

Cultural Competency Education in Pharmacy Curricula-Need and Implementation

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ABSTRACT

Cultural competency is the ability to interact effectively with people of different cultures. Development of cultural competency skills among health professions students has been a challenge to integrate into curricula. However, further integration of cultural competency concepts may be needed in the future as some literature has shown that training in this area can lead to benefits in patient outcomes. To date there have been different methodologies used to enhance cultural competency including didactic training, community engagement and experiential models focused on communication. The Substance Abuse and Mental Health Services Administration has also provided a multi-step plan to help in advancing health professionals' skills in the area of cultural competency. In addition, the Accreditation Council for Pharmacy Education has made cultural competency a major standard for pharmacy programs, thus further integration of valuable instructional methods for cultural competency are needed. Other professional organizations have also started to develop tools and resources to help educate individuals in the area of cultural competency. In the future, further integration of cultural competency education will be necessary to comply with accreditation standards and to improve health professionals' skillset, which may in turn result in improved patient outcomes.

Key words: Cultural competency, United States, Curriculum, Education, Healthcare.

INTRODUCTION

As the ethnic groups in the United States continue to diversify, it has become important for healthcare professionals to become culturally competent in order to provide care that is satisfactory and beneficial for patients. Additionally, healthcare professionals must be prepared to deal with sudden and emerging diseases while providing the best care for patients regardless of their origins, languages, cultures and religious beliefs, especially since pharmacists have started accepting more responsibilities within the realm of public health. According to a policy statement by The American Public Health

Association (APHA), moving forward a pharmacist's aim is to contribute to health education, public health advocacy, health promotion as well as disease prevention in hopes of achieving optimal outcomes for the public.¹ The APhA code of ethics also states that pharmacists should respect personal and cultural differences among patients.¹ Thus, identifying areas in which pharmacists can improve competency in aspects of culture is important for practicing pharmacists. Cultural competency, can be defined as "the ability to interact effectively with people of different cultures".² This can sound simple,

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yet this concept becomes challenging to implement. This requires healthcare professionals to understand and listen to patients and therefore be culturally aware of their needs and beliefs. Given that we live in a diverse nation, it is imperative that healthcare professionals understand the cultural beliefs, healthcare needs and attitudes of patients in order to provide effective treatment and service to patients. This paper reviews multiple sources as a way to determine the efficacy of the current educational system for teaching cultural competency in pharmacy school and the necessary improvements to educate student pharmacists for developing cultures in the future.

Need for Cultural Competency Education

Pharmacists are often very resourceful using their advanced skillset to provide solutions and alternative solutions to help improve patient outcomes, however there are always areas for growth including the area of cultural competence. The Substance Abuse and Mental Health Services Administration (SAMHSA) has proposed a five-step plan that evaluates the skills needed for professionals to demonstrate cultural competency.³ SAMHSA's plan includes assessing needs, building capacity, planning, implementing and evaluating.³ To assess needs of the patient, a health care professional must assess how their own perceptions may influence their interaction with others.³ To accomplish this, health care professionals must be willing to explore differences and similarities between cultures.³ Health care professionals must then build their knowledge regarding other cultures.³ Through planning, health care professionals can prepare for new situations or circumstances via open and effective communication.³ Through this strategy health care professionals can help implement the plan by encouraging communication and collaboration.³ Utilizing this process can aid pharmacists and other health care professionals in providing culturally competent services to patients that will hopefully improve patient outcomes.

There is some evidence that cultural competency training can help improve patient outcomes. Lie *et al.* conducted a meta-analysis that showed that various forms of culture competency teaching methods helped to improve patient outcomes.⁴ The meta-analysis combined different studies that looked at many forms of teaching pedagogy. For example, studies included the use of experiential modules focused on cultural knowledge and cross-cultural communication. Other designs included a mixture of didactic lectures, group discussions and community engagement. Additionally, other studies have reported that culture competency training helped reduce A1C and the number of patient no-shows.⁴ Truong *et al.* found evidence that supported

the incorporation of cultural competency training to help improve patient outcomes.⁴ In the meta-analysis, six of eight of the cultural competency interventions resulted in an improvement in patient outcomes.⁵ Truong *et al.* also described improvements in patient glycemic control in Hispanic populations. Additionally, improved cultural competency has shown positive results in areas of drug addiction and lifestyle modification to improve disease state control.⁵

Improved cultural competence has also been shown to enhance access and utilization of health services. Among the strategies used were providing patients with access to specific patient navigators and health care workers.⁵ Intercultural staff training was also helpful to improve cultural competency and there has been some evidence to suggest that future electronic notifications to health care providers could be helpful to improve cultural competence and thus patient outcomes.⁵ A review by Forsetlund *et al.* detailed two randomized controlled trials set in inner city Detroit and focused on low income individuals.⁶ Physicians and staff were given electronic reminders to follow-up with patients who should receive a mammography as well as a specific orientation relating to costs of a mammography.⁶ Mammography follow-up rates were higher in the group of patients in which the physicians had an electronic reminder to follow-up.⁶

Implementation of Cultural Competency Education

Many different strategies have been used to help educate health care professionals on cultural competence. Some strategies used in the past have been to provide workshops or training sessions to healthcare professionals, education for patients, interpreter services and access to patient navigators.⁵ Preliminary evidence has shown that cultural competency trainings significantly increase the cultural competence of healthcare professionals and may even increase patient satisfaction as a result.⁷ Identifying effective exercises to fill gaps in cultural competency is important to educate both current healthcare professionals and future healthcare professionals.⁷

Pharmacy schools are tasked with educating future pharmacists in the area of cultural competence. A study by Okoro *et al.* shows that students who had exposure to cultural competency instruction through their pharmacy schools were more knowledgeable about cultural health-care disparities and were able to better relate to patients.⁸ As Shaya *et al.* states, "although health disparities continue to exist as a challenge, health professionals have the improved capacity to work together in addressing and ultimately eliminating health disparities."⁹ Basic knowledge regarding the influence of culture in healthcare

is necessary for healthcare professional students in order to serve patients of different backgrounds. Didactic and experiential training while in pharmacy school can improve awareness of pharmacists' cultural inadequacies while interacting with patients.¹⁰ It is important for students to interact with diverse populations during both types of training.¹⁰ The Accreditation Council for Pharmacy Education (ACPE) is the major accrediting body for Colleges of Pharmacy. As such they produce standards to help guide curricular development. In the 2016 ACPE guidelines, standard 3 states "that a graduate should be able to recognize social determinants of health to diminish disparities and inequities in access to quality care."¹¹ There are some pharmacy programs in the United States that have already incorporated cultural competency into their core curricula as to help meet these guidelines. Along with ACPE, other national pharmacy organizations, such as the American Pharmacists Association (APhA), the American Society of Health-System Pharmacists (ASHP) and the American College of Clinical Pharmacy (ACCP), have provided guidelines regarding the need to incorporate cultural competence. The American Association of Colleges of Pharmacy (AACCP), provides a list of resources that can be used to help educate students regarding cultural competency.¹² In addition, Halbur and Halbur's APhA learning aid also discusses the need for pharmacists to be able to communicate with their patients and to provide respect for those same patients.¹³ This learning aid is a useful resource when teaching students about cultural competence.

Introducing cultural competency concepts into a course may also be helpful in developing health care professionals in the area of cultural competence, but there is conflicting evidence in the literature. Haack and Phillips found that teaching cultural competency in a pharmacy course helped improve some areas and skills related to cultural competence but the magnitude of this improvement was not thought to be sufficient to elicit true change.¹⁴ However, in another study pharmacy students were taught a cultural competency course utilizing a team-based learning strategy and these students were found to have enhanced overall cultural competency.¹⁵ The study noted that the students had increased self-awareness of biases, improved cultural knowledge such as differences in health beliefs among various sociocultural groups, health disparities and health literacy issues and developed skills including health promotion strategies for providing culturally responsive care.¹⁵ Another study by Muzumdar *et al.* showed enhanced knowledge and confidence in cultural competence after several class-related activities.¹⁶ These class-related activities included showing videos of scenarios that pharmacists face that deal with cultural competence in addition to completing written papers on

the topic of cultural competence.¹⁶ Vyas *et al.* introduced a cultural competency series to help reinforce cultural competency during Introductory Pharmacy Practice Experiences (IPPEs).¹⁷ This series had different sessions all focused on different topics including religion, socioeconomic status and health disparities.¹⁷ The series was helpful in improving students' attitudes in regards to cultural competency.¹⁷

Although more than 90% of the pharmacy schools in the United States have expressed interest in assimilating cultural competency courses in their schools, less than half of the pharmacy schools have included cultural competency classes.¹³ Due to the lack of cultural competency training in pharmacy school, graduating pharmacists and pharmacy students may not have the cultural awareness needed to properly care for patients. Thus, there is an apparent need for pharmacy schools to provide formal cultural competency training to better prepare pharmacy school graduates for real life patient care scenarios. The Tool for Assessing Cultural Competence Training (TACCT) was developed by the Association of American Medical Colleges (AAMC) to identify areas in the curriculum where cultural competency is taught. A tool similar to this could be useful for Colleges of Pharmacy to identify best practices for teaching cultural competency through the identification of knowledge gaps in current curricula.¹¹

Tables 1 and 2 summarize information about cultural competency studies conducted in pharmacy and non-pharmacy schools in the US and across the globe. The studies were chosen based on the type of higher education program and the use of cultural competency education in the program. They reverted to some sort of questionnaire or survey to collect adequate data from their study population. Collectively, the studies demonstrated that cultural competency is an evolving topic, that should be implemented to better prepare health care professionals to treat their patients. Many researchers have used a team-based learning approach, out of class activities and IPPE reinforcement to improve student cultural competency. However, even though the studies showed the benefits of training and education on improving cultural competency among students and health care professionals, the implementation of training or other methods to improve cultural competency has not been robust.

CONCLUSION

As global diversity continues to increase and evolve, it is important that student pharmacists are prepared adequately for practice in pharmacy. Academicians should

Table 1: Cultural Competency in Pharmacy Schools in the United States and Other Countries.

Author and Year published	Country of Research	Aim of the study	Study design	Methods used	Findings
Popovich <i>et al.</i> (2018) ¹⁸	United States	Determination of student impressions of their faculty's interactions with students and patients with diverse backgrounds	3 student focus groups were created and then transcripts were analyzed	Qualitative analysis of transcripts	Themes identified from qualitative analysis were faculty awareness or lack of awareness. First and second year students focused more on student interactions, while third and fourth year students focused more on their lack of preparation for future patient encounters. ³
Echeverri <i>et al.</i> (2017) ¹⁹	United States	Determination of racial dynamics and need for cultural competency training in graduate school programs	Frequencies, means and ANOVAS determined from Self-Assessment of Perceived Level of Cultural Competence (SAPLCC) questionnaire	SAPLCC questionnaire	Significant differences were found in the knowledge, skills, attitudes and abilities of cultural competence. There were only slight differences found in the awareness domain of cultural competence which were attributed to the students' attitudes and personal experiences. This study found that racial dynamics and sensitive topics should be addressed early in the academic programs.
Arif <i>et al.</i> (2017) ²⁰	United States	Determination of the benefit of simulated patient case videos in understanding cultural communication in healthcare	Workshop discussions with 20 students about 3 simulated pharmacist-patient case interactions	Pre- and Post-testing	Using simulated patient case videos and workshops increased understanding and comfort with communicating with people of different cultures.
Ekong <i>et al.</i> (2017) ²¹	United States	Determination of P1 students' predispositions to empathy and intercultural sensitivity and to identify potential needs for skills training.	Self-reported perceptions of empathy, intercultural sensitivity and counseling skills	Cross-sectional survey with logistic regression	There is a need to incorporate training strategies for communication skills into the school curriculum. Areas that need training are empathy, cultural sensitivity and motivational interviewing.
Katajaviuori <i>et al.</i> (2017) ²²	Finland	Evaluation of pharmacy curriculum for the need for cultural competency and up-to-date learning outcomes.	Curriculum reform based on relevant learning outcomes and cycle degree programs.	Interviewing students, teachers and pharmacists to determine the intended learning outcomes for a pharmacy degree program.	Competence based curriculum works when the curriculum is created with the assistance of students, teachers and experts in the field. This cooperation results in new and innovative teaching practices that benefit all involved.
LaRochelle <i>et al.</i> (2016) ²³	United States	Examination of racial differences in interprofessional socialization in 4 th year pharmacy students	Two measures administered to P4 students at a historically black university to measure anxiety about communication and behavior towards interprofessional collaboration	Personal Report of Communication Apprehension (PRCA-24) and Interprofessional Socialization and Valuing Scale (ISVS)	Racial differences need to be further explored and the curriculum should promote learning of communications with different racial groups.

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Author and Year published	Country of Research	Aim of the study	Study design	Methods used	Findings
Crawford <i>et al.</i> (2016) ²⁴	United States	Examination of self-perception of serving culturally diverse patients at both beginning and end of pharmacy school	Surveys performed on cohorts made up of pharmacy school students in a particular year and a follow up survey with one cohort	Cross-sectional survey across all four years of pharmacy school, with a follow-up longitudinal survey three years later	When the curriculum includes cultural competency, there were improved perceptions of readiness to communicate with diverse patient populations. Further studies should be performed on program outcomes when teaching cultural competency.
Nash <i>et al.</i> (2016) ²⁵	Australia	Determination of relevance of National Competency Standards Frameworks and suggest changes to improve cultural education for pharmacy students.	Survey conducted about National Competency Standards (NCS) and the respondent's knowledge of the standards of cultural competency.	Online survey of pharmacy students, interns, pharmacists and educators	The responses demonstrated that pharmacy students must have standards and the issues that many had with the standards had practical solutions. Continuing-education for pharmacists helps solidify the standards learned in school.
Bondar (2015) ²⁶	United States	Exploration of solutions to cultural competency training being majorly from outside the curriculum	Survey conducted on cultural competency in Pharmacy school curriculum	Author completed survey for Okoro's study and discussed his thoughts for solutions.	The main solution proposed by this author was to have more interactions between pharmacy schools and other health science schools and having more patient interaction.
Okoro <i>et al.</i> (2015) ⁸	United States	Examination of the level of cultural competency of P3 students	Chi-square tests, ANOVA and multivariate regression	Cross-sectional survey conducted over 3 years	Standards need to be established to determine relevant training and how to incorporate it into the curriculum. Current efforts have shown success.
Wilby <i>et al.</i> (2015) ²⁷	Qatar and Canada	Development of a course-based, cross-cultural student interaction between students at two different universities.	Assessment of analytical content and communication skills	Professional skills simulation through video-conferencing between students in Qatar and Canada	This intervention was an effective way to educate students on cultural competency. Future education in cultural competency should focus on direct contact of students with culturally sensitive situations.
Cooper <i>et al.</i> (2014) ²⁸	United States	Determination of student's perceptions of cultural competency during Advanced Pharmacy Practice Experiences (APPEs)	Assessment of cultural competency perception via a questionnaire	Questionnaire at the end of fourth APPE	Students self-reported high success with cultural encounters but were less comfortable in other situations
Hutchins <i>et al.</i> (2014) ²⁹	United States	Exploration of teaching pharmacy students as well as other health science professionals cultural competency through an anthropological approach	Semester long course focusing on Spanish language, regional topics and community engagement	Finished course with application during a 5 week trip to Ecuador to help meet health needs in the country.	Combining both language and anthropological studies provided a better outcome for cultural competency development than just learning language in class alone.
Cisneros <i>et al.</i> (2013) ³⁰	United States	Identification of reasons for international practice experiences in pharmacy curriculum	Sample of 20 pharmacy schools that have international pharmacy education programs	Telephone interviews by 2 investigators	Even though there are challenges with international experiences, the pharmacy schools value the importance of these educational experiences as it leads to cultural competencies.

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Author and Year published	Country of Research	Aim of the study	Study design	Methods used	Findings
Sales <i>et al.</i> (2013) ³¹	United States	Determination of 3 educational interventions and their effect on cultural competency	Simulated-patient activity group, written case scenarios group and formal lecture group	Pre- and post-test self-assessment surveys	Each group experienced positive changes from pre-test to post-test, but there was greater change in the simulated-patient and lecture groups than in the case scenarios group. Students may need multiple classes to truly enhance cultural competency as 1 hr intervention may not be enough.
Echeverri <i>et al.</i> (2013) ³²	United States	Assessment of pharmacy students and their perceptions of cultural competency in relation to treating patients of different races and cultures	Pharmacy students completed a questionnaire that rated knowledge and skills in cultural competency and were compared based on their race and backgrounds	Self-Assessment of Perceived Level of Cultural Competency (SAPLCC) questionnaire	African American students had higher level of awareness, White students reported a significantly lower level of awareness and Asian Americans reported a significantly lower level of skills in dealing with patients of other cultures.
O'Connell <i>et al.</i> (2013) ³³	United States	Exploration of cultural competency curriculum in pharmacy schools to address development and innovations that would lead to more culturally competent students.	Reviewed nursing and medical school curriculums that had great success and proposed innovations for pharmacy schools.	Preliminary model of pharmacy curriculum with cultural competency objectives were proposed and future plans for pharmacy cultural education was proposed.	Pharmacy schools have made progress in terms of cultural competency, but there is still some differences between the different health professions. Cultural competency standards were presented for students, post-graduates and continuing education seminars for licensed pharmacists.
Kearney (2013) ³⁴	United States	Determination of the design for a required service-learning course for P1 students and the relevance of the class for the curriculum	All P1 students completed a 14-week service-learning course with community organizations	Post-course survey of students and supervisors	The survey showed that the students had achieved the learning outcomes for the designed course and that service-learning was an adequate way to teach students relevant pharmacy curriculum.
Okoro <i>et al.</i> (2012) ³⁵	United States	Determination of level of cultural competency of P3 students and if demographics correlates with their level of cultural competency.	Analysis of demographics of P3 students and their levels of cultural competency through a survey	Cross-sectional survey	From this study it was found that cultural competency topics may not be adequately taught in the pharmacy curriculum and relevant education is needed.
Haack <i>et al.</i> (2012) ¹⁴	United States	Incorporation of cultural competency in the Pharmacy Skills and Application courses and determination if the students achieved an adequate level of cultural competency.	Assessment of the different types of learning provided to the students	Self-reflection, lecture, diversity service-learning, case studies and discussions	The course alone was shown to improve some aspects of cultural competency, but did not show change in all areas. Further instruction is needed.

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Table 1: Cont'd.

Author and Year published	Country of Research	Aim of the study	Study design	Methods used	Findings
Hawala-Druy <i>et al.</i> (2012) ³⁶	United States	Implementation and creation of cultural competency curriculum for millennial students to make them more culturally diverse professionals	Qualitative and quantitative study performed to measure cultural competence pre-intervention and post-intervention	Inventory for Assessing the Process of Cultural Competence Student Version (IAPCC-SV)	Mean scores increased significantly post-intervention suggesting that cultural competency course could benefit students when applied to a larger scale throughout a graduate program or university curriculum.
Smith <i>et al.</i> (2011) ³⁷	United States	Exploration of teaching about disabled patients and their unique cultural identity	Pharmacy education highlights cultural competency, but interactions with disabled patients are not mentioned	Other health professions have educational courses that discuss treatment of disabled patients, but pharmacy courses have little to no mention of disabled patients at all.	After reviewing curriculum from other health professions, proposed interventions for pharmacy school courses to include education on treatment of disabled patients was proposed.
Mathews <i>et al.</i> (2011) ³⁸	United States	Implementation of role-reversal exercises for P1s to enhance awareness of communication barriers.	Volunteers from deaf community helped with role-reversal exercise where students had to fill a prescription at a pharmacy with no spoken language.	Role-reversal exercise	This exercise effectively taught students about the importance of adequate communication between pharmacists and their patients.
VanTyle <i>et al.</i> (2011) ³⁹	United States	Implementation of Spanish language and culture in PharmD curriculum.	Five elective courses created including cultural immersion trip and APPE with Spanish-speaking patients.	Students complete a major or minor in Spanish	This initiative had increased cultural competency among pharmacy students and graduates.
Muzumdar <i>et al.</i> (2010) ¹⁶	United States	Determination of cultural competency of P2 students after completing cultural competency curriculum.	Cultural competency curriculum was covered in P2 year.	P2 students completed a survey after finishing cultural competency curriculum.	Cultural competency curriculum had a positive effect on the cultural awareness of P2 students and gave them more confidence to serve culturally diverse patients.
Vyas <i>et al.</i> (2010) ¹⁷	United States	Incorporation of cultural competency concepts into IPPEs for pharmacy students	6 week course to teach cultural competency concepts for IPPEs	Pre- and Post-test surveys given to the students. Presentations and activities during the course were evaluated by an administrator.	This 6 week course increased the students' cultural competency abilities during IPPEs.
Echeverri <i>et al.</i> (2010) ⁴⁰	United States	Examination of perceived level of cultural competence of pharmacy students and development within 4 years	CCCQ was administered to each class and self-assessment of cultural competence was conducted.	Clinical Cultural Competency Questionnaire (CCCQ)	This questionnaire allowed the schools to determine which cultural competency skills needed more training and helped develop a better curriculum to educate students to be more culturally competency.

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Table 1: Cont'd.

Author and Year published	Country of Research	Aim of the study	Study design	Methods used	Findings
Nkansah <i>et al.</i> (2009). ⁴¹	United States	Exploration of the benefits of diversity and how administrators and faculty use it to develop programs.	Review of important topics in discussing diversity and how it plays an important role in education	Detailed explanation of diversity and how people are reluctant to change educational practices to include diversity.	This paper detailed the importance of incorporating diversity into educational programs and curriculums. It explored the attitudes people have towards including diversity topics and why adding diversity to the curriculum can sometimes be met with resistance.
Jungnickel <i>et al.</i> (2009) ⁴²	United States	Analysis of literature to provide recommendations for the curriculum for future pharmacists.	Analysis of the roles of pharmacists and what they should be able to do in providing care to culturally diverse populations	3 functional roles for pharmacists with 5 cross-cutting abilities	This paper focused on the importance of curriculum that included more experiential learning opportunities and less memorization of material. The curriculum for future pharmacists should be developed in a manner where there is evidence to support the method that is being utilized.
Poirier <i>et al.</i> (2009) ¹⁵	United States	Evaluation and implementation of a course on health promotion and literacy about cultural competency	Students were assessed on cultural competency skills by taking readiness assessment tests (RATs), group presentations, portfolio reflections and panel discussions.	Pre-course and post-course IAPCC-R scores and portfolio responses as well as student suggestions for course enhancements.	This initiative demonstrated students had increased cultural competency after completion of the course and helped better prepare the students for interactions with culturally diverse patients.
Boyce <i>et al.</i> (2009) ⁴³	United States	Creation of a model of criteria that must be completed before entering a pharmacy school, which would help the students be more successful during and after pharmacy school.	The data collected was used to create 2 preprofessional curricular models for students preparing to enter a doctoral pharmacy program.	Evidence-based approach and use of ACPE standards and guidelines	This study found that the preprofessional curriculum should be multi-dimensional, focusing on what the students need to learn to be pharmacists in the future and meet the needs of their patients. It should be revised from time to time to make sure the curriculum stays up-to-date. Pharmacy schools across the US should also consider a preprofessional curriculum that is consistent from school to school.
Haack (2008) ¹⁰	United States	Development of learning activities in the APPE curriculum to improve cultural competency	Students participated in a rotation where they counseled patients at a Mexican grocery store and went to a homeless shelter to do an HIV/AIDS clinic	Student reflections were logged daily and they had to complete a final evaluation of the course. These reflections showed a positive progression towards being more culturally competent as the APPE went on.	Culturally diverse patients allow APPE students to become culturally competent pharmacists. More studies should be performed to determine how to evaluate learning tools and assess these outcomes in APPEs.

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Table 1: Cont'd.

Author and Year published	Country of Research	Aim of the study	Study design	Methods used	Findings
Kapol <i>et al.</i> (2008) ⁴⁴	Thailand	Evaluation of the curriculum on cultural competency standards	Course syllabi were collected and assessed. A questionnaire was developed from the syllabi and distributed to course coordinators for evaluation of standards.	Questionnaire was completed by course coordinators	Thai schools met the competency standards, but more patient-oriented material should be included.
Austin and Ensom (2008) ⁴⁵	Canada	Description of the educational system for pharmacists in Canada and discussion of whether a doctoral degree should be the standard of practice for pharmacists	Differences in practice for pharmacists are occurring in the different provinces and the nation as a whole is reviewing standards for care that should be nationwide since they have national healthcare.	Discussion of the licensure process in Canada and the opportunities pharmacists have in the country.	Pharmacists are an integral part of the universal health care system in Canada and while it may be difficult to discuss a national educational system for pharmacists, it is important to research areas for improvements across all the provinces. The core values of the pharmacists are shared throughout all the provinces, but research is important to make sure they are educated to perform the same level of care no matter which part of Canada the patient is in.
Assemi <i>et al.</i> (2007) ⁴⁶	United States	Development and evaluation of cultural competency training for pharmacy school educators.	2-day train the trainer workshop provided to pharmacy faculty	Baseline, post-training and 9 month follow-up assessments were conducted. They were evaluated on their confidence to teach cultural competency.	The train-the-trainer model increased the faculty's confidence in teaching cultural competency and demonstrated a possible teaching strategy for accreditation standards.
Onyoni <i>et al.</i> (2007) ⁴⁷	United States and Canada	Assess content related to cultural competency in the curriculum of pharmacy schools in the United States and Canada.	E-mail assessment of both curriculum committee chairs and student leaders.	Respondents reported cultural competency in their mission statement, curriculum and the need for further courses or learning activities about cultural competency.	Curriculum committee chairs were able to recognize their school's individual needs for adding cultural competency to the curriculum, but after rechecking with these schools, not all schools have implemented those changes.
Assemi <i>et al.</i> (2004) ⁴⁸	United States	Implement and assess cultural competency course designed for pharmacy students.	8-hr elective course for cultural competency given to 4 th year pharmacy school students. 12-item survey was given to the students to evaluate their awareness and knowledge.	Survey was given before and after the course to evaluate the changes in the students' perceptions about cultural competency.	This course successfully increased the students' awareness of diversity and cultural competence.

Table 2: Cultural Competency in Non-Pharmacy Schools in the United States and Other Countries.

Author and Year published	Type of School	Country of Research	Aim of the Study	Methods Used	Findings
Marino <i>et al.</i> (2018) ⁴⁹	Dental School	Australia	Analysis of cultural content in dental school curriculum.	Two phases with interviews of staff and quantitative review and assessment of current curriculum.	Previous studies showed increased cultural content with doctoral dental students, but was lacking in nursing and bachelor level dental programs. The nursing and bachelor level dental programs showed less time devoted to cultural competency learning and needs implementation of the courses similar to those implemented at the doctoral level.
White <i>et al.</i> (2018) ⁵⁰	Medical School	United States	Evaluation of observations of courses designed to teach about health disparities based on race and cultural factors.	14-session course on culture, self-reflection and medicine	Upon completion of a cultural competency course, the students had increased awareness of cultural issues and felt more confident in providing care to patients of different races.
Metzl <i>et al.</i> (2018) ⁵¹	Medical School	United States	Exploration of the benefits of the inclusion of structural competency training for undergraduate pre-health programs	Structural Foundations of Health Survey given to Medicine, Health and Society students.	These students demonstrated a higher level of understanding of health disparities between patients of different races. These subjects are stressed on different standardized tests to get into graduate programs.
Forsyth <i>et al.</i> (2017) ⁵²	Dental School	Australia	Provide baseline analysis of Indigenous culture and identify needs for increased cultural competency.	Quantitative analysis of online survey with open-ended questions that were compared for common responses.	Some indigenous culture content exists, but more extensive research is needed to determine if the amount of content is sufficient for dental students to interact with indigenous people in medical situations.
Kessler <i>et al.</i> (2017) ⁵³	Medical School	United States	Analysis of cultural competency in emergency medicine since 2002.	Comprehensive literature search about cultural competency in emergency medicine.	Despite the importance of cultural competency in all aspects of medicine, there are few articles discussing the implementation of cultural competency education for emergency medicine.
Petty <i>et al.</i> (2017) ⁵⁴	Medical School	United States	Exploration of the inclusion of structural competency training in undergraduate pre-health programs.	Structural Foundations of Health Survey to evaluate two groups of graduating seniors in pre-health curriculum	Survey results demonstrated that seniors graduating from an interdisciplinary program for pre-health had higher understanding of cultural competency than pre-med students.
Nicholson <i>et al.</i> (2016) ⁵⁵	Medical School	Australia and New Zealand	Assess cultural competency education programs for health professionals	12-item questionnaire	There were many variations of cultural competency education across all the schools surveyed, but the common answer was that lectures were most popular in teaching cultural competency. This study helped determine that a standardized curriculum for cultural competency education is needed in these countries to assure that health professionals all receive the same type of training.

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Table 2: Cont'd.

Author and Year published	Type of School	Country of Research	Aim of the Study	Methods Used	Findings
Gordon <i>et al.</i> (2016) ⁵⁶	Medical School	United States	This study discusses the disparities found in the healthcare system with regards to the different racial and ethnic backgrounds of patients.	Evaluation of a midwifery program's approach to treating patients with different cultural backgrounds and the curriculum necessary for discussing racism in the healthcare system.	Additional data needs to be collected, but the feedback received so far shows that implementation of a cultural competency course can lead to better outcomes for patients. The healthcare providers can become more aware of issues they did not know were occurring and can gear their practice towards being culturally competent.
Smith <i>et al.</i> (2016) ⁵⁷	Podiatric Medicine	United States	Assessment of cultural competency program for 3 rd year medical students.	10 week online cultural competency course with pre- and post-test survey. There was a treatment and control group.	There was a significant increase in attitude and knowledge of cultural competency after completing the 10 week course.
Swanberg <i>et al.</i> (2015) ⁵⁸	Medical School	United States	Exploration of the benefits of cultural competency education at the college and graduate level.	Multidisciplinary team of librarians, faculty and medical students helped design a programming series for cultural competency awareness in the healthcare system.	Thirteen events were hosted and this approach proved to be effective for their participants. This team determined that this approach was easily adaptable to any higher education setting and greatly increased awareness for diversity in the healthcare system
Alrqiq <i>et al.</i> (2015) ⁵⁹	Dental School	United States	Evaluation of cultural competency curriculum	11 item questionnaire that assessed student cultural competency awareness. Pre-curriculum and post-curriculum test	Post-curriculum scores were all higher than pre-curriculum scores. Improvements were statistically significant for all subsets except awareness.
Hack <i>et al.</i> (2015) ⁶⁰	Nutrition Scientists	Canada	Assessment of Canadian nutrition students' cultural competency levels and identify areas for improvements	24-item questionnaire given to 3 rd and 4 th year undergraduate nutrition classes	The students had the lowest scores in the multicultural knowledge section. This study found that when there were less barriers to learning about other cultures, the students seemed to have a much higher cultural competency score. Taking courses in cultural cuisine also helped increase the knowledge of cultural competency for these students.
Matza <i>et al.</i> (2015) ⁶¹	Nursing School	United States	Describe which skills nurses need in cultural competency.	Needs assessment on cultural competency skills.	Cultural competency needs for school nurses were discussed from the results of the needs assessment test. School nurses need cultural competency training to be able to treat students from different cultural backgrounds.
Hudson and Maar (2014) ⁶²	Medical School	Canada	Exploration of the mandatory Aboriginal community placement for its medical students.	Aboriginal placement was implemented to provide cultural competency training in a hands-on learning style.	Cultural immersion has helped medical students learn about the different cultures they may treat as physicians. More research is needed to determine which educational practices are the most effective.

Continued...

Table 2: Cont'd.

Author and Year published	Type of School	Country of Research	Aim of the Study	Methods Used	Findings
Truong <i>et al.</i> (2014) ⁶³	Optometry School	Australia and New Zealand	Review courses and how they prepare students to be culturally competent and to determine demographic characteristics of the current students	Curriculum survey and cultural awareness study	Previous cultural competency training in the curriculum has led to better cultural awareness and there is opportunity for improvement in the cultural competency education.
Beck <i>et al.</i> (2014) ⁶⁴	Physician Assistant	United States	Determination of longitudinal effectiveness of cultural competency curriculum in physician assistant programs.	Students were divided into 2 cohorts and completed a cultural awareness survey at the beginning and at three intervals throughout their first year.	Both cohorts showed similar results that repeated exposure to cultural competency education improved cultural awareness among students.
Holyfield and Miller (2013) ⁶⁵	Dental School	United States	Implementation of a cultural competency training for dental schools across the United States.	Dental Tool for Assessing Cultural Competence Training (D-TACCT)	Cultural competence for dental health professionals is necessary for them to adequately treat their patients. This survey will help determine which areas of cultural competency the curriculum is lacking in.
Delgado <i>et al.</i> (2013) ⁶⁶	Clinical Staff at Mayo Clinic	United States	Exploration of the benefits of a pilot program to develop cultural competence.	Pre-class and post-class assessment of cultural competence.	After the educational intervention the clinical staff reported an increase in cultural awareness, which would allow them to provide better care for diverse patients.
Sears (2012) ⁶⁷	Medical School	United States	Determination of curriculum changes for adequate cultural competency education of medical students	Social locations and intersectional framework of cultural competence curriculum were examined.	Curriculum changes for medical students could result in more equitable care across different racial and ethnic groups.
Thew <i>et al.</i> (2012) ⁶⁸	Medical School	United States	Exploration of solutions to medical students not adequately being taught cultural competence in the curriculum.	Deaf Strong Hospital (DSH) program for establishing cultural sensitivity in the first year of medical school.	DSH program curriculum could increase cultural sensitivity and help with cultural training that is necessary to improve healthcare treatment for deaf patients.
Marino <i>et al.</i> (2012) ⁶⁹	Dental School	Australia	Exploration of levels of cultural competence and skills in dental treatment.	59-item questionnaire given to dental students in their 4 th year, 5 th year and graduates of the program.	These students generally self-reported a good level of cultural competency. These issues could be further explored to improve quality of care.
Ahmed and Bates (2012) ⁷⁰	Medical School	Canada	Description of measurements of physician's cultural competency in health care interactions	Survey of 682 physicians	First two phases were pilot study, third phase resulted in five-factor solution to physicians' level of cultural competency.
Crenshaw <i>et al.</i> (2011) ⁷¹	Medical School	United States	Identification of cultural competency curriculum disparities when treating cardiovascular disease.	4 sessions were conducted for medical students to prioritize a list of cultural competency concepts.	This type of intervention was found to be an adequate means of developing educational content based on the main concepts that need to be discussed.

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Table 2: Cont'd.

Author and Year published	Type of School	Country of Research	Aim of the Study	Methods Used	Findings
Kamaka <i>et al.</i> (2011) ⁷²	Medical School	United States	Native Hawaiians experience the most severe health disparities in the state. Determination of cultural competency curriculum for medical students is needed.	4 focus groups of Native Hawaiians recommended training and curriculum changes and recurrent themes were analyzed.	The five primary themes and secondary themes were specifically requested to be included in the curriculum to increase cultural competency when treating Native Hawaiian patients.
Quinn <i>et al.</i> (2011) ⁷³	Oncology	United States	Identification of communication skills needed to provide Hispanic patients who speak little to no English with oncology treatment.	Survey of oncologists to determine which aspects they needed additional training to be culturally competent with their Hispanic patients. Pre- and post-test was conducted for a workshop that addressed the topics in the survey.	The post-test results demonstrated that the workshop resulted in a positive response from the oncologists. This study can be used to help educate other health providers about racial and cultural disparities while focusing on the skills most needed in that profession.
Khanna <i>et al.</i> (2009) ⁷⁴	Healthcare Professionals and Administrators	United States	Examination of cultural competency training program	Post-then-pre self-reported evaluation	After the training, participants self-reported a better understanding of diverse patients and improved skills in cultural situations.
Genao <i>et al.</i> (2009) ⁷⁵	Medical School	United States	Determination of the impact of formal education on cultural competence for 3 rd year medical students	Pre-course and post-course 40 multiple choice questionnaire with an intervention and a control group.	The medical students in the intervention group had significantly increased confidence with cultural competence knowledge in comparison to the control group.
Horton-Ikard <i>et al.</i> (2009) ⁷⁶	Communication Disorders	United States	Provide a model for teaching multicultural issues in communication sciences and disorders programs.	The authors provide a tutorial for basic needs and issues, then describe a framework for teaching these issues. Finally, they adapt the framework to create a model that would be beneficial for this program.	This course could provide a useful skills base to be culturally competent and across the American Speech-Language-Hearing Association's 9 content areas.
Brennan and Cotter (2008) ⁷⁷	Nursing School	United States	Identification of specific needs of nursing students regarding cultural competency and their abilities to treat culturally diverse patients.	31-item Blueprint for Integration of Cultural Competency in the Curriculum (BICCC) survey.	This survey provided evidence for which areas of cultural competency education are lacking for nursing school students.
Pilcher <i>et al.</i> (2008) ⁷⁸	Dental School	United States	Development of a cultural competency curriculum and how that would benefit health professionals.	Pre-test and post-test regarding cultural knowledge and self-awareness.	Post-test results show that the content discussed may have increased cultural competency. Further research is needed to provide recommendations on future development of the curriculum.

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Table 2: Cultural Competency in Non-Pharmacy Schools in the United States and Other Countries.

Author and Year published	Type of School	Country of Research	Aim of the Study	Methods Used	Findings
Bentley <i>et al.</i> (2008) ⁷⁹	Medical School	United Kingdom	Exploration of diversity training for health professionals in the United Kingdom.	Questionnaire survey for all graduate professional schools in the United Kingdom.	This survey showed discrepancies in cultural competency teaching practices between different healthcare professions and in different regions of the country. There should be national guidelines on cultural competency training for all health professionals in the United Kingdom.
Hewlett <i>et al.</i> (2007) ⁸⁰	Dental School	United States	Review of data for oral health disparities among patients of different cultures.	Survey data from 2003 American Dental Education Association.	This study demonstrates the need for a cultural competency curriculum for dental students.
Lie <i>et al.</i> (2006) ⁸¹	Medical School	Unites States	Compare perceptions of cultural competency instruction from both students and educators during the first 3 years of medical school	Tool for Assessing Cultural Competence Training (TAACT) where the mean percentage of "yes" responses for both faculty and students were calculated.	Faculty and students had similar scores with the TAACT showing gaps in cultural competency education and help guide changes in the curriculum.

identify effective ways to implement cultural competency into a College of Pharmacy curriculum by building upon previously published research to help provide the best education for students. A further increase in time spent on cultural competency in the curricula can help shape the future of pharmacy and may help improve patient outcomes by providing enhanced awareness to students training to become pharmacists.

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CONFLICT OF INTEREST

The authors declare none.

ABBREVIATIONS

APHA: American Public Health Association; **SAMHSA:** Substance Abuse and Mental Health Services Administration; **ACPE:** Accreditation Council for Pharmacy Education; **APhA:** American Pharmacists Association; **ASHP:** American Society of Health-Systems Pharmacists; **ACCP:** American College of Clinical Pharmacy; **IPPEs:** Introductory Pharmacy Practice Experiences; **TAACT:** Tool for Assessing Cultural Competence Training; **AAMC:** Association of American Medical Colleges.

SUMMARY

Cultural competency is the ability to interact effectively with people of different cultures. Development of cultural competency skills among health professions students has been a challenge to integrate into curricula. In the future, further integration of cultural competency education will be necessary to comply with accreditation standards and to improve health professionals' skillset, which may in turn result in improved patient outcomes.

REFERENCES

1. American Public Health Association. Who We Are [Internet]. Who We Are. 2018 [cited 2019Sep16]. Available from: <https://www.apha.org/apha-communities/member-sections/public-health-education-and-health-promotion/who-we-are>
2. Saha S, Beach MC, Cooper LA. Patient Centeredness, Cultural Competence and Healthcare Quality. *Journal of the National Medical Association.* 2008;100(11):1275-85.
3. Ducker G. Resources on Cultural Competency [Internet]. Substance Abuse and Mental Health Administration. 2019 [cited 2019Sep16]. Available from: <https://www.samhsa.gov/section-223/cultural-competency/resources>
4. Lie DA, Lee-Rey E, Gomez A, Bereknyei S, Braddock CH. Does Cultural Competency Training of Health Professionals Improve Patient Outcomes? A Systematic Review and Proposed Algorithm for Future Research. *Journal of General Internal Medicine.* 2010;26(3):317-25.
5. Truong M, Paradies Y, Priest N. Interventions to improve cultural competency in healthcare: a systematic review of reviews. *BMC Health Services Research.* 2014Mar;14(1).
6. Forsetlund L, Eike MC, Vist GE. Effect of interventions to improve health care services for ethnic minority populations. *Norsk Epidemiologi.* 2011Jul;20(1).
7. Govere L, Govere EM. How Effective is Cultural Competence Training of Healthcare Providers on Improving Patient Satisfaction of Minority Groups? A Systematic Review of Literature. *Worldviews on Evidence-Based Nursing.* 2016;13(6):402-10.

8. Okoro O, Odedina F, Smith WT. Determining the Sufficiency of Cultural Competence Instruction in Pharmacy School Curriculum. *American Journal of Pharmaceutical Education*. 2015;79(4):50.
9. Shaya FT, Gbarayor CM. The Case for Cultural Competence in Health Professions Education. *American Journal of Pharmaceutical Education*. 2006;70(6):124.
10. Haack S. Engaging Pharmacy Students with Diverse Patient Populations to Improve Cultural Competence. *American Journal of Pharmaceutical Education*. 2008;72(5):124.
11. Accreditation Council for Pharmacy Education. PharmD Program Accreditation [Internet]. Accreditation Standards and Key Elements for the Professional Program in Pharmacy Leading to the Doctor of Pharmacy Degree. 2019 [cited 2019Sep16]. Available from: <https://www.acpe-accredit.org/pharmd-program-accreditation/>
12. American Association of Colleges of Pharmacy. Cultural Competence [Internet]. AACP. 2018 [cited 2019Sep16]. Available from: <https://www.aacp.org/resource/cultural-competence>
13. Learning Aids: Essentials of Cultural Competence in Pharmacy Practice [Internet]. Home. 2018 [cited 2019Sep16]. Available from: <https://www.pharmacist.com/learning-aids-essentials-cultural-competence-pharmacy-practice>
14. Haack S, Phillips C. Teaching Cultural Competency Through a Pharmacy Skills and Applications Course Series. *American Journal of Pharmaceutical Education*. 2012;76(2):27.
15. Poirier TI, Butler LM, Devraj R, Gupchup GV, Santanello C, Lynch JC. A cultural competency course for pharmacy students [Internet]. *American journal of pharmaceutical education*. *American Journal of Pharmaceutical Education*; 2009 [cited 2019Sep16]. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2739064/>
16. Muzumdar JM, Holiday-Goodman M, Black C, Powers M. Cultural Competence Knowledge and Confidence After Classroom Activities. *American Journal of Pharmaceutical Education*. 2010;74(8):150.
17. Vyas D, Caligiuri FJ. Reinforcing Cultural Competency Concepts During Introductory Pharmacy Practice Experiences. *American Journal of Pharmaceutical Education*. 2010;74(7):129.
18. Popovich NG, Okorie-Awé C, Crawford SY, Balcazar FE, Vellurattil RP, Moore TW, *et al.* Assessing Students' Impressions of the Cultural Awareness of Pharmacy Faculty and Students. *American Journal of Pharmaceutical Education*. 2018;82(1):6161.
19. Echeverri M, Dise T. Racial Dynamics and Cultural Competence Training in Medical and Pharmacy Education. *Journal of Health Care for the Poor and Underserved*. 2017;28(1):266–78.
20. Arif S, Cryder B, Mazan J, Quiñones-Boex A, Cyganska A. Using Patient Case Video Vignettes to Improve Students' Understanding of Cross-cultural Communication [Internet]. *American journal of pharmaceutical education*. *American Journal of Pharmaceutical Education*; 2017 [cited 2019 Sep 16]. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/28496276>
21. Ekong G, Kavookjian J, Hutchison A. Predisposition for Empathy, Intercultural Sensitivity and Intentions for Using Motivational Interviewing in First Year Pharmacy Students. *American Journal of Pharmaceutical Education*. 2017;81(8):5989.
22. Katajavouri N, Salminen O, Vuorensola K, Huhtala H, Vuorela P, Hirvonen J. Competence-Based Pharmacy Education in the University of Helsinki. *American Journal of Pharmacy Education*. 2017Jan;5(4):81.
23. Larochelle JM, Karpinski AC. Racial Differences in Communication Apprehension and Interprofessional Socialization in Fourth-Year Doctor of Pharmacy Students. *American Journal of Pharmaceutical Education*. 2016;80(1):8.
24. Crawford SY, Awé C, Tawk RH, Pickard AS. A Cross Sectional and Longitudinal Study of Pharmacy Student Perceptions of Readiness to Serve Diverse Populations. *American Journal of Pharmaceutical Education*. 2016;80(4):62.
25. Nash RE, Chalmers L, Stupans I, Brown N. Knowledge, use and perceived relevance of a professions Competency Standards; implications for Pharmacy Education. *International Journal of Pharmacy Practice*. 2016;24(6):390–402.
26. Bondar A. A New Practitioner's Perspective on Combining Interprofessional and Cultural Competence Instruction in Pharmacy School Curriculum. *American Journal of Pharmaceutical Education*. 2015;79(10):160.
27. Wilby KJ, Taylor J, Khalifa SI, Jorgenson D. A Course-based Cross-Cultural Interaction among Pharmacy Students in Qatar and Canada. *American Journal of Pharmaceutical Education*. 2015;79(2):26.
28. Cooper L-A, Vellurattil RP, Quiñones-Boex A. Pharmacy Students' Perceptions of Cultural Competence Encounters During Practice Experiences. *American Journal of Pharmaceutical Education*. 2014;78(2):31.
29. Hutchins FT, Brown LD, Poulsen KP. An Anthropological Approach to Teaching Health Sciences Students Cultural Competency in a Field School Program. *Academic Medicine*. 2014;89(2):251–6.
30. Cisneros RM, Jawaid SP, Kendall DA, McPherson CE, Mu K, Weston GS, *et al.* International practice experiences in pharmacy education [Internet]. *American journal of pharmaceutical education*. *American Journal of Pharmaceutical Education*; 2013 [cited 2019Sep16]. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/24249850>
31. Sales I, Jonkman L, Connor S, Hall D. A Comparison of Educational Interventions to Enhance Cultural Competency in Pharmacy Students. *American Journal of Pharmaceutical Education*. 2013;77(4):76.
32. Echeverri M, Brookover C, Kennedy K. Assessing Pharmacy Students' Self-Perception of Cultural Competence. *Journal of Health Care for the Poor and Underserved*. 2013;24(1A):64–92.
33. Oconnell MB, Bittner MRD, Poirier T, Karaoui LR, Echeverri M, *et al.* Cultural Competency in Health Care and Its Implications for Pharmacy Part 3A: Emphasis on Pharmacy Education, Curriculums and Future Directions. *Pharmacotherapy: The Journal of Human Pharmacology and Drug Therapy*. 2013Sep;33(12).
34. Kearney KR. Impact of a Service-Learning Course on First-Year Pharmacy Students' Learning Outcomes. *American Journal of Pharmaceutical Education*. 2013;77(2):34.
35. Okoro ON, Odedina FT, Reams RR, Smith WT. Clinical Cultural Competency and Knowledge of Health Disparities Among Pharmacy Students. *American Journal of Pharmaceutical Education*. 2012;76(3):40.
36. Hawala-Druy S, Hill MH. Interdisciplinary: Cultural competency and culturally congruent education for millennials in health professions. *Nurse Education Today*. 2012;32(7):772–8.
37. Smith WT, Roth JJ, Okoro O, Kimberlin C, Odedina FT. Disability in Cultural Competency Pharmacy Education. *American Journal of Pharmaceutical Education*. 2011Oct;75(2):26.
38. Mathews JL, Parkhill AL, Schlehofer DA, Starr MJ, Barnett S. Role-Reversal Exercise with Deaf Strong Hospital to Teach Communication Competency and Cultural Awareness. *American Journal of Pharmaceutical Education*. 2011Nov;75(3):53.
39. Vantyle WK, Kennedy G, Vance MA, Hancock B. A Spanish Language and Culture Initiative for a Doctor of Pharmacy Curriculum. *American Journal of Pharmaceutical Education*. 2011Oct;75(1):4.
40. Echeverri M, Brookover C, Kennedy K. Nine Constructs of Cultural Competence for Curriculum Development. *American Journal of Pharmaceutical Education*. 2010;74(10):181.
41. Nkansah NT, Youmans SL, Agness CF, Assemi M. Fostering and Managing Diversity in Schools of Pharmacy. *American Journal of Pharmaceutical Education*. 2009;73(8):152.
42. Jungnickel PW, Kelley KW, Hammer DP, Haines ST, Marlowe KF. Addressing Competencies for the Future in the Professional Curriculum. *American Journal of Pharmaceutical Education*. 2009;73(8):156.
43. Boyce EG, Lawson LA. Preprofessional Curriculum in Preparation for Doctor of Pharmacy Educational Programs. *American Journal of Pharmaceutical Education*. 2009;73(8):155.
44. Kapol N, Maitreemit P, Pongcharoensuk P, Armstrong EP. Evaluation of Curricula Content Based on Thai Pharmacy Competency Standards. *American Journal of Pharmaceutical Education*. 2008;72(1):09.
45. Austin Z, Ensom MHH. Education of pharmacists in Canada [Internet]. *American journal of pharmaceutical education*. *American Journal of Pharmaceutical Education*; 2008 [cited 2019Sep16]. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/19325948>
46. Assemi M, Mutha S, Hudmon KS. Evaluation of a Train-the-Trainer Program for Cultural Competence. *American Journal of Pharmaceutical Education*. 2007;71(6):110.
47. Onyoni EM, Ives TJ. Assessing Implementation of Cultural Competency Content in the Curricula of Colleges of Pharmacy in the United States and Canada. *American Journal of Pharmaceutical Education*. 2007;71(2):24.
48. Assemi M, Cullander C, Hudmon KS. Implementation and Evaluation of Cultural Competency Training for Pharmacy Students. *Annals of Pharmacotherapy*. 2004;38(5):781–6.

49. Mariño RJ, Ghanim A, Barrow SL, Morgan MV. Cultural competence skills in a dental curriculum: A review. *European Journal of Dental Education*. 2017Jun;22(1).
50. White AA, Logghe HJ, Goodenough DA, Barnes LL, Hallward A, Allen IM, *et al.* Self-Awareness and Cultural Identity as an Effort to Reduce Bias in Medicine. *Journal of Racial and Ethnic Health Disparities*. 2017;5(1):34–49.
51. Metz J, Petty J, Olowojoba OV. Using a structural competency framework to teach structural racism in pre-health education. *Social Science and Medicine*. 2018;199:189–201.
52. Forsyth C, Irving M, Tennant M, Short S, Gilroy J. Indigenous cultural competence: A dental faculty curriculum review. *European Journal of Dental Education*. 2017;22(3).
53. Kessler R, Coates W, Chanmugam A. Twelve Years Since Importance of Cross-Cultural Competency Recognized: Where Are We Now? *Western Journal of Emergency Medicine*. 2017Jan;18(2):223–8.
54. Petty J, Metz J, Keays MR. Developing and Evaluating an Innovative Structural Competency Curriculum for Pre-Health Students. *Journal of Medical Humanities*. 2017Jan;38(4):459–71.
55. Nicholson SL, Hayes MJ, Taylor JA. Cultural Competency Education in Academic Dental Institutions in Australia and New Zealand: A Survey Study [Internet]. *Journal of dental education*. U.S. National Library of Medicine; 2016 [cited 2019Sep16]. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/27480708>
56. Gordon WM, Mccarter SAU, Myers SJ. Incorporating Antiracism Coursework into a Cultural Competency Curriculum. *Journal of Midwifery and Womens Health*. 2016;61(6):721–5.
57. Smith KM, Geletta S, Langan T. Assessment of a Cultural Competency Program in Podiatric Medical Education. *Journal of the American Podiatric Medical Association*. 2016;106(1):68–75.
58. Swanberg SM, Abuelroos D, Dabaja E, Jurva S, Martin K, Mccarron J, *et al.* Partnership for Diversity: A Multidisciplinary Approach to Nurturing Cultural Competence at an Emerging Medical School. *Medical Reference Services Quarterly*. 2015Feb;34(4):451–60.
59. Alrqi HM, Scott TE, Mascarenhas AK. Evaluating a Cultural Competency Curriculum: Changes in Dental Students' Perceived Awareness, Knowledge and Skills [Internet]. *Journal of dental education*. U.S. National Library of Medicine; 2015 [cited 2019Sep16]. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/26329024>
60. Hack R, Hekmat S, Ahmadi L. Examining the Cultural Competence of Third- and Fourth-Year Nutrition Students: A Pilot Study. *Canadian Journal of Dietetic Practice and Research*. 2015;76(4):178–84.
61. Matza M, Maughan E, Barrows BM. School Nurse Cultural Competence Needs Assessment. *NASN School Nurse*. 2015;30(6):344–9.
62. Hudson GL, Maar M. Faculty analysis of distributed medical education in Northern Canadian Aboriginal communities [Internet]. *Rural and remote health*. U.S. National Library of Medicine; 2014 [cited 2019Sep16]. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/25277126>
63. Truong M, Bentley SA, Napper GA, Guest DJ, Anjou MD. How Australian and New Zealand schools of optometry prepare students for culturally competent practice. *Clinical and Experimental Optometry*. 2014;97(6):540–9.
64. Beck B, Scheel MH, Oliveira KD, Hopp J. Cultural competency in the physician assistant curriculum in the United States: a longitudinal study with two cohorts. *Journal of Educational Evaluation for Health Professions*. 2014;11:2.
65. Holyfield LJ, Miller BH. A tool for assessing cultural competence training in dental education [Internet]. *Journal of dental education*. U.S. National Library of Medicine; 2013 [cited 2019Sep16]. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/23929568>
66. Delgado DA, Ness S, Ferguson K, Engstrom PL, Gannon TM, Gillett C. Cultural Competence Training for Clinical Staff. *Journal of Transcultural Nursing*. 2013Jun;24(2):204–13.
67. Sears KP. Improving cultural competence education: the utility of an intersectional framework. *Medical Education*. 2012;46(6):545–51.
68. Thew D, Smith SR, Chang C, Starr M. The Deaf Strong Hospital Program. *Academic Medicine*. 2012;87(11):1496–500.
69. Marino R, Morgan M, Hawthorne L, Ismail M. Self-reported cultural skills from dental students and graduates from Melbourne, Australia. *European Journal of Dental Education*. 2012;17(1).
70. Ahmed R, Bates BR. Development of Scales to Assess Patients' Perception of Physicians' Cultural Competence in Health Care Interactions. *Journal of Transcultural Nursing*. 2012Mar;23(3):287–96.
71. Crenshaw K, Shewchuk RM, Qu H, Staton LJ, Bigby JA, Houston TK, *et al.* What Should We Include in a Cultural Competence Curriculum? An Emerging Formative Evaluation Process to Foster Curriculum Development. *Academic Medicine*. 2011;86(3):333–41.
72. Kamaka ML, Paloma DSL, Maskarinec GG. Recommendations for medical training: a Native Hawaiian patient perspective [Internet]. *Hawaii medical journal*. University Clinical, Education and Research Associate (UCERA); 2011 [cited 2019Sep16]. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/22235153>
73. Quinn GP, Jimenez J, Meade CD, Muñoz-Antonia T, Gwede CK, Castro E, *et al.* Enhancing Oncology Health Care Providers Sensitivity to Cultural Communication to Reduce Cancer Disparities: A Pilot Study. *Journal of Cancer Education*. 2011Sep;26(2):322–5.
74. Khanna SK, Cheyney M, Engle M. Cultural Competency in Health Care: Evaluating the Outcomes of a Cultural Competency Training Among Health Care Professionals. *Journal of the National Medical Association*. 2009;101(9):886–92.
75. Genao I, Bussey-Jones J, George DMS, Corbie-Smith G. Empowering Students With Cultural Competence Knowledge: Randomized Controlled Trial of a Cultural Competence Curriculum for Third-Year Medical Students. *Journal of the National Medical Association*. 2009;101(12):1241–6.
76. Horton-Ikard R, Munoz ML, Thomas-Tate S, Keller-Bell Y. Establishing a Pedagogical Framework for the Multicultural Course in Communication Sciences and Disorders. *American Journal of Speech-Language Pathology*. 2009;18(2):192–206.
77. Brennan AMW, Cotter VT. Student Perceptions of Cultural Competence Content in the Curriculum. *Journal of Professional Nursing*. 2008;24(3):155–60.
78. Pilcher ES, Charles LT, Lancaster CJ. Development and assessment of a cultural competency curriculum [Internet]. *Journal of dental education*. U.S. National Library of Medicine; 2008 [cited 2019Sep16]. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/18768444>
79. Bentley P, Jovanovic A, Sharma P. Cultural diversity training for UK healthcare professionals: a comprehensive nationwide cross-sectional survey. *Clinical Medicine*. 2008Jan;8(5):493–7.
80. Hewlett ER, Davidson PL, Nakazono TT, Baumeister SE, Carreon DC, Freed JR. Effect of school environment on dental students' perceptions of cultural competency curricula and preparedness to care for diverse populations [Internet]. *Journal of dental education*. U.S. National Library of Medicine; 2007 [cited 2019Sep16]. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/17554098>
81. Lie D, Boker J, Cleveland E. Using the Tool for Assessing Cultural Competence Training (TACCT) to Measure Faculty and Medical Student Perceptions of Cultural Competence Instruction in the First Three Years of the Curriculum. *Academic Medicine*. 2006;81(6):557–64.