculty member shares several patient cases in which Kleinman questions elucidated critical information from patients and impacted their care. The faculty member then introduces the elements of the community medicine curriculum to the students, highlighting the readings, the community experiences, the didactic session, and the reflection papers. During this time, the faculty member demonstrates for students where to find community medicine–related materials on the clerkship’s course page in our institution’s digital learning platform. There is no specific room setup needed for this orientation. Copies of the cardstock Kleinman/social context review of systems cards are needed for distribution. If possible, access to technology during this component (i.e., computer, projector, Internet access) will be helpful in demonstrating where materials can be found online.

**Team formation:** Teams of five to six students are facilitator assigned during orientation at the beginning of the 4-week clerkship. Students maintain these teams for all team-based activities, including the community medicine didactic session.

**Description of advance preparation resources:** Session objectives and preparatory resources are available from the first day of the rotation in the clerkship syllabus. The following assignments prepare students for this session:

1. **Implicit association test at Project Implicit.** Students are asked to select any test of interest to them and complete it prior to the session. This web resource is recommended for use with this material but is not formally included as part of this publication. If this link is no longer available, use of an alternative Internet-based implicit association test may serve a similar function.

2. Lantz, Golberstein, House, and Morenoff, “Socioeconomic and Behavioral Risk Factors for Mortality in a National 19-Year Prospective Study of U.S. Adults.”

3. Carrillo, Green, and Betancourt, “Cross-Cultural Primary Care: A Patient-Based Approach.”

4. Manheimer, *Twelve Patients: Life and Death at Bellevue Hospital*, chapters 2 and 7.

5. Fadiman, *The Spirit Catches You and You Fall Down: A Hmong Child, Her American Doctors, and the Collision of Two Cultures*, chapters 5 and 17.

**Component 2: Community-Based Experience**

Each student is assigned (and scheduled for) one community-based experience during the clerkship. Most students have completed the community experience prior to the didactic session.

**Chat and Chew:** Chat and Chew is a group community health education experience. It is not intended to be a lecture but rather a community exchange of knowledge between students and residents. A pair of students prepares 30 minutes of material on a topic preselected by members of the community, leaving the remaining time for questions and discussion. Students are encouraged to present using an interactive style of their choosing and to provide a simple handout to attendees. Presentations occur at an inner-city public housing complex for adults with chronic disabilities. The on-site social worker attends the medical students’ presentations and assists in facilitating discussion or answering resident questions.

**Saturday clinic for the uninsured:** Students assigned to this experience sign up for one Saturday shift during the 4-week clerkship. The clinic is a safety-net clinic providing acute and chronic disease management for uninsured adult patients in inner-city Milwaukee, Wisconsin. In the course of providing clinical care under the supervision of physician volunteers, students conduct a detailed psychosocial history on at least one patient.

**Patient interview project:** This assignment is completed at the primary clinical site the student rotates in during the rotation. All students with rural placements receive this assignment. Students are asked to work with their preceptors to select a patient who would be willing to participate in a student interview and provide a detailed psychosocial history. Students are asked to probe socioeconomic, cultural, and health education issues that impact the health of the patient.
**Community home visits:** Students may be assigned home visits either with a community health nurse (associated with one of the primary clerkship clinic sites) or with the Milwaukee Public Health Department. The former makes home visits to serve a wide variety of primarily homebound patients to address medical and psychosocial needs. The latter includes experiences within a nurse home-visit program designed to support families with identified risk factors for infant mortality. These experiences focus on education, health assessments, and advocacy to pregnant women, infants, and their families.

**Component 3: Community Medicine Didactic Session**

Several educational strategies are used during the didactic session, including team-based activities, interactive lecture, individual reflection, and seminar-style discussion. While the session does include some strategies adapted from TBL, it does not strictly follow all elements of this educational approach. The didactic session outline is provided in a presentation contained in Appendix B. This presentation contains lecture materials, as well as prompts for various activities in this session.

This session begins with a six-item individual readiness assurance test (IRAT; Appendix C) conducted using an audience response system. We receive immediate feedback of individual scores and class averages for each item. We proceed directly to a group readiness assurance test (GRAT; Appendix C) with discussion and single consensus answer provided by each team. The use of notes or other materials is not permitted during the quiz. During the GRAT, the class as a whole discusses each item after the teams submit their responses. Because much of the material covered in the session is conceptual and less readily tested using multiple-choice items, our readiness assurance process is intended primarily to confirm comprehension of the readings. Subsequent activities further explore key concepts, student attitudes, and experiences. Individuals or teams may appeal grading if they feel another response is appropriate. Some questions were modified over the first several months of the curriculum based on student feedback, and the updated questions are provided.

**Description of the team application activities:**

1. **Four generations exercise:** Each team is provided the same three significant problems (Appendix D). Through intrateam debate, multiple responses are provided and noted on a large easel pad. The problems are open-ended and cannot be answered with a single choice, though teams are encouraged to identify what they feel are the most important elements for each problem. The use of written responses on large-sized easel pads allows for answers from each team to be provided simultaneously. Teams offer responses, comments, and questions to each other, allowing interteam debate to occur. This activity may be adapted to a TBL approach by providing several common responses to each of these open-ended problems and asking teams to choose which is most significant.

2. **Tanisha case exercise:** Students are asked to independently reflect on the prompts and respond to questions, then discuss and compare their responses with one to two peers on their team. The teams do not engage in interteam debate during the large-group debrief of this activity. Prompts indicating when the activities should be administered are included in Appendix B. A student worksheet to be used with this activity is provided in Appendix E, and a facilitator guide for the activity is provided in Appendix F. It should be noted that adapting this activity to a TBL approach would require substantial modification. For example, instructors could present students with written or video examples of three physician-patient interactions and ask students to determine which would be most appropriate in developing a trustful doctor-patient relationship and in supporting a patient who is providing a history of trauma.

**Facilitation schema for didactic session:**

- Room setup, handouts ready, presentation and team-based quiz loaded (Appendices B & C; 15 minutes).
- IRAT using audience response system (Appendix C; 15 minutes).
- GRAT with discussion of correct answer after each question (Appendix C; 10 minutes).
• Introduce faculty and session learning objectives (5 minutes).
• Student work with teams on four generations exercise worksheet (Appendix D; 20 minutes).
• Large-group reflection on four generations exercise with worksheet (20 minutes).
• Interactive lecture/discussion on implicit bias (30 minutes).
• Break. Double-check videos are working (10 minutes).
• Introduction to empathy: discussion. View two short empathy videos (Appendix B; 10 minutes).
• Students work independently on Tanisha exercise (Appendix E; 5 minutes).
• Students work with one to two other students on Tanisha exercise (10 minutes).
• Large-group reflection on Tanisha (10 minutes).
• Large-group debriefing on community experiences (Component 2; 30 minutes).
• Ask students to complete evaluations and leave them on the tables (Appendix G; approximately 2-5 minutes).

The room setup typically includes three round tables with six chairs at each table. We utilize the following technology: computer, projector, Internet access, speakers, and audience participation/polling software. Each table is supplied with an easel with paper (or a whiteboard), markers, and copies of the four generations and Tanisha exercises (Appendices D & E). Facilitators are provided with an instructor’s guide similar to this Educational Summary Report, the didactic presentation (Appendix B), the Tanisha facilitator guide (Appendix F), and a class roster with student pictures and names.

Practical advice for successful facilitation of didactic session: Leading the community medicine team-based session requires small-group facilitation skills. The session also calls for the facilitators to develop trust among students in order to discuss sensitive topics and to both listen to and acknowledge multiple viewpoints. Our session is cotaught by family physician and a PhD social scientist. Common pitfalls we have encountered include lack of student engagement, students who dominate the discussion, and lack of willingness to share due to the sensitivity of the topics. One successful strategy we have used to address lack of student engagement is sharing personal clinic-based examples to stimulate discussion. When multiple perspectives on issues are not presented, we challenge the students or ourselves to present an alternative viewpoint. We also acknowledge that students may be nonverbally reflective about topics and do not push for discussion when it is clear there is no desire to share.

Component 4: Reflection Paper
Students are required to submit a written reflection on their community experiences. Reflection prompts vary based on which experience students were assigned to, but all assignments ask students to report observantly about the experience, describe how their experience relates to concepts from our readings and didactic session, and describe their reaction to the experience in the context of their own beliefs, culture, or prior experiences. Specific reflection prompts for the Chat and Chew, Saturday clinic, patient interview, and community health home visit may be found in Appendices H-K, respectively. For reflection paper grading rubrics, please see Appendix L.

Results
In the first 18 months since the curriculum update (July 2014-December 2015), 286 students have completed the updated curriculum. Two primary faculty members have traditionally delivered most of the material; however, on occasion, substitute facilitators have taught the didactic session using a detailed instructor’s guide similar to this Educational Summary Report.

Based on student evaluations (Appendix G), learners responded favorably to the curriculum, with students on average agreeing/strongly agreeing that the session both met learning objectives and was effective and useful across all domains evaluated. On a scale from 1-6, 1 indicating strong agreement and 6 indicating strong disagreement, scores ranged from an average of 1.37 for “My team functioned effectively as a learning group” to 1.61 for “I was actively engaged as a learner in the team-based session.” See the Table for additional student ratings of the session.
We have faced some challenges in preparing and implementing this curriculum. Our students have highly varied levels of background knowledge, and despite efforts to engage all learners, we perceive that those with the most and the least prior knowledge at times appear disengaged. Maintaining robust community experiences is an ongoing effort, as we react to community partner staff changes, canceled home visits, and variable attendance at health education presentations. One curricular limitation of our materials is that the quiz question items have not been formally assessed for psychometric properties. However, we are

As stated previously, students complete a six-question IRAT at the start of the team-based session to evaluate their comprehension of the readings. This test counts for 2% of their final clerkship grade. Student preparation was demonstrated by individual quiz scores (average: 87%, n = 90). Average IRAT scores and standard deviations for individual items are described on the final slide of Appendix B.

At the conclusion of each session, facilitators evaluated students on class participation. Using a student photo roster, each student was rated on a 0-3 scale for participation (0 = negative, 1 = minimal, 2 = average, 3 = exceptional). Class participation in this didactic session counts for 2% of the final clerkship grade. Facilitators may make their own rating forms for this procedure.

Finally, learning and behavior change were evaluated using structured rubric scoring of reflection papers (average: 94%, n = 67). Course facilitators grade the papers using a set of rubrics (Appendix L) specific to each experience that assess the students’ ability to identify and describe socioeconomic, cultural, and health education issues impacting the health of the patients/clients and how they addressed the issue during the experience. The reflection paper represents 10% of the students’ final clerkship grade. Over the past 6 months, average scores on our reflection papers were as follows: Chat and Chew: 94% (n = 16), home visits: 94% (n = 18), patient interview: 95% (n = 15), and Saturday free clinic: 94% (n = 18).

**Discussion**

This community medicine curriculum provides an overview of several important educational topics, including cultural humility, social determinants of health, and health disparities. It explores the potential impact and limitations of clinical and community resources. The curriculum uses multiple teaching modalities, including experiential learning, individual preparation, small- and large-group interactive didactics, and reflection. By identifying local opportunities for community-based experiential learning, this curriculum could readily be implemented at other medical schools.
reassured that our quiz items address their primary educational goals based on the GRAT discussions that follow these items. We also engage in debate with students about correct responses and unclear wording and have made several clarifications during early use of the quiz questions. Formal psychometric analysis of quiz questions would be one area for future work.

While our student feedback is generally positive, two constructive themes are that the readings are excessive and the didactic session is too long. Based on this feedback, we are in the process of revising our readings. We are considering eliminating the Carrillo, Green, and Betancourt journal article, as the students seem to be implementing and valuing the Kleinman questions without this background reading. We are also considering eliminating the *Spirit Catches You and You Fall Down* chapters from our reading list as well. While this reading powerfully demonstrates cultural determinants of health, we are concerned that the session does not adequately engage the subject enough to warrant this prereading assignment. We are currently seeking out additional opportunities for our students to participate in quality community experiences and are adding a school-based teaching experience. As described earlier, adaptations to the didactic session, particularly the application activities, could transform this to a TBL session.

Teaching this curriculum has been a rewarding experience for clinical educators. During group discussions, students have demonstrated growth in their appreciation for the nonbiologic determinants of health and disease. Each month, students have testified that using the Kleinman questions improved their understanding of patient perspectives and their ability to provide patient-centered care. In their individual reflections, students who participate in one of the community experiences frequently describe the experience as deeply impacting both their understanding of and their empathy towards their patients.

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References
1. World Health Organization. WHO definition of health. World Health Organization Web site. http://who.int/definition/en/print.html. Accessed December 29, 2015.
2. Krisberg, K. Medical schools integrate health disparity education across curriculum. AAMC Web site. https://www.aamc.org/newsroom/reporter/june2013/346366/health-disparity.html. Published June 2013. Accessed December 29, 2015.
3. Essa-Hadad J, Murdoch-Eaton D, Rudolf MCJ. What impact does community service learning have on medical students’ appreciation of population health? *Public Health*. 2015;129(11):1444-1451. http://dx.doi.org/10.1016/j.puhe.2015.05.009
4. Geppert CMA, Arndell CL, Clithero A, et al. Reuniting public health and medicine: the University of New Mexico School of Medicine public health certificate. *Am J Prev Med*. 2011;41(4)(suppl 3):S214-S219. http://dx.doi.org/10.1016/j.amepre.2011.06.001
5. Buckner AV, Ndjakani YD, Banks B, Blumenthal DS. Using service-learning to teach community health: the Morehouse School of Medicine community health course. *Acad Med*. 2010;85(10):1645-1651. http://dx.doi.org/10.1097/ACM.0b013e3181f0b348
6. Haq C, Sterns M, Brill J, et al. Training in urban medicine and public health: TRIUMPH. *Acad Med*. 2013;88(3):352-363.
http://dx.doi.org/10.1097/ACM.0b013e3182811a75
7. Chamberlain LJ, Wang NE, Ho ET, Banchoff AW, Braddock CH III, Gesundheit N. Integrating collaborative population health projects into a medical student curriculum at Stanford. Acad Med. 2008;83(4):338-344. http://dx.doi.org/10.1097/ACM.0b013e318166f1b

8. Stebbins S, Sanders JL, Vukotich CJ Jr, Mahoney JF. Public health area of concentration: A model for integration into medical school curricula. Am J Prev Med. 2011;41(4(suppl 3)):S237-S241. http://dx.doi.org/10.1016/j.amepre.2011.06.020

9. Kaprielian VS, Silberberg M, McDonald MA, et al. Teaching population health: a competency map approach to education. Acad Med. 2013;88(5):526-533. http://dx.doi.org/10.1097/ACM.0b013e31828aff27

10. Ornt DB, Aron DC, King NB, et al. Population medicine in a curricular revision at Case Western Reserve. Acad Med. 2008;83(4):327-331. http://dx.doi.org/10.1097/ACM.0b013e318166ab8a

11. Michener JL, Yaggy S, Lyn M, et al. Improving the health of the community: Duke’s experience with community engagement. Acad Med. 2008;83(4):408-413. http://dx.doi.org/10.1097/ACM.0b013e3181678450

12. McIntosh S, Block RC, Kapsak G, Pearson TA. Training medical students in community health: a novel required fourth-year clerkship at the University of Rochester. Acad Med. 2008;83(4):357-364. http://dx.doi.org/10.1097/ACM.0b013e3181668410

13. Keys R III, Desnick L, Bienz D, Evans D. Public health community externship. MedEdPORTAL Publications. 2015;11:10260. http://dx.doi.org/10.15766/mep._2374-8265.10260

14. Agness-Whittaker C, Macedo L. Aging, culture, and health communication: exploring personal cultural health beliefs and strategies to facilitate cross-cultural communication with older adults. MedEdPORTAL Publications. 2016;12:10374. http://dx.doi.org/10.15766/mep._2374-8265.10374

15. Kost A, Reason L, Fitch J, Evans D, Dobie S. Who are the underserved? MedEdPORTAL Publications. 2015;11:10288. http://dx.doi.org/10.15766/mep._2374-8265.10288

16. McDonald M, West J, Israel T. From identification to advocacy: a module for teaching social determinants of health. MedEdPORTAL Publications. 2015;11:10266. http://dx.doi.org/10.15766/mep._2374-8265.10266

17. McLeod S. Kolb—learning styles. Simply Psychology Web Site. http://www.simplypsychology.org/learning-kolb.html. Published 2010. Updated 2013. Accessed December 29, 2015.

18. Kleinman A. Patients and Healers in the Context of Culture: An Exploration of the Borderland Between Anthropology, Medicine, and Psychiatry. Berkeley, CA: University of California Press; 1980.

19. Carrillo JE, Green AR, Betancourt JR. Cross-cultural primary care: a patient-based approach. Ann Intern Med. 1999;130(10):829-834. http://dx.doi.org/10.7326/0003-4819-130-10-199905180-00017

20. Project Implicit: preliminary information. Project Implicit Web site. https://implicit.harvard.edu/implicit/takeatest.html. Published 2011.

21. Lantz PM, Golberstein E, House JS, Morenoff J. Socioeconomic and behavioral risk factors for mortality in a national 19-year prospective study of U.S. adults. Soc Sci Med. 2010;70(10):1558-1566. http://dx.doi.org/10.1016/j.soscimed.2010.02.003

22. Manheimer E. Twelve Patients: Life and Death at Bellevue Hospital. New York, NY: Grand Central Publishing; 2012.

23. Fadiman A. The Spirit Catches You and You Fall Down: A Hmong Child, Her American Doctors, and the Collision of Two Cultures. New York, NY: Farrar, Straus & Giroux; 1998.

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