

# A Longitudinal Medical Spanish Program at One US Medical School

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**INTRODUCTION:** Policymakers have recommended recruiting or training (or both) more US physicians who can provide care in Spanish. Few longitudinal medical Spanish programs have been described and evaluated.

**OBJECTIVE:** This study aims to describe development and evaluation of the preclinical phase of a 4-y program designed to graduate physicians who can provide language-concordant care in Spanish.

**SETTING:** Study was done in one public medical school in southeastern USA.

**PROGRAM DESCRIPTION:** The program targeted intermediate/advanced Spanish speakers. Standardized fluency assessments were used to determine eligibility and evaluate participants' progress. Curriculum included didactic coursework, simulated patients, socio-cultural seminars, clinical skills rotations at sites serving Latinos, service-learning, and international immersion.

**PROGRAM EVALUATION:** For the first two cohorts ( $n=45$ ) qualitative evaluation identified program improvement opportunities and found participants believed the program helped them maintain their Spanish skills. Mean interim (2-y) speaking proficiency scores were unchanged from baseline: 9.0 versus 8.7 at baseline on 12-point scale ( $p=0.15$ ). Mean interim listening comprehension scores (second cohort only,  $n=25$ ) increased from a baseline of 77 to 86% ( $p=0.003$ ). Proportions "passing" the listening comprehension test increased from 72 to 92% ( $p=0.06$ ).

**DISCUSSION:** We describe development of a longitudinal Spanish program within a medical school. Participation was associated with improved Spanish listening comprehension and no change in speaking proficiency.

**KEY WORDS:** education; medical; Hispanic Americans; Latino; language barriers; communication.

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## INTRODUCTION/AIMS

More than one in ten US residents speak Spanish at home, approximately half of whom report difficulty speaking English.<sup>1</sup> Having limited English proficiency is associated with less access to care,<sup>2,3</sup> lower visit comprehension,<sup>4</sup> and lower patient satisfaction.<sup>5</sup> Language concordance between clinician and patient appears to mitigate some of these disparities.<sup>4,6-9</sup>

Experts have recommended expanding the Spanish-speaking provider workforce by training or recruiting more bilingual physicians (or both methods).<sup>10,11</sup> Medical schools in states such as North Carolina, where Spanish-speaking populations have grown dramatically,<sup>12</sup> are struggling with whether or how they should teach medical Spanish. Whereas some schools offer courses or immersion experiences, or both, few published program descriptions are available.<sup>13,14</sup> To our knowledge, no program uses validated standardized Spanish language proficiency assessments to facilitate teaching or evaluation.

We developed a longitudinal program designed to maintain or improve the medical Spanish communication skills of medical students entering with intermediate to advanced proficiency with the goal of graduating cohorts of physicians who are demonstrably capable of providing language-concordant clinical care in Spanish. This paper presents the context, rationale, curriculum, and interim evaluation of the preclinical phase of the program.

## PROGRAM DESCRIPTION

**Setting and rationale.** In 2002, faculty from the Departments of Family Medicine and Medicine at the University of North Carolina (UNC) convened a working group to develop a medical Spanish program. We conducted a needs assessment, soliciting input from faculty, institutional language experts, medical students, and other sources (Online Appendix). Among other findings, the assessment found that medical students were strongly interested in maintaining previously acquired Spanish proficiency skills during medical school. The needs assessment informed the program's guiding principles and rationale, which are summarized in Table 1.

**Recruitment.** Beginning in 2004, we included a letter in materials mailed to all entering students. The letter described the program and encouraged students rating their Spanish fluency as intermediate or higher to apply.

**Electronic supplementary material** The online version of this article (doi:10.1007/s11606-008-0598-9) contains supplementary material, which is available to authorized users.

Table 1. Principles and Rationale Used to Guide Medical Spanish Program Development

Principle	Rationale
The program should be longitudinal and provide multiple learning modalities	Maintaining second language skills requires repetition over time and across varied contexts
The program should focus resources on medical students entering with intermediate or advanced level Spanish proficiency	Few non-speakers/novices are likely to complete medical school with sufficient Spanish fluency to provide language-concordant care safely Published literature supports concerns about "false fluency" among physicians and trainees with limited fluency Focusing resources on maintaining or enhancing language skills for intermediate and advanced speakers is most likely to help offset the region's need for Spanish-speaking physicians
The program should have official status within the medical school, and students should receive academic credit	Offering credit for coursework in medical Spanish would legitimize the curriculum and encourage involvement of bilingual faculty Offering credit is likely to decrease the attrition seen with prior non-credit courses
When feasible, the program should integrate with existing medical school curriculum	A non-integrated program that simply adds curricular requirements would displace other learning activities and be poorly received by students and faculty
The primary focus should be on language and communication skills, with cultural issues being an important but secondary focus	Language proficiency is measurable and required for good communication Whereas cultural competence remains an important construct in medical education, it is difficult to measure partly because it is hard to separate from more widely applicable constructs such as respectfulness <sup>24</sup>
Validated, reliable measurements of language proficiency should be used for assessment of students and for program evaluation	Use of standardized proficiency measures would facilitate formation of learner groups with similar learning needs, and would eventually permit us to understand which target learner subgroups benefit most from the program Use of such metrics would permit other educators to compare the effectiveness of multiple programs Coupling these measures with assessments in clinical settings should eventually help improve our understanding of the level of Spanish language fluency required for competent language-concordant clinical care

**Language testing.** An independent language testing service with over 25 years of experience administered a validated Spanish speaking proficiency test to all applicants.<sup>15</sup> The test was administered at baseline and again in the student's second year after completing preclinical curriculum. Testing involved a recorded structured Spanish telephone interview that required subjects to respond to 12 questions randomly selected from a larger pool. Independent evaluators were native Spanish speakers who had undergone training to ensure high inter-rater reliability (>0.8).<sup>16</sup> Scores ranged from 1 (total beginner) to 12 (native speaker); students with scores ranging from 6 to 10 (intermediate to advanced) met program eligibility requirements. Examples of test items were as follows: (1) If you had a friend who smoked two packs of cigarettes a day, what advice would you give him? (2) In your opinion, why do people get flu shots? The items were designed to prompt respondents to use Spanish in both general and health-related domains. Evaluators rated the applicants' speed, general vocabulary, grammar, sentence structure complexity, and ability to express ideas in Spanish.

At matriculation (baseline), students took a listening comprehension test consisting of health-related Spanish monologues and dialogues, each followed by five multiple choice questions. Scoring was based on the percentage of questions answered correctly. A score of 70% or higher indicated "passing" at the advanced listening comprehension level.<sup>17</sup> These assessments were repeated in the second year.

**Curriculum.** Preclinical curriculum consisted of didactic, experiential, and evaluative elements (Table 2). As of this writing, the curriculum content has largely remained constant, although the structure of individual components has evolved iteratively.

**Medical Spanish course.** First-year students completed an 80-hour medical Spanish course organized around 2-hour sessions conducted twice monthly by a Spanish instructor (PhD) and clinician (MD). Grammar and vocabulary lessons were based on an interactive DVD/workbook program.<sup>18</sup> Students completed workbook assignments outside the classroom, reviewing them with the instructor via electronic mail. The clinician led clinical role-playing scenarios, which emphasized material in the students' regular Introduction to Clinical Medicine (ICM) course (i.e., Chief Complaint, Present Illness, Past Medical History, etc.). Pertinent cultural issues were included in the cases and discussed in these sessions.

**Socio-cultural seminars.** Students participated in a lunch-time series led by guest faculty or community experts on cultural, psychosocial, or policy topics relevant to Latinos.

**ICM clinical placements.** All medical students complete five 1-week clinical rotations in community-based practice sites during their 2-year ICM course. When practical, our program participants were placed in sites serving Latino populations. This provided language practice while fulfilling a curricular requirement.

**Service learning.** Students participated in at least 20 hours of service-learning activities, such as conducting free health risk appraisals in a large, rural Latino community, interpreting at a student-run free clinic, or providing blood pressure and diabetes screening at Latino health fairs.

**Immersion.** Some students completed optional summer immersion experiences after their first year. Immersion

Table 2. Summary of Curriculum and Evaluation Elements of a Longitudinal Medical Spanish Program at One US Medical School

Program phase	Timing	Program element	Teaching mode or evaluative method	Time required or contact hours
Pre-clinical	Before medical school	Recruitment & enrollment	N/A	2
		Language proficiency assessments	SPA, LC	2
	1st year	Orientation	D	2
		Medical Spanish course*	D, RP, E, SP	80
		Socio-cultural seminars	D	4-6†
		Clinical skills course (ICM) placements	CE, CO	0-40†
		Service learning	CO	10-20†
	Summer after 1st year 2nd year	Immersion or service project (optional)	IM or CO	0-160‡
		Service learning	CO	15-20†
		Simulated patient series	SP, E	8-12†
		Language proficiency assessments	SPA, LC	2
		Qualitative evaluation	FG	1
Clinical	3rd year	Clerkship placements	CE	‡
		Immersion elective (optional)	IM	‡
	4th year	Practical assessment: Spanish	SP	‡
		Language proficiency assessments	SPA, LC	‡

N/A not applicable; SPA telephone-based, health Spanish speaking proficiency assessment; LC health Spanish listening comprehension test; D didactic classroom teaching and discussion; RP clinical role-playing exercises; E electronic media including DVD, web-based material and electronic mail; SP simulated or standardized patients; CE clinical experiential learning; CO community-based experiential learning; IM international immersion; ICM Introduction to clinical medicine; FG focus groups

\*Grammar topic examples include pronouns, adverbs, articles and adjectives; use of past, future, command, and subjunctive verb tenses; preterit versus imperfect; estar versus ser (two forms of the verb "to be") and tener versus hacer ("to have" versus "to do").

†Substantial variation in contact hours among participants in initial cohorts occurred. These numbers represent estimates. Variation has decreased over time. More recent cohorts are receiving more contact hours than the first two cohorts described in this paper.

‡These program elements are not described in this paper, and data are not yet available for this phase of the program.

activities included health-related service, research, clinical care, language coursework, and/or family homestay. Modest travel stipends were offered, along with faculty mentoring for students engaged in service or research projects. Students unable to travel abroad participated in local community service projects, permitting interaction with native Spanish speakers.

**Simulated patients.** During the second year, participants completed a series of seven simulated patient (SP) cases developed by bilingual clinical faculty to correspond with the regular organ system "block" curriculum. Graduate level Spanish instructors served as SPs. Before each SP interview, students reviewed publicly available illustrated Spanish language study guides on the internet<sup>19</sup> as well as supplementary vocabulary material relevant to the specific case scenario. After each interview, the SPs provided students with feedback on language skills and communication processes (this part of the curriculum was not available to the first cohort of students).

**PROGRAM EVALUATION**

The program enrolled 48 students in the first two cohorts (n=22, 2004; n=26, 2005). Of these 48 students, three (6%) withdrew from the program: one withdrew from medical school; one stated the program did not meet expectations; and one felt his/her language skills were insufficient.

**Qualitative evaluation.** At the end of each year, students attended 1-hour focus groups. The focus group protocol (available upon request) addressed strengths, weaknesses, and suggestions for improvement. Group size ranged from 10-18 participants. Focus groups were conducted by a faculty member not directly involved in

teaching activities. Students did not identify themselves. A staff member took notes and recorded the session. Session recordings were transcribed, and the faculty member conducted a content analysis, identifying congruent and discordant views.

Focus groups captured approximately 80% of program participants. Nearly all believed the program helped them to maintain or improve their Spanish speaking and listening skills and to acquire medically relevant vocabulary. There was consensus that the second year case-based series was especially instructive. There was some discordance on the issue of optimal target learner groups. A few students thought the program should be geared toward beginner and intermediate speakers; however, most believed the focus on intermediate to advanced speakers should continue.

Specific suggestions for improving the program included increasing contact time with native Spanish speakers rather than with non-native language instructors, increasing the availability of community-based practices with large Spanish-speaking populations, using a more concise, clinically focused medical Spanish textbook, and grouping program participants together within sections of the regular ICM course to facilitate language practice.

**Speaking proficiency assessment.** Of the 45 students in the first two cohorts who completed the preclinical curriculum, 7 (15%) did not respond to requests to complete the interim speaking proficiency assessment (SPA) before beginning their third year rotations. Among the 38 who did complete the interim SPA, mean (SD) scores were not significantly changed: 8.7 (1.3) at baseline versus 9.0 (1.6) at 2 years (p=0.15, alpha=0.05, paired t test).

**Listening comprehension (LC) assessments.** An interim listening comprehension (LC) assessment was added in the program's second year cohort (n=25). Mean (SE) LC scores increased

from a baseline of 77% (3.0) to 86% (2.2) in the second year ( $p=0.003$ ,  $\alpha=0.05$ , paired  $t$  test). The proportion (SE) of students meeting "passing" criteria on this test increased from .72 (0.09) to .92 (0.05) ( $p=0.06$ , McNemar's test).

## DISCUSSION

We describe a longitudinal Spanish program at a medical school in a US state with a rapidly growing Latino population. This description and interim evaluation add to a limited body of literature describing medical Spanish curricula in US medical schools. Our program is novel in its explicit rationale for targeting intermediate to advanced speakers, its size, and its number of curricular dimensions and contact hours. Attrition is lower than for previous non-credit medical Spanish courses at UNC and other institutions.<sup>14</sup> To our knowledge, this program is unique in its use of standardized language fluency assessments, which provide a means of selecting and grouping learners. The assessments also provide a reliable means of measuring change in student language fluency over time. We suggest that employing reliable fluency measures should improve educators' ability to compare interventions and to generalize program outcomes. Ultimately, such assessments should also enhance educators' ability to predict which learners will be capable of providing competent bilingual care upon completion of training.

Our qualitative findings show that medical students view maintenance of their previously acquired Spanish skills as an important programmatic goal. Our quantitative findings suggest that our program's participants do maintain their Spanish-speaking skills despite the competing demands they face in the preclinical years. Although the absence of a separate control group precludes drawing definitive conclusions about the causal effects of this program on maintenance of language skills, we believe that the program has been a valuable addition to undergraduate medical education at this institution.

We based our decision to target intermediate to advanced speakers on input from our institutional experts who judged that, once in medical school, novice speakers probably lack time needed to acquire the degree of second language fluency needed to provide competent care without an interpreter. This view is supported by studies, including one in which novice speakers underwent an intensive medical Spanish course, showing that clinicians and trainees with limited Spanish fluency often underutilize interpreters and commit potentially important communication errors<sup>20-22</sup>. However, we also recognize that efforts to help novice speakers improve their Spanish skills could potentially lead to better patient care (e.g., through clinicians' improved understanding of quality of interpretation or improved ability to establish rapport through greetings, or both). Hence, the optimal target learner fluencies for such programs are uncertain and may vary depending on program goals.

Despite maintaining their speaking skills, these first two cohorts did not improve their speaking fluencies. Reasons for this may be that the program lacked the intensity required to produce measurable increases in speaking proficiency or that we selected many learners whose speaking fluency was already too high, or both (i.e., we may be observing ceiling effects among the more fluent participants).

This program has limitations. First, this description represents the experience at just one medical school. Second, the improvements seen in Spanish listening comprehension could be confounded by test learning since participants took the same listening test at baseline. Third, we had significant testing drop out of students from these initial cohorts. Fourth, the speaking assessment is a measure of general Spanish fluency. How well it measures language skills that are important for clinicians, such as skill in conducting a clinical encounter in Spanish, requires further study. Finally, our program currently depends partly on extramural funds to sustain it.

In order to better understand the relationship between measured Spanish fluency and clinical capabilities in Spanish, we plan to administer a clinically oriented, standardized assessment during the students' fourth year. Other planned changes in the program include grouping student participants together into sections of the regular clinical skills (ICM) course, using native Spanish speakers instead of non-native Spanish instructors as standardized patients, and using a shorter, more clinically focused textbook of medical Spanish.<sup>23</sup> As subsequent cohorts matriculate we anticipate examining which proficiency groups benefit most and which program elements (e.g., international immersion) are most effective in maintaining or improving Spanish fluency during medical school.

In summary, this description of one institution's longitudinal medical Spanish program, including its explicit rationale, pre-specified target learners, multiple learning modes, and standardized fluency assessments, adds to a limited body of literature that should help educators seeking to develop medical Spanish curricula in US medical schools.

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**Prior presentations:** Portions of this program description and interim findings were presented at the Society of General Internal Medicine meeting, Toronto, Ontario, Canada, April 26, 2007.

**Conflicts of Interest:** None disclosed.

Note: ALTA Language Services, Inc. administered the language tests under a contract with our program. They provided technical advice about the administration and interpretation of language tests. They played no role in the design or funding of the program or in the decision to publish the results of the evaluation.

**Human subjects statement:** The University of North Carolina Biomedical Institutional Review Board approved this study. Written informed consent was obtained from all students who enrolled in the program.

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