

perhaps productively, toward the introduction of smart guns that capitalize on technological innovation, the Runyan et al. article shows that technologies we already have—and have long had—can, if used better and more widely, save lives and protect health. We see this as an important reminder in any discussion of technological advances: we already have solutions to public health challenges that, if used better and more effectively, can save lives and promote the health of populations.

## MAINTAINING FOCUS

In summary, technological innovation holds promise for our core mission: improvement of the health of populations. It will take research to document whether new technologies do indeed improve the health of the public and to determine the extent to which they provide value over technologies we already have. At the same time, new approaches introduce new challenges and a new potential for competing interests that

challenge the core interests of population health. It is the role of public health practitioners and population health scholars to be vigilant to the potential perils inherent in these new approaches and to identify how we can nimbly and effectively capitalize on technological advances to the betterment of the health of the public. **AJPH**

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# The Time Is Now for eHealth Research With Latinos

Follow-up on: Victorson D, Banas J, Smith J, et al. eSalud: designing and implementing culturally competent health research with Latino patient populations. *Am J Public Health*. 2014; 104(12):2259–2265.

The implementation of Web-enabled technology has the potential to improve minority health and reduce health disparities. At the same time, however, the rapidly evolving uptake and development of eHealth technology may exacerbate barriers to quality health care for disadvantaged groups. In a 2014 article summarizing the status of eHealth research with Latino populations, Victorson et al. suggested that television and radio, Internet, kiosks, and mobile phones can be used in the design and implementation of culturally competent interventions to reduce health disparities.<sup>1</sup> The implementation of eHealth to conduct research and address disparities remains promising, with marked progress in some areas but persistent challenges in others. In this editorial, we comment on recent developments and the status of the promise of novel

technology to improve Latino health in the United States.

As background, between 2009 and 2015, growth in Internet use among Latinos (64% and 81%, respectively) surpassed that of Whites (80% to 89%, respectively) and African Americans (72% and 84%, respectively).<sup>2</sup> Much of this rapid increase has been attributed to improvements in Internet access among Spanish speakers (36% to 74%, respectively) and immigrants (51% to 78%, respectively).<sup>2</sup> These improvements set the stage for significant advancements in the way researchers can engage underserved and understudied Latinos. With few differences in access to technology by race or ethnicity, the challenge is to have linguistically and culturally competent content for Latinos that adjusts for health literacy.

## RECENT DEVELOPMENTS IN EHEALTH RESEARCH

Since 2014, we identified 4600 published articles on

eHealth research, of which only 35 (0.76%) focused on Latinos. There have been six general modes of technology used to conduct eHealth research among Latinos. The most common mode was Internet-based research with the use of an Internet-capable device. This mode was used for research that sought to improve health-related behaviors or chronic disease self-management, to increase knowledge and awareness of a health issue, or to collect survey data. For example, adapting an English-only intervention study on physical activity for Spanish-speaking Latinas showed an average increase of 50 minutes per week in recommended moderate

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to vigorous physical activity at six months (Table 1).<sup>3</sup> Additionally, a Spanish language smoking cessation intervention, developed for print media, was adapted to a Web-based intervention and translated to English.<sup>4</sup> The intervention obtained cessation rates of 20% at one year with thousands of Spanish speakers across the United States, Latin America, and Spain.<sup>4</sup>

Another frequently used mode was social media, particularly in research on sexual risk behavior. One study aimed to identify factors related to requesting a home HIV testing kit among Latino and African American men who have sex with men (Table 1).<sup>5</sup> In a sample that was 60% Latino, of which 19% reported Spanish as their primary language, results identified three significant factors: (1) longer duration since last HIV test, (2) being unsure about HIV status, and (3)

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TABLE 1—Selected Articles Published Between 2014 and 2016 on eHealth Research Among Latinos

Mode of Technology	Reference Number	Description	Population	Language	Main Finding
Internet	3	Adapted intervention study to increase physical activity	Latina adults; 66.4% annual household income <\$30 000; 60.8% education of some college or more; 81.9% first generation	Spanish	Increased moderate to vigorous physical activity at six mo
	4	Smoking cessation behavioral intervention with information about pharmacological therapies	Adults with Internet access; 76.2% Spanish speakers; 66.4% education of some college or less among Spanish speakers	English and Spanish	Across all conditions, about 20% self-reported cessation in both English and Spanish
Messaging	6	Intervention study to increase the use of personal PPE by providing PPE and daily risk-reduction messages via mobile app	Mexican immigrant farmworkers; 51% annual household income <\$10 000; 90% education of 12th grade or less	English and Spanish	Increased use of gloves and safety glasses at follow-up
Social media	5	Cross-sectional study of factors associated with requesting a home HIV testing kit	Latino and African American men who have sex with men; 61.6% education of associate's degree or less; 41.9% unemployed, student, disabled, stay-at-home parent, or retired	Not explicitly specified; reported Spanish preference	Significant factors included longer duration since last HIV test, unsure about HIV status, and sex while inebriated
Wireless device	7	Comparative effectiveness study of two telehealth interventions to monitor and prevent hypertension and recurrent stroke	Latino and African American hypertension and stroke patients; demographic data not provided	English and Spanish	Supported the sustainability of combining the two interventions and feasibility of widespread implementation

Note. PPE = personal protective equipment.

having sex while inebriated. Social media has the potential to increase participation of Latinos in clinical research and to access hard-to-reach populations such as young adults, substance users, and the uninsured.

One less common mode was messaging, which involved either text messaging or messages sent via mobile app. One such intervention sought to increase the use of personal protective equipment among Mexican immigrant farmworkers (Table 1).<sup>6</sup> After providing personal protective equipment, a risk-reduction message in English or Spanish was sent to participants daily via mobile app and led to a significantly increased use of gloves ( $P = .01$ ) and safety glasses ( $P < .001$ ) at follow-up. Text messaging may also be useful in providing reminder messages to address behavioral issues that require continuous maintenance such as safe sex,

substance use, and healthy nutrition.

As for clinically used modes, wireless devices offered an opportunity for patients to self-monitor health conditions and give the clinician the data. Two telehealth interventions were used to monitor blood pressure that led to improved control with the goal of preventing recurrent stroke among Latino and African American patients (Table 1).<sup>7</sup> The blood pressure monitoring device sent data to the clinicians while nurses followed up with patients by telephone to adjust medications. They found that combining the two interventions was sustainable and that widespread implementation was feasible. Other modes included (1) using a virtual classroom environment to reach remote participants in group-based training sessions, and (2) conducting

culturally adapted testing using telemedicine.

## PAST EHEALTH RESEARCH RECOMMENDATIONS

The previous review<sup>1</sup> identified four areas where interventions could be tailored to target subpopulations of Latino: (1) Spanish language and literacy level, (2) acculturation level and national background, (3) illness beliefs about and attitudes toward medical professionals, and (4) intervention delivery preferences. Since 2014, researchers have made moderate progress with respect to implementing studies, which were originally designed in English, and adapting these for Spanish speakers. However, only minimal progress has been made with respect to developing content

for lower literacy Latinos in Spanish. Although national background differences are real and need to be considered in both Spanish idioms used and contextual examples, Latinos in the United States most often share a similar history, culture, and religion, so a universal intervention can be used. The benefit of strict subpopulation tailoring among Latinos has not been studied, and research to show the superiority of an intervention tailored to a national background group over a generic one for all Latinos would be needed.<sup>4</sup>

## ADVANCING EHEALTH RESEARCH AMONG LATINOS

Given the broader access to digital tools by Latinos, a logical recommendation would be that

studies, information, and intervention content be designed for Latinos from the outset. Developing culturally competent intervention content simultaneously in Spanish and English for Latinos would disrupt the common practice of adapting an intervention originally designed for English-only speaking populations after the fact. Spanish language content for Latinos needs to be written in universal Spanish, which is understood in all areas of Latin America, in Spanish media, with accurate data-based information, and at a sixth-grade literacy level. On average, Latinos in the United States have the lowest level of formal education of any race or ethnic group, and attention to this is more important than is subpopulation cultural tailoring.

Furthermore, the use of tablets and other mobile devices with incorporated video and animation has the potential to overcome low literacy barriers. The user friendliness and intuitive feel of touch screen technology may also overcome digital barriers experienced by older Latinos when using desktop or laptop computers with a keyboard and mouse.

The time has come for researchers to use the dramatic increases in Internet use among Latinos to develop interventions to reduce health disparities among disadvantaged groups. Over the past three years, progress has been made but challenges remain in the promise of eHealth to improve Latino health. **AJPH**

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