Stroke Health and Risk Education (SHARE) Pilot Project
Feasibility and Need for Church-Based Stroke Health Promotion in a Bi-Ethnic Community

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Background and Purpose—We performed a pilot project to assess the need for and feasibility of a church-based stroke risk reduction intervention in a predominantly Mexican American community.

Methods—Participants were recruited after each mass on a single weekend from 2 Catholic churches in Corpus Christi, Texas. Questionnaires about personal stroke risk factors and interest in program participation were completed, and blood pressure screening was performed.

Results—A total of 150 individuals participated (63% Mexican American, median age 62). A substantial majority (84%) were interested in being part of a long-term church-based health education project. Blood pressure was >139/89 mm Hg in 50 of 78 (64%) of individuals with a self-reported history of hypertension, and in 17 of 69 (25%) of individuals without known hypertension, with no ethnic differences in blood pressure. Mexican Americans were younger, had a higher BMI, and were more likely to have diabetes than non-Hispanic whites.

Conclusions—There is substantial burden of stroke risk factors in these predominantly Mexican American church communities. Church-based health interventions may be a way to reduce stroke in this at-risk population. (Stroke. 2008; 39:1583-1585.)

Key Words: cerebrovascular accident ■ hypertension ■ medicine ■ Mexican Americans ■ religion

Modifiable risk factors are important targets for reducing the overall burden of stroke, with hypertension being the most important risk factor. Risk of stroke in Mexican Americans (MAs) is higher than in non-Hispanic whites. Given the strong identification with religion as a social support mechanism, and the importance of religion in the everyday lives of Hispanics, church-based health behavior interventions may be an important pathway for reducing stroke risk in this population at high risk.

Church-based health interventions have been successful in black communities, although little has been performed to evaluate rigorously whether culturally sensitive, church-based cardiovascular and stroke intervention programs are effective in MA communities. We partnered with the Catholic Diocese of Corpus Christi, Texas, to assess the need for, and determine community interest in, a church-based stroke and cardiovascular health promotion project, focusing on blood pressure (BP). Data from this pilot study will inform the sample size and planning of a larger church-based stroke risk factor intervention project.

Subjects and Methods
Church Selection and Participant Recruitment
Twenty-one of the 25 Catholic churches within the Diocese of Corpus Christi, Texas, responded affirmatively to a letter inquiring about interest in participating in a stroke risk factor reduction project. Two churches (750 and 1458 registered families) were randomly selected. Details about number of adult members and church attendance were unavailable.

Data Collection
After each mass on a single weekend, adults (18 years and older) were offered on-site screening. Informed consent was obtained and a survey assessing demographics, personal stroke risk factors, antihypertensive medication use, self-reported height and weight, and willingness to participate in a future church-based health education program was completed. Stroke symptom knowledge was assessed with a modified version of the Stroke Action Test. BP measurements were taken by trained study staff using a validated automatic BP cuff (A&D UA-767). Two measurements were taken, 1 minute apart, with the mean used for analysis. Participants were given feedback forms on their BP and printed educational materials about stroke and hypertension.
### Statistical Analysis

Median BP was calculated with its associated interquartile range for the entire group and by self-reported history of hypertension. Individuals were classified by BP according to standard criteria. Age, BMI, BP, distribution of BP category, and presence of diabetes were compared by ethnicity using Wilcoxon rank-sum or H9273 tests. All statistical analyses were performed using S-plus 7.0 for Windows (Insightful Corp). The University of Michigan Institutional Review Board approved this project.

### Results

One-hundred fifty individuals participated; 95 of 150 (63%) were MA and 52 of 150 (35%) were non-Hispanic whites (3 with missing data). Demographics and medical history are reported in Table 1. Median BMI was 28.3, with 49 of 150 (33%) participants classified as overweight (BMI, 25.0 to 29.9 kg/m²), and 60 of 150 (40%) classified as obese (BMI ≥30.0 kg/m²). MAs were younger (P<0.01), had a higher BMI (P<0.01), and were more likely to have diabetes (P<0.01) than non-Hispanic whites (Table 1). Prospects for a future study were promising, because 124 of 148 (84%) were willing to participate in a future church-based stroke prevention project, with no ethnic difference (P=0.84).

BP by self-reported history of hypertension is displayed in Table 2. Only 24 of 147 (16%) individuals screened had a BP in the normal (<120/80 mm Hg) range. Of those with a self-reported history of hypertension, 69 of 78 (88%) reported using antihypertensive medication. There was no ethnic difference in systolic (P=0.47) or diastolic (P=0.27) BP, or in distribution of BP categories (P=0.66).

Results of the stroke symptom identification questions are shown in Table 3. Thirty-nine participants (26%) correctly identified none or only 1 of the 5 presented stroke symptoms.

### Discussion

This pilot study assessed the need for and feasibility of a church-based stroke health promotion project in a predominantly MA community. We found a substantial burden of stroke risk factors, including elevated BP. Poor control among known hypertensive individuals appeared to be at least as great of a problem as poor self-awareness of hypertension. Previous nationwide studies have shown poor awareness and control of hypertension, with MAs in particular having a lower prevalence of controlled hypertension than both non-Hispanic whites and non-Hispanic blacks. Direct comparison of our study with national data are complicated by methodological differences. Diabetes and obesity were prevalent in this community as well, consistent with previous

### Table 1. Demographics and Self-Reported Medical History

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Total, n=150</th>
<th>MA, n=95</th>
<th>NHW, n=52</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td>Median (IQR) or n (%)</td>
<td>Median (IQR) or n (%)</td>
<td>Median (IQR) or n (%)</td>
</tr>
<tr>
<td>Female</td>
<td>62 (52, 69)</td>
<td>58 (50, 66)</td>
<td>66 (55, 74)</td>
</tr>
<tr>
<td><strong>BMI, kg/m²</strong></td>
<td>28 (25, 32)</td>
<td>30 (26, 33)</td>
<td>26 (24,30)</td>
</tr>
<tr>
<td><strong>History of</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stroke</td>
<td>4/147 (3)</td>
<td>2/93 (2)</td>
<td>2/51 (4)</td>
</tr>
<tr>
<td>TIA</td>
<td>5/145 (3)</td>
<td>2/91 (2)</td>
<td>3/51 (6)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>78/147 (53)</td>
<td>52/94 (55)</td>
<td>23/50 (46)</td>
</tr>
<tr>
<td>High cholesterol</td>
<td>74/143 (52)</td>
<td>53/88 (60)</td>
<td>19/52 (37)</td>
</tr>
<tr>
<td>Diabetes (excluding pregnancy)</td>
<td>29/141 (21)</td>
<td>25/89 (28)</td>
<td>4/50 (8)</td>
</tr>
<tr>
<td>Heart disease</td>
<td>13/142 (9)</td>
<td>6/93 (6)</td>
<td>7/48 (15)</td>
</tr>
<tr>
<td>Atrial fibrillation</td>
<td>11/143 (8)</td>
<td>3/92 (3)</td>
<td>7/49 (14)</td>
</tr>
</tbody>
</table>

*One MA participant had missing data for age.

IQR indicates interquartile range; NHW, non-Hispanic white.

### Table 2. Blood Pressure Results

<table>
<thead>
<tr>
<th>BP category</th>
<th>Total Group, *</th>
<th>History of Hypertension, †</th>
<th>No History of Hypertension, n=69</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SBP</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal (SBP &lt;120 and DBP&lt;80)</td>
<td>136 (124,152)</td>
<td>148 (133,158)</td>
<td>128 (121, 138)</td>
</tr>
<tr>
<td>Prehypertension (SBP120–139 or DBP 80–89)</td>
<td>75 (68, 82)</td>
<td>76 (68, 85)</td>
<td>74 (68, 80)</td>
</tr>
<tr>
<td>Stage 1 hypertension (SBP 140–159 or DBP 90–99)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 2 hypertension (SBP ≥160 or DBP ≥100)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not recorded</td>
<td>3 (2)</td>
<td>2 (3)</td>
<td>1 (1)</td>
</tr>
</tbody>
</table>

*Three participants with missing BP data were excluded.

†Three participants had missing data for history of hypertension.
studies of MAs. Stroke symptom recognition was fair, although better recognition of stroke symptoms would be desirable given the risk factor burden of the participants. More than 80% of participants stated willingness to be involved in future church-based health interventions. The participants were generally older adults, with more women than men, paralleling other church-based health promotion programs. This gender difference could be advantageous in future interventions. Within the MA family structure, women are often responsible for food preparation and health information. Therefore, it has been suggested that health behavior programs focus on MA women as catalysts for family change.

Study limitations include only 2 BP measurements per subject, lack of data on previous caffeine use or smoking, and small sample size. Our results may not apply to nonchurch-going individuals. There is likely selection bias, although this study population is representative of individuals willing to participate in a future church-based health behavioral intervention.

Our results indicate a considerable burden of modifiable stroke risk factors in these predominantly MA church communities, supporting the need for future public health efforts to reduce stroke risk. Participants were motivated to attend a health screening event and were interested in future church-based health education projects.

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Disclosures
None.

References
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