A Multilingual Mass Communication Intervention for Seniors and People with Disabilities on Medicaid: A Randomized Controlled Trial

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Objectives. To evaluate the following: (1) baseline knowledge, attitudes, and behavioral intentions about Medicaid managed care (MMC) among seniors and people with disabilities (SPD) receiving Medicaid benefits; (2) SPD Medicaid beneficiaries' use of and satisfaction with a user-designed MMC guidebook; and (3) guidebook effects on changes in MMC knowledge, attitudes, and intended behaviors of SPD beneficiaries.

Data Sources/Study Setting. Survey data collected between February and May 2008 from a random sample of SPD receiving Medicaid benefits in three California counties.

Study Design. This randomized controlled trial of 319 intervention and 373 control SPD Medicaid beneficiaries used pre- and postintervention telephone surveys to compare changes in MMC knowledge, attitudes, and intended behaviors.

Data Collection Methods. Baseline and follow-up telephone interviews were conducted in English, Spanish, Cantonese, and Mandarin.

Principal Findings. Seventy-seven percent of intervention participants reported using the guidebook. Nearly all (97.9 percent) found it somewhat or very useful. Intervention participants showed gains in knowledge, positive attitudes, and intentions to enroll in MMC that are statistically significant compared with control participants. However, knowledge levels remained low even among intervention participants.

Conclusions. Findings suggest that the guidebook is an effective way to improve recipients' MMC knowledge, confidence, and behavioral intentions.

Key Words. Medicaid, people with disabilities, seniors, managed care, health communication

A critical health services challenge is reaching the estimated 55.6 million Medicaid beneficiaries with empowering information about their health care options (Centers for Medicare and Medicaid Services 2007). Medicaid

beneficiaries often face serious communication barriers resulting from limited literacy, limited English proficiency, cultural differences in beliefs about medical care and disease, and sometimes disability (Weiss et al. 1994; Coughlin et al. 2008). Within this population, the subgroups most at risk include over 13.5 million seniors and people with disabilities (SPD) (Centers for Medicare and Medicaid Services 2007). Many have limited health literacy skills (difficulty accessing, understanding, and acting on health information) (Rudd, Moeykens, and Colton 2000; Kutner et al. 2006), limited English proficiency (Weiss et al. 1994; Root and Stableford 1999; Hoy, Kenney, and Talavera 2004), or physical/cognitive conditions that impede information access.

With the rapid proliferation of state “consumer choice models,” millions of Medicaid beneficiaries need to make complex decisions about health plan options and navigate a complicated system of care (Coughlin et al. 2008). These decisions impact access to needed clinical services (Ireys, Thornton, and McKay 2002; Long, Coughlin, and Kendall 2002; Chimento et al. 2005; Carbaugh, Elias, and Rowland 2006; Health Research for Action 2007). However, this population may have difficulty making decisions—in part because of poor information quality (Ireys, Thornton, and McKay 2002; Long, Coughlin, and Kendall 2002; Hoy, Kenney, and Talavera 2004; Carbaugh, Elias, and Rowland 2006; Health Research for Action 2007; Coughlin et al. 2008). In a study of Medicaid beneficiaries using printed materials about health care choices, fewer than half of the recipients reported that they understood the information (Coughlin et al. 2008). In another study limited to SPD on Medicaid, only a quarter understood the information (Health Research for Action 2007). More than 250 studies indicate that the reading levels of most health materials greatly exceed the average literacy skills of adults in the United States. Medicaid beneficiaries typically have lower health literacy skills than those of most Americans (Rudd, Moeykens, and Colton 2000; Kutner et al. 2006).

Few studies have examined the effects of mass health communication interventions used to educate beneficiaries of federally funded health programs about health plan choices. We found none for Medicaid populations in

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our literature review. A study of the 1999 *Medicare & You* handbook found that Medicare beneficiaries who received the handbook improved knowledge and confidence about health plan choices (McCormack et al. 2001; McCormack et al. 2002).

Theoretical guidance from social-ecological (Stokols 2000), social-cognitive (Bandura 1985), and transtheoretical (Prochaska and Velicer 1997) models, and from empirical research, suggests that health communication is more effective when it is relevant to people's personal and social contexts (Vaiana and McGlynn 2002; Institute of Medicine 2003; Neuhauser and Kreps 2003). Evidence-based strategies to tailor printed mass communication resources to the needs of population subgroups include matching readability to users' literacy levels, using "clear communication" formatting criteria, incorporating culturally relevant concepts and graphics, and adapting rather than simply translating material into other languages (CDC 1999; Hoy, Kenney, and Talavera 2004; Calderon and Beltran 2005; Osborne 2005; U.S. Department of Health and Human Services 2008).

In California an estimated 920,800 seniors and 935,800 people with disabilities (18 percent of total Medicaid enrollment in the state) participated in the state's Medicaid program (Medi-Cal) in 2005, accounting for 67 percent of the U.S.\$28.6 billion in total Medi-Cal spending (Henry J. Kaiser Family Foundation 2005). Like nearly every other state, California offers Medicaid managed care (MMC) to SPD on Medicaid. Unlike in some other states, however, MMC is not mandatory for SPD in California (Cohen 2009). SPD are defaulted to fee-for-service (FFS) Medi-Cal unless they actively choose MMC. The California Department of Health Care Services (DHCS) was concerned that most SPD beneficiaries were not actively choosing between MMC and FFS. DHCS reasoned that MMC may be a better and more cost-effective choice than FFS for these vulnerable beneficiaries because MMC plans are required to provide important services like case management, disability accommodations, linguistic translation, and paratransit services. As our earlier study showed that only a small proportion of SPD beneficiaries understood their choices, DHCS decided an educational intervention was needed for this population (Health Research for Action 2007).

In 2006, DHCS commissioned Health Research for Action to use participatory processes to develop a low-literacy guidebook to inform SPD Medi-Cal beneficiaries about choices between FFS and MMC. In the first phase of the Medi-Cal Access Project (MAP), we conducted extensive formative research with beneficiaries in five languages. The participatory processes included usability testing, key informant interviews, readability testing, focus

groups, and linguistic and cultural adaptation. The final full-color, 38-page guidebook, *What Are My Medi-Cal Choices?* (see Appendix SA2 for an excerpt), was developed in English, Spanish, and Chinese at a sixth to seventh grade reading level with large font, abundant white space, vignettes with photos of real people, and included county-specific inserts about health plan choices. The results of the formative research and the participatory processes used to develop the guidebook are presented elsewhere (Neuhauser et al. 2009).

In the second phase of the MAP study, a telephone survey was designed to evaluate the guidebook's effectiveness for English-, Spanish-, Mandarin-, and Cantonese-speaking SPD Medi-Cal beneficiaries in three pilot counties. Objectives included the following: (1) assessing SPD beneficiaries' baseline knowledge, attitudes, and behavioral intentions about Medi-Cal managed care (MMC); (2) assessing their use of and satisfaction with the guidebook; and (3) evaluating the guidebook's effects on MMC knowledge, attitudes, and intended behaviors. DHCS was especially interested in knowing whether beneficiaries would look over the guidebook soon after receiving it, find it easy to use, consider it a valuable resource, and express confidence in making Medi-Cal decisions. To our knowledge, this is the first study of a communication intervention about health plans for Medicaid beneficiaries who are seniors or people with disabilities.

RESEARCH DESIGN AND METHODS

We designed a randomized controlled trial using a pre- and postintervention telephone survey to assess the efficacy of the guidebook and gathered data from intervention and control groups in three counties. The participants randomized to the intervention group were sent the MAP guidebook between the baseline interview and the follow-up interview. The participants randomized to the control group received no guidebook between baseline and follow-up interviews.

The UC Berkeley institutional review board approved all study protocols and instruments.

Sampling Design and Participant Recruitment

DHCS provided a list of the telephone numbers of SPD Medi-Cal beneficiaries from the three counties who were not dually eligible for Medicare, had language codes of English, Spanish, Cantonese, Mandarin, or "not valid," and were age 18 or older ($n = 69,176$). We eliminated telephone numbers that

were invalid, out of area, or assigned to multiple beneficiaries from the list. We then ascertained a random sample from that list. The sample was stratified by language group, with nested proportional stratification by county, city, and area code. Each potential participant was then randomly assigned to intervention or control.

Screening. Of the 2,740 potential participants, we identified 1,486 as ineligible during the screening process, for example, those dually eligible for Medicare or who had a primary language other than English, Spanish, Cantonese, or Mandarin. Of the remaining 1,254 beneficiaries, a screening interview identified 959 as eligible for the study, of whom 865 completed the baseline interview, and 295 beneficiaries were of unknown eligibility (e.g., reached an answering machine at multiple contact attempts or refused the screening interview). Based on the ratio of known eligible to known ineligible cases in the sample, we estimated that 162 of these were eligible. The total of eligible plus estimated eligible cases came to 1,121. Following the guidelines of the American Association for Public Opinion Research (2008), we calculated a baseline response rate of 77 percent.

Interviewers received special training to address potential communication, cognitive, and stamina barriers with people with disabilities (Mitchell et al. 2006). At several points during screening, potential participants could opt to designate as a “proxy” for the interview someone who had assisted the Medi-Cal beneficiary with health care decisions and was not a professional care provider. If a proxy was interviewed at baseline, the same proxy was interviewed at follow-up. We modified a protocol developed for a large study of people with disabilities to screen for cognitive impairments that prevent participants from giving true informed consent (Mitchell et al. 2006). After reading the consent aloud to the potential recruit, interviewers asked the person to paraphrase one point from the consent, the meaning of “voluntary.” Medi-Cal beneficiaries unable to give an adequate response ($n = 6$) were asked to provide a proxy in order to continue the interview; because none were able to provide a proxy, all six were excluded.

Approximately equal numbers of participants were recruited for the baseline interviews in English, Spanish, and Chinese subsamples. We combined the Cantonese ($n = 147$) and Mandarin ($n = 85$) speakers into a single “Chinese language” group to increase statistical power. Intervention group participants were mailed a guidebook in the language of baseline interview unless they requested one in a different language ($n = 25$). Control participants did not receive a guidebook. About 6 weeks after baseline

interviews and guidebook mailing, we reinterviewed intervention and control participants.

Instruments and Protocols

Survey Instrument Development. We selected the following key survey domains from themes that emerged from our literature review and formative research (Neuhauser et al. 2009): knowledge about Medi-Cal choices; attitudes, behavioral intentions, and confidence related to Medi-Cal choices; and guidebook use and perceived helpfulness. We included sociodemographic indices (for interviewee, whether beneficiary or proxy), and beneficiary self-rated (or proxy-rated) health status. DHCS provided data about each Medi-Cal beneficiary's county, type of Medi-Cal, age, and sex.

Where possible, we adapted previously validated items to include in this survey. Questions related to guidebook use were adapted from our previous guidebook evaluations (Neuhauser et al. 2007). We used Lorig's self-efficacy questions (Stanford Patient Education Research Center) as a model to create two new self-efficacy questions (referred to as "confidence") related to making Medi-Cal choices. We also developed questions to measure participants' attitudes about MMC and their intentions to switch between FFS and MMC to address the state's interest in these domains.

Although the guidebook was designed as a resource book rather than a book of facts to be memorized, we wanted to explore whether participants would exhibit initial knowledge changes after receiving the guidebook. Therefore, the baseline survey included 14 items about participants' knowledge of FFS Medi-Cal and MMC. For example, participants were asked to name at least two Medi-Cal plans in their county; which type of Medi-Cal (FFS or MMC) must provide a provider directory; and to state the maximum number of prescriptions covered without authorization under FFS versus MMC (see Appendix SA3 for a complete list of items). These items were combined into a "core knowledge scale." To assess scale reliability, we calculated Cronbach coefficient α , which measures the consistency of respondents' answers across the 14 items. The coefficient α was 0.56 (Schmitt 1996).

The follow-up survey repeated all questions in the baseline survey except sociodemographic and health status items. In addition, we asked only the intervention group questions about use of and satisfaction with the guidebook.

Survey instruments were translated into Spanish, Cantonese, and Mandarin. The English and Spanish telephone survey instruments were

programmed into *computer-assisted telephone interview (CATI)* software. Chinese surveys were conducted using a paper Chinese survey and an English *CATI* screen for simultaneous data entry.

Language Protocols. Interviewers initiated phone calls in the participant's language indicated in DHCS records, and switched into English as needed. Chinese-speaking interviewers spoke both Cantonese and Mandarin. The interview was terminated if the prospective interviewee spoke a language other than English, Spanish, Cantonese, or Mandarin.

Fatigue and Encouragement Probes. Interviewers were trained to detect signs of fatigue, and instructed to use a structured "fatigue probe" or "encouragement probe" or offer participants an opportunity to take a break or continue the interview at a later time. We adapted fatigue and encouragement probes from Mitchell et al. (2006) and translated into Spanish, Cantonese, and Mandarin.

Data Analysis

We used *SAS* software (version 9.1, SAS, Cary, NC) for quantitative analyses. We calculated frequencies for categorical and ordinal variables. We used cross-tabulations to examine and compare categorical variables by group (i.e., intervention versus control assignment) and by interview language. The χ^2 -test was used to evaluate associations (i.e., group differences) between categorical variables. Student's *t* and analysis of variance (ANOVA) were used to evaluate intergroup differences between means that were calculated for interval variables. The Mann-Whitney *U* test or the Kruskal-Wallis test was used to evaluate group differences for ordinal variables. The Wilcoxon signed ranks test was used to test the statistical significance of differences in core knowledge scores between baseline and follow-up. We ran repeated measure ANOVAs with post hoc testing and Bonferroni adjustment for multiple testing to evaluate differences among all language groups and between pairs of language groups in the effect of receipt of the guidebook on change in knowledge scale score between T1 and T2.

Description of Participants

Of the 865 participants interviewed at baseline, 416 were randomized to the intervention group and 449 to the control group. We mailed intervention group participants a guidebook, and 6 weeks later we reinterviewed 319 of the initial intervention participants (77 percent retention) and 373 of the initial

control participants (83.1 percent retention). Overall, 692 of the 865 baseline participants were reinterviewed (80 percent retention).

Entire Sample. Demographic characteristics of the sample appear in Table 1. Forty-four percent of participants were proxies for a Medi-Cal recipient, rather than the beneficiary. Most Medi-Cal beneficiaries (including those represented by proxies) were under 65 years of age (61 percent), female (62 percent), had FFS Medi-Cal (75 percent), and had generally fair or poor health (self- or proxy-reported) (72.1 percent). Over half of participants (beneficiary or proxy) were married (54.6 percent).

Intervention versus Control Groups. Overall, intervention and control group participants had similar sociodemographic characteristics. No sociodemographic differences between the intervention and control groups reached statistical significance (Table 1).

By Language Group. Sociodemographic characteristics differ by interview language. English speakers were younger ($p < .0001$), meaning they were more likely to receive Medi-Cal due to disability, rather than age. Self-reported (or proxy-reported) health status was more likely to be poor among the English speakers, compared with the Spanish or Chinese speakers ($p < .0001$). Spanish speakers were more likely than English or Chinese speakers to be female ($p = .002$). Chinese speakers were more likely than those in other language groups to be seniors ($p < .0001$), be in good, very good, or excellent health ($p < .0001$), and have FFS Medi-Cal ($p = .03$). English-speaking beneficiaries and proxies were more educated ($p < .0001$) and less likely to be married ($p < .0001$) than Spanish and Chinese speakers.

Proxy versus Medi-Cal Beneficiary. Proxies differed from Medi-Cal beneficiaries on several important characteristics. Medi-Cal beneficiaries who represented themselves were less likely to be seniors; to have FFS Medi-Cal; to report good, very good, or excellent general health; to be married; to be Asian or Latino; but more likely to be interviewed in English ($p < .05$ for all).

RESULTS

Guidebook Use

Entire Sample. Seventy-seven percent of the participants receiving a guidebook said at the follow-up interview they had “read, referred to, or

Table 1: Demographics by Group (Control versus Intervention Assignment)

	<i>Group</i>		<i>All % (n)</i>	<i>Statistical Significance p-Value</i>
	<i>Control % (n)</i>	<i>Intervention % (n)</i>		
Interview participant category				
Medi-Cal beneficiary	56.6 (211)	55.2 (176)	55.9 (387)	
Proxy	43.4 (162)	44.8 (143)	44.1 (305)	.7124
Medi-Cal beneficiary				
Age above or below 65				
64 and under	58.5 (218)	63.9 (204)	61.0 (422)	
65 and above	41.6 (155)	36.1 (115)	39.0 (270)	.1393
Sex				
Female	64.6 (241)	58.9 (188)	62.0 (429)	
Male	35.4 (132)	41.1 (131)	38.0 (263)	.1251
Type of Medi-Cal (per Department of Health Care Services [DHCS])				
Fee-for-service	72.1 (269)	78.4 (250)	75.0 (519)	
("regular Medi-Cal")				
Medi-Cal managed care	27.9 (104)	21.6 (69)	25.0 (173)	.0583
General health status				
Excellent	3.0 (11)	4.1 (13)	3.5 (24)	
Very good	7.8 (29)	6.9 (22)	7.4 (51)	
Good	18.3 (68)	15.5 (49)	17.0 (117)	
Fair	46.0 (171)	42.0 (133)	44.1 (304)	
Poor	25.0 (93)	31.6 (100)	28.0 (193)	.1441
Interview participant (either Medi-Cal beneficiary or proxy)				
Marital status				
Married	54.2 (202)	55.1 (174)	54.6 (376)	
Living with partner	5.9 (22)	4.8 (15)	5.4 (37)	
Widowed	6.7 (25)	7.6 (24)	7.1 (49)	
Divorced	14.2 (53)	10.1 (32)	12.3 (85)	
Separated	4.8 (18)	7.9 (25)	6.2 (43)	
Never married	14.2 (53)	14.6 (46)	14.4 (99)	.3498
Race/ethnicity				
White	14.2 (53)	14.6 (46)	14.4 (99)	
Black/African American	9.1 (34)	8.9 (28)	9.0 (62)	
Asian	35.1 (131)	34.8 (110)	35.0 (241)	
American Indian/ Alaska Native	0.5 (2)	0 (0)	0.3 (2)	
Other Pacific Islander	0.3 (1)	0 (0)	0.2 (1)	
Two or more races	1.9 (7)	3.2 (10)	2.5 (17)	
Latino	38.9 (145)	38.6 (122)	38.8 (267)	.7137
Education				
Completed eighth grade or less (middle school or less)	25.8 (96)	26.9 (85)	26.3 (181)	
Grades 9 through 11 (some high school)	21.0 (78)	18.4 (58)	19.8 (136)	
	23.1 (86)	23.7 (75)	23.4 (161)	

continued

Table 1. *Continued*

	<i>Group</i>		<i>All % (n)</i>	<i>Statistical Significance p-Value</i>
	<i>Control % (n)</i>	<i>Intervention % (n)</i>		
Grade 12 or GED (high school graduate)				
1 or more years of college	30.1 (112)	31.0 (98)	30.5 (210)	.8807
Interview language				
English	31.4 (117)	35.1 (112)	33.1 (229)	
Spanish	34.6 (129)	32.0 (102)	33.4 (231)	
Chinese (Mandarin/ Cantonese)	34.0 (127)	32.9 (105)	33.5 (232)	.5643

looked at” it. Overall, the majority of participants who received and reported looking at the guidebook thought it was somewhat easy (34.6 percent) or very easy (48.1 percent) to understand (Table 2). About two-thirds (66.5 percent) said they had learned something new about their Medi-Cal choices from the guidebook. Almost all found the guidebook information either somewhat useful (40.2 percent) or very useful (57.7 percent). Those who found the guidebook useful were asked to name one thing they found useful. The most common responses were information about choosing between FFS and MMC, Medi-Cal benefits, physicians, enrolling in MMC, and prescriptions, and resource contact information. More than one-third (35.5 percent) of those who read the guidebook reported that they referred to it to find answers to questions. Of those who had looked up a question, 83.5 percent said they were able to find an answer.

By Language Group. Of participants who received a guidebook, there were statistically significant differences among language groups in the percentage who said that they “read, referred to, or just looked at” any part of it: English, 80.6 percent; Spanish, 61.9 percent; and Chinese, 86.5 percent ($p < .0001$). Table 2 summarizes responses to guidebook use questions by language.

Proxy versus Medi-Cal Beneficiary. None of the differences in guidebook use between Medi-Cal beneficiaries who were interviewed themselves and proxies reached statistical significance.

Table 2: Guidebook Use Questions by Language

Percent of Participants Who Received and Looked at the Guidebook Who	Interview Language				Statistical Significance p-Value
	English % (95% CI) (n = 87)	Spanish % (95% CI) (n = 60)	Chinese % (95% CI) (n = 90)	All Languages (n = 237)	
Thought the guidebook was easy or somewhat easy to understand*	87.4 (78.5, 93.5)	76.7 (64.0, 86.6)	82.2 (72.7, 89.5)	82.7 (77.9, 87.5)	.2394
Referred to the guidebook to find answers to questions†	35.3 (25.2, 46.4)	50.0 (36.8, 63.2)	25.8 (17.1, 36.2)	35.5 (29.3, 41.6)	.0104
Learned something new about their Medi-Cal choices from the guide†	51.7 (40.8, 62.6)	78.2 (65.0, 88.2)	73.9 (63.4, 82.7)	66.5 (60.4, 72.6)	.0009
Found the information in the guidebook very useful or somewhat useful*	94.2 (87.0, 98.1)	100 (94.0, 100.0)	100 (95.9, 100.0)	97.9 (96.0, 99.7)	.0123
Had questions about Medi-Cal that were not answered by the guide†	24.7 (16.0, 35.3)	12.7 (5.3, 24.5)	16.7 (9.4, 26.4)	18.8 (13.6, 23.9)	.1714

*Kruskal-Wallis test.

† χ^2 -test.

Knowledge about Medi-Cal Choices

Entire Sample. The percentage of participants who could correctly answer knowledge questions regarding FFS Medi-Cal and MMC at baseline was low. The mean knowledge scale score for the entire sample at baseline was 20.3 out of a possible 100, indicating participants on average correctly answered only 20.3 percent of the knowledge questions.

Intervention versus Control Group. Baseline mean knowledge scale scores for the intervention group (20.3) and control group (20.4) were virtually the same at baseline (Table 3). Both groups showed significant knowledge gains between the baseline and follow-up interviews ($p < .0001$), but the intervention group gained significantly more knowledge (increase of 12.5) than did the controls (increase of 5.9) ($p < .0001$).

By Language Group. The mean knowledge scale scores at baseline by language group were as follows: English 25.8, Spanish 18.2, and Chinese 17.1 (Table 3). These differences among the mean baseline knowledge scale scores were statistically significant ($p < .0001$). Among the linguistic groups, English speakers had the highest mean knowledge scale score at baseline.

At follow-up, all groups—except for the English control group—showed statistically significant knowledge increases from baseline (Table 3).

Table 3: Mean Knowledge Scale Scores at T1 and T2 by Language and Group (Control versus Intervention Assignment)

<i>Interview Language</i>	<i>Group</i>	<i>Knowledge Scale Score (Mean)</i>		<i>Mean Change (T1–T2)</i>	<i>Statistical Significance between T1 and T2 Score p-Value*</i>
		<i>T1</i>	<i>T2</i>		
English	Control	26.1	27.0	0.9	.3861
	Intervention	25.4	33.9	8.5	< .0001
Spanish	Control	18.5	21.9	3.3	.0032
	Intervention	17.8	25.4	7.6	< .0001
Chinese	Control	17.0	30.1	13.1	< .0001
	Intervention	17.2	39.0	21.8	< .0001
All languages	Control	20.4	26.3	5.9	< .0001
	Intervention	20.3	32.8	12.6	< .0001

*Wilcoxon signed rank test.

English ($p = .002$) and Chinese ($p = .0005$) intervention participants demonstrated higher mean knowledge scores than control participants at follow-up. Intergroup differences were not statistically significant for Spanish-speaking participants at follow-up ($p = .10$, NS). We tested for significant differences in the effect of receipt of the guidebook on change in knowledge scale score between T1 and T2 by language. No significant differences were found among all language groups or between pairs of language groups before or after we conducted the Bonferroni adjustment of target p -values for multiple testing.

Proxy versus Medi-Cal Beneficiary. Proxies demonstrated a higher mean core knowledge score at baseline (T1) ($p = .004$) at 22.1 (versus 19.0 among beneficiaries). There was no statistically significant difference in mean increase in knowledge scale score between Medi-Cal beneficiaries and proxies in the intervention group ($p = .36$, NS).

Attitudes and Confidence Regarding Medi-Cal Managed Care

Entire Sample. At baseline, the majority of participants (56.4 percent) had positive impressions about Medi-Cal managed care. However, only 16.1 percent of participants who had FFS Medi-Cal reported at baseline that they were very or somewhat likely to switch to a MMC plan within 6 months. The majority of participants at baseline (79.5 percent) reported being very or somewhat confident that they understood how to get the health care they needed. However, fewer participants at baseline reported being very or somewhat confident that they understood the different MMC plans (58.2 percent).

Intervention versus Control Group. At baseline, the percentage of participants in the control and intervention group who had positive impressions of MMC was the same (56 percent). At follow-up, 61.6 percent of the intervention participants reported a positive impression compared with 56.1 percent among controls, although this difference did not reach statistical significance. In a separate question asked only of intervention participants at T2, 53.6 percent (95 percent CI, 48.0–59.2) reported having a more positive impression of MMC than before they received the guidebook.

At baseline, none of the differences between control and intervention group on either measure of confidence—confidence in understanding how to

get needed health care and confidence in understanding the different MMC plans—reached statistical significance (Table 4). However, at follow-up, the percentage of intervention participants who were somewhat or very confident that they understood the different MMC plans was higher (79.9 percent) than the percentage in the control group (62.3 percent) ($p < .0001$). The intervention group also showed statistically significant changes between baseline and follow-up in confidence in getting health care (80.6–86.2 percent very or somewhat confident, $p = .01$) and confidence in understanding different MMC plans (58.0–79.9 percent somewhat or very confident, $p < .0001$). Increases seen in the control group between baseline and follow-up for these two questions were not statistically significant.

Intervention and control group participants who were on FFS Medi-Cal did not differ at baseline on their likelihood of switching to a MMC plan in the next 6 months. However, at the follow-up interview, intervention participants more often reported being somewhat or very likely to enroll in a MMC plan than did controls (26.7 versus 19.2 percent, $p = .04$) (Table 4). The intervention group also showed a statistically significant change between baseline and follow-up in the likelihood of switching to a MMC plan in the next 6 months (increasing from 15.1 to 26.7 percent somewhat or very likely, $p = .004$). The control group did not show an increase in likelihood of changing to MMC.

By Language Group. There were differences in characteristics of and change among language groups. At baseline, Spanish and Chinese speakers were more likely to report positive impressions of MMC than were English speakers ($p < .0001$). At follow-up, Spanish and Chinese speakers continued to be more likely to report positive impressions of MMC compared with English speakers ($p < .0001$). At follow-up, Chinese speakers in the intervention group were more likely to report positive impressions of MMC than their counterparts in the control group ($p = .03$).

At baseline, Chinese speakers were more likely than English or Spanish speakers to report they were not at all confident of their ability to obtain health care (31 percent) ($p = .0001$) and to understand the different types of Medi-Cal plans (51 percent) ($p = .01$). Spanish control ($p = .03$) and Chinese intervention ($p = .001$) participants showed increased confidence in obtaining health care between T1 and T2. The increase in confidence in understanding of the MMC plans between T1 and T2 among intervention participants was found for all three language groups (English $p < .0001$, Spanish $p = .0006$,

Table 4: Confidence Regarding Health Care and Intention to Change Plans at T2

	English		Spanish		Chinese		All Languages	
	Control (%)	Intervention (%)	Control (%)	Intervention (%)	Control (%)	Intervention (%)	Control (%)	Intervention (%)
How confident in getting the health care you need?—Very confident or somewhat confident								
T1 (n = 620)	85.5	86.6	79	83.7	70.3	67.6	78.7	80.6
T2 (n = 671)	82.9	85.7	88.7	87.0	78.0	86.0	83.3	86.2
Statistical significance between T1 and T2*	0.4913	0.8185	0.0343	0.2482	0.2230	0.0011	0.0915	0.0126
How confident are you that you understand the different Medi-Cal Managed Care plans?—Very confident or somewhat confident								
T1 (n = 608)	62.6	56.9	61.8	67.1	49.0	49.4	58.4	58.0
T2 (n = 656)	58.6	78.9	70.3	84.4	57.8	76.5	62.3	79.9
Statistical significance between T1 and T2*	0.5271	<0.0001	0.0771	0.0006	0.1282	0.0004	0.147	<0.0001
How likely are you to switch to a Medi-Cal Managed Care plan in the next 6 months? (asked only of people on fee-for-service Medi-Cal)—Very likely or somewhat likely								
T1 (n = 477)	16.2	8.6	22.5	18.4	11.5	18.1	17.0	15.1
T2 (n = 507)	14.7	16.9	23.6	32.9	17.5	28.1	19.2	26.7
Statistical significance between T1 and T2*	0.6547	0.1573	0.6374	0.0522	0.3173	0.0833	0.2888	0.0039
How likely are you to switch back to regular (fee-for-service) Medi-Cal in the next 6 months? (asked only of people on a Medi-Cal Managed Care plan)—Very likely or somewhat likely								
T1 (n = 68)	15.8	6.7	30.0	40.0	11.1	0	18.4	16.7
T2 (n = 98)	10.3	0	9.1	22.2	5.3	0	8.5	5.1
Statistical significance between T1 and T2*	0.0005	†	0.3173	0.1573	0.0143	†	<0.0001	<0.0001

*McNemar test.
†Unable to calculate test statistic due to uniformity in one of the measures.

Chinese $p = .0004$). In addition, intervention participants in all languages showed greater confidence at T2 than their control counterparts (English $p = .001$, Spanish $p = .01$, Chinese $p = .004$).

While no statistically significant differences were found at baseline, at follow-up more Spanish (27.7 percent) and Chinese (22.6 percent) speakers with FFS Medi-Cal reported they were likely to switch to MMC in the next 6 months compared with English speakers (15.8 percent) ($p = .04$).

Proxy versus Medi-Cal Beneficiary. At T2 Medi-Cal beneficiaries in the intervention group had significantly increased confidence in their ability to get the health care they need ($p = .04$) compared with baseline. No increase in confidence from T1 to T2 was found among Medi-Cal beneficiaries in the control group or among proxies in either group. Proxies in both control and intervention groups showed an increased intention to change from FFS to MMC between T1 and T2 ($p = .046$ and $.02$, respectively), with no statistically significant difference between control and intervention groups at T2 ($p = .61$, NS).

DISCUSSION

Medicaid beneficiaries who are seniors or have a disability (SPD) are among the most vulnerable populations in the United States. Subgroups with limited literacy or limited English proficiency face additional health risks. Although these beneficiaries are increasingly required to make choices about their health plans, available evidence indicates that only a small percentage of them understand their options—a problem with potentially serious health consequences. Despite the critical importance of improved communication for such Medicaid beneficiaries, we found no studies of the effectiveness of communication strategies for this population. Our study was intended to address this knowledge gap by providing evidence about the initial efficacy of user-designed, multilingual mass communication resources for SPD Medicaid beneficiaries in California.

We evaluated this guidebook in a rigorous randomized controlled trial with linguistically diverse beneficiary subgroups. The primary study questions were whether beneficiaries or their proxy decision makers would use a resource about Medi-Cal coverage choices, and whether that would help them improve knowledge and confidence and would affect their decisions about coverage. The evaluation was intended to inform state policy decisions related

to supporting vulnerable Medi-Cal beneficiaries. The challenge of recruiting, interviewing, and retaining adequate samples of these beneficiaries benefited from theoretical guidance and prior empirical evidence about surveying vulnerable populations. We were successful in reaching these hard-to-interview groups.

The baseline survey showed low levels of knowledge about Medi-Cal coverage choices among all language groups. Knowledge scores for Spanish and Chinese speakers were lowest. Results were highly positive for guidebook use and satisfaction: 77 percent of the intervention participants reported using it within the first 6 weeks. Users were also very satisfied with the resource; 97.9 percent found the information somewhat or very useful. The majority thought it was somewhat or very easy to understand (82.7 percent). Most reported that they had learned something new about their Medi-Cal choices (66.5 percent). The rates of use and satisfaction with the guidebook are considered high for a mass communication intervention without mediated support from a provider. We believe the positive results reflect the year-long participatory process to collaborate with SPD Medi-Cal beneficiaries and stakeholders in designing and testing the guidebook (Neuhauser et al. 2009).

Although the follow-up telephone survey was conducted only 6 weeks after the intervention group received their guidebook, the confidence of the intervention group participants in understanding MMC plans increased from 58 to 80 percent ($p < .0001$), while there was no contemporaneous change in the control participants' confidence. Participants' increased confidence in obtaining information and high satisfaction with the guidebook are encouraging indicators of the resource's value. In our view, the increased confidence participants reported after using the guidebook may indicate an increased ability to make informed decisions with the guidebook as a resource.

Knowledge gains were not considered the most critical outcome because the guidebook is intended as a decision-making resource rather than information to be memorized. However, results showed that the guidebook did spark early learning. Intervention group participants showed statistically significant improved knowledge about Medi-Cal choices compared with the control group participants who did not get the guidebook. Among the language subgroups, significant differences in knowledge at follow-up were found between intervention and control groups for English and Chinese speakers. While there was an increase in knowledge among the Spanish-speaking intervention group, the difference from the pattern seen in the control group is not statistically significant due to the surprising increase in knowledge of

this control group. The reason for the increase in knowledge among this group may suggest a Hawthorne effect (Parsons 1974) and warrants further investigation.

Over half of intervention group participants at follow-up reported having a more positive impression of MMC than they did before getting the guidebook. This is important because negative impressions or stigma toward MMC may be a barrier to making an informed choice. Likewise, those who received the guidebook reported more confidence about making Medi-Cal and other health care choices than did those in the control group.

Although the baseline-to-follow-up time period was too short to measure whether participants actually made changes in their Medi-Cal health care choice, results showed that participants on FFS Medi-Cal who got a guidebook reported a significantly greater intention to switch to a MMC plan (27 versus 19 percent) than did those on FFS Medi-Cal in the control group.

The study had several limitations. Because the survey was conducted in three counties, the results cannot necessarily be generalized statewide, although the selected counties represent good geographic diversity and include the main MMC models that allow California SPD beneficiaries to choose between FFS and MMC. The knowledge scale showed good discriminant validity, but it needs more refinement to improve the internal reliability across the items. Despite the limitations, the study's randomized controlled design provides good evidence that the guidebook intervention was related to the outcomes measured (internal validity), and the intervention was relevant across diverse language groups (external validity).

This first study of a communication intervention for English-, Spanish- and Chinese-speaking Medicaid beneficiaries who are seniors or people with disabilities found low baseline knowledge, low confidence in understanding plan choices, and negative impressions of health plan choices. The initial findings suggest that the guidebook is an effective way to improve diverse recipients' knowledge, confidence, and intentions about making more informed Medi-Cal choices. Further research will explore differences by language groups and track participants' longer-term Medi-Cal coverage choices.

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of this article:

Appendix SA1: Author Matrix.

Appendix SA2: What Are My Medi-Cal Choices?

Appendix SA3: Knowledge Scale Items.

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