

## RESEARCH BRIEF

# Development and Assessment of an Interprofessional Curriculum for Managing Diabetes During Ramadan

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Submitted May 30, 2017; accepted November 16, 2017; published September 2018.

**Objective.** To develop an educational module that would optimize the diabetic management of individuals observing Ramadan, and to evaluate the effectiveness of the module based on the special needs of fasting individuals.

**Methods.** A needs assessment was conducted to understand the knowledge gaps of health care professionals and the perceived usefulness of an interprofessional curriculum focused on the management of diabetes during Ramadan. Following this assessment, an interdisciplinary team developed and implemented a comprehensive curriculum. Pre- and post-surveys were completed to evaluate the course and assess the changes in skill level and knowledge measured on a Likert scale of 0-5 from “none” to “mastery.”

**Results.** One hundred percent of residents and 75% of staff who completed pre- and post-test surveys reported at least one point of increased skill in the item: adjusting medication for patients with diabetes during Ramadan.

**Conclusion.** Residents and staff demonstrated a need for improved educational curriculum to address diabetes during Ramadan. For both residents and staff, self-reported confidence in their skillset improved upon completing the curriculum.

**Keywords:** Muslim, fasting, interdisciplinary, resident education

## INTRODUCTION

The Muslim population is a growing segment of the United States demographic profile. Refugee arrivals to Minnesota have increased by over 42,000 people, particularly from Somalia and Ethiopia, from 2010 to 2017, according to data released by the Minnesota Department of Health.<sup>1</sup> Most Muslims fast for approximately 30 days during Ramadan, resulting in body chemistry changes that can have a negative impact on the effectiveness and therapeutic advantages of medications.<sup>2</sup> During a period of fasting, adjusting the drug’s dosage is important to avoid side effects and to get the drug’s full intended benefit. Because of this population change and the effects of fasting on medication, health care professionals need to know and understand cultural norms and their impact on the management of chronic diseases.

Multidisciplinary interprofessional care is an appropriate and efficient way to improve patient health outcomes

in culturally diverse populations.<sup>3</sup> These integrative teams may also improve disease outcomes and patient-provider satisfaction and reduce the cost burden on the health care system.<sup>4</sup> The concept of integrated care and interprofessional education is challenging when working with culturally diverse patients, but developing a culturally competent curriculum with clear objectives and goals for integrated care will lead to improved opportunities for learning best practices.<sup>5</sup>

Community-University Health Care Center (CUHCC) is a federally funded urban primary care training center in Minneapolis, Minnesota. Yearly, more than 250 primary care residents and students rotate through CUHCC for training. The center’s educational mission is to engage learners and develop their knowledge in providing care to culturally diverse patients while serving almost 11,000 patients with approximately 62,000 visits annually. These patients represent more than 12 racial and ethnic groups, including a large number of Somalis, most of whom are Muslim and fast during Ramadan.

With the goal of reducing health disparities, students at CUHCC learn to address health and disease in a culturally sensitive way, meeting the triple aim of reducing

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costs, improving outcomes and patient experience within complicated health systems. A diverse group of health professionals practice integrated care at CUHCC, but there was no formal curriculum for managing diabetes while fasting during Ramadan. A culturally appropriate curriculum was needed to integrate interprofessional education into the care of this diverse population.

## METHODS

Before a clinic-wide needs assessment was administered, a literature search was performed to understand the existing knowledge about Ramadan fasting. IRB exemption was obtained for this study from the University of Minnesota. A survey was emailed to providers asking them to respond to statements such as “How important is it for you to learn interprofessional education and integrated care?” and “Do you work with a culturally diverse patient population?” using a 5-point Likert scale from agree to disagree or not interested to very interested. A focus group of clinic patients was formed to assess community needs and areas where faculty and staff could improve. The main themes that emerged from the focus group were the specific religious reasons for fasting during Ramadan, the wide variation in fasting practices, and the need to involve the community as peer educators. These findings encouraged the inclusion of community members in curriculum development process, affording health care providers a firsthand account of the fasting experience.

The interprofessional collaborative practice competency domains were used as a guiding tool in developing this curriculum.<sup>6</sup> These domains included values, ethics, roles, responsibilities, interprofessional communication and teamwork. A multidisciplinary team of pharmaceutical doctors, physicians, nurse practitioners, residents, dentist, psychiatrist, interpreters and case managers developed the curriculum. These professionals were recruited internally by gauging interest from department heads. The resulting team, including sheiks and case managers who were community members, met over the course of four months to

address the needs raised in the initial assessment. The resulting “Management of Diabetes During Ramadan” curriculum consisted of four modules (Table 1).

The course was open to all staff members and was taught by a team of health care providers, patient advocates and Somali community members who regularly observe Ramadan. These hour-long lectures included Microsoft PowerPoint (Redmond, WA) presentations and case discussions. Discussions were used particularly in the fourth module, which focused on medication management. Three Muslim patients were invited to give on-site feedback.

Lectures were announced via email, clinic notices and staff meetings. Beginning in May 2014, the month-long lecture series ran for 1.5 hours every day. The trainings were not mandatory, but all staff were allowed dedicated time to attend. Approximately 70 staff members attended, including residents, physicians, dentists, midwives, nurse practitioners, psychologists, therapists, case managers, care coordinators, outreach workers and social workers.

Diabetic patient panel reports were generated by using the criteria of “country of origin” and “language” (Somali, Oromo, Urdu, Arabic). Care team members (providers, interpreters, care coordinators, social workers and patient care staff) contacted patients a few weeks before Ramadan to schedule an appointment.

A “Ramadan visit” template was created to aid in measuring the success of the curriculum. A flip card for medication management was developed to use at point of care during a Ramadan visit.

The knowledge, attitudes and beliefs about Ramadan fasting resulting from the curriculum were referred to when addressing health care issues during these specialized visits. Individual treatment plans were developed during the visit by using the flip card for medication management and an individualized care plan was handed to the patient at the end of the visit.

A pre- and post-test questionnaire was given to 70 participants before and after each lecture to understand

Table 1. Modules of Management of Diabetes During Ramadan Curriculum

1	Learning about Ramadan, cultural shift, beliefs, celebrations, fasting and diet, including the various ways in which Ramadan is practiced.
2	Management of general health care needs during Ramadan, focusing on individualized plans considering the variety of ways in which this aspect of Ramadan is recognized and the specific needs to diabetic patients.
3	Team function and integrated care; using knowledge across disciplines to provide specialized medical care.
4	Medication management during Ramadan; developing a patient centered care plan to be shared with the patient.

the knowledge gap and skillset gained from the training. Sixty people responded to the pre-test and 42 responded to both the pre- and post-test questionnaires. On a 5-point Likert scale ranging from “none” to “mastery,” providers indicated their knowledge level of specific topics such as what is Ramadan, how to elicit patient’s beliefs and identify needs, and team-based care for diabetes management in the Somali population. Data was assessed using the responses from those who completed both the pre- and post-tests (Appendix 1).

## RESULTS

Fifty-four (90%) of respondents indicated that they were interested or very interested in receiving formal education on integrated care and interprofessional education and agreed or strongly agreed that integrated care and interprofessional education play an important role in improving clinical outcomes in culturally diverse patient populations. These responses confirmed the staff’s interest in additional training on culturally appropriate curriculum.

Pre- and post-course evaluations revealed that the course was effective. Notably, 100% of residents and 75% of faculty and staff self-reported a gain of at least one point in their skill level when asked to score themselves on their understanding of medication management for diabetes during Ramadan. Seventy-five percent of residents and 50% of faculty and staff stated that they gained one level of skill when asked if they knew how to elicit patients’ beliefs and identify needs. Ninety-two percent of residents and 71% of faculty and staff reported gaining at least one level of skill around their understanding of team-based care for diabetes management in the Somali population (Appendix 2).

Developing the curriculum was time consuming because of scheduling conflicts and space requirements. Collecting post-course data was logistically challenging because many of the staff were part-time employees and the cost-free options for electronic surveying limited the questions that could be posed. This led to a self-reported evaluation that may have been less objective.

## DISCUSSION

With increasing population diversity, health professionals will benefit from additional training in managing chronic illness in culturally appropriate ways.<sup>7</sup> As part of this effort, this curriculum allows health care professionals to care for a diverse population while considering their specific needs.

The objective of this study was to assess the knowledge gap of health care providers and develop a culturally considerate curriculum to enhance their knowledge in

understanding the importance of managing diabetes during Ramadan. This study revealed the importance of integrated care and interprofessional education in a culturally diverse population. This study also showed that there is significant interest in learning about interprofessional education. Based on the data, both residents and staff reported significant improvement in their knowledge of medication management of diabetes during Ramadan.

While evaluating this new curriculum, the need for interprofessional education was evident. For example, participants gained significant knowledge about the medication management of diabetes during Ramadan. Because this section was taught by the PharmD, it emphasizes the benefit of interprofessional education.<sup>4</sup>

Cultural differences play an integral role in chronic disease management. Effective health promotion engages patients and uses an interprofessional approach. The goal in creating this curriculum was to increase awareness of cultural norms and facilitate the best possible outcomes for patients.<sup>8</sup>

## CONCLUSION

This study shows the need for structured learning in managing diabetes during Ramadan. Interprofessional education and interdisciplinary teams play an important role in developing curriculum for health care professionals working with diverse populations.<sup>9</sup> Health care professionals need more training in managing chronic illness in culturally sensitive and appropriate ways.<sup>7</sup> Teaching institutions need to promote and invest in developing disease-specific and culturally sensitive curriculum to improve compliance and patient satisfaction.

## ACKNOWLEDGMENTS

The authors wish to thank Kate Erikson who helped in organizing these workshops. Additional thanks go to Jeff Thompson, Yusuf Shaffie and Dr. Jeff Luke who were part of the interprofessional team.

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Appendix 1. Pre-Test and Post-Test Survey

**Team-Based Care for Diabetes in Somali Population During the Month of Ramadan**

Name \_\_\_\_\_ Date \_\_\_\_\_

Please rate your skills, knowledge, or understanding using the following scale (1=no skills, knowledge, understanding to 5=mastery of skills, knowledge, understanding). If the question is not applicable to your role, please mark N/A. Your name is used to track your results.

N/A	1	2	3	4	5							
Not applicable to role	None/no	Minimal	Developing	Competent	Mastery							
<i>On a scale of 0-10, please rate your skills, knowledge, or understanding regarding:</i>												
Team-based care for diabetes management in the Somali population	N/A	0	1	2	3	4	5	6	7	8	9	10
What is Ramadan												
Who celebrates Ramadan												
What the Ramadan celebration entails												
What lifestyle changes are associated with Ramadan												
What diet and activity changes are associated with Ramadan												
How to elicit patient's beliefs and identify needs												
How to discuss general health care needs during Ramadan												
How women's health is impacted by Ramadan												
How behavioral health is impacted by Ramadan												
How dental health is impacted by Ramadan												
How to utilize point-of-care resources for diabetes management												
How to medically manage diabetes during Ramadan												
How to adjust medications for patients with diabetes during Ramadan												
How to develop a patient-centered care plan												

*On a scale of 0-10, please rate how your attitudes or how you feel regarding:* N/A 0 1 2 3 4 5 6 7 8 9 10

**Importance** of a team approach to diabetes management in the Somali population during the month of Ramadan. How much do you agree with this statement: "This training is vital to my success during the month of Ramadan."

**Confidence** in a team approach to diabetes management in the Somali population during the month of Ramadan. How much do you agree with this statement: "I feel comfortable and able to meet challenges that may arise with my patients during the month of Ramadan."

**Readiness** to start a team approach to diabetes management in the Somali population during the month of Ramadan. How much do you agree with this statement: "I feel prepared and equipped to take a team approach during the month of Ramadan."

What do you most hope to learn from this training?  
 What do you need to feel ready to provide a team approach to diabetes management in the Somali population during the month of Ramadan?  
 What else should we know?

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Appendix 2. Curriculum Evaluation

**Diabetes Management During Ramadan Curriculum Evaluation**

Name \_\_\_\_\_ Date \_\_\_\_\_

Please circle one box that reflects your level of agreement with the following two statements.

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This session was worth my time.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I learned things in this session that I will put into practice.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

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Please share your ideas and feedback (optional)