

## Sigma's 29th International Nursing Research Congress

### Do Community Clinic Patients Have Needed Internet Access and Experience to Use the Patient Portal?

#### **Ruth A. Bush, PhD, MPH**

Halsey Barlow, BSN

Alexa Perez, BA

Bianca Vazquez, BA

Jonathan Mack, PhD

Cynthia D. Connelly, PhD, RN, FAAN

*Hahn School of Nursing and Health Science, Beyster Institute for Nursing Research, University of San Diego, San Diego, CA, USA*

#### **Purpose:**

Providing patients access to the electronic health record (EHR) through the internet web-based portals has been demonstrated to facilitate patient engagement, improve patient and health provider communication, increase patient satisfaction from care received, and result in better clinical outcomes (Mendu & Waikar, 2015; Nguyen, Bartlett, Rodriguez, & Tellier, 2016).

Several research studies have identified possible barriers to patient portal adoption including differences in internet access, computer literacy, and internet proficiency, often referred to as the digital divide (Jhamb et al., 2015; McCloud, Okechukwu, Sorensen, & Viswanath, 2016). The digital divide is one explanation for underserved groups being less likely to use portals, with strong correlations to utilization by race and household income (Jhamb et al., 2015; Kushinka, 2013; McCloud et al., 2016). With the increasing emphasis on Health Information Technology applications, already disadvantaged groups may be at further risk of poorer health outcomes if they lack access to HIT (Mendu & Waikar, 2015).

As smart phones proliferate and data access costs decline, it is important to conduct a current evaluation of patient access to and familiarity with the internet to use the portal, especially among patients from lower socioeconomic levels. The study was designed to quantify whether patients attending a community clinic had the necessary technological gateway, as well as internet experience to be able to use the patient portal following access activation. In addition to internet access, the study looked at educational level, household income, and self-perception of health as covariates with previous and future portal use.

#### **Methods:**

**Setting:** A family clinic providing medical care, family planning education, and psychological counseling. Among the overall clinic population, approximately 65% of patients report having government-supported insurance; 3% reported no insurance coverage. Forty-five percent of patients self-report as Latino and 25% Asian/Pacific Islander.

**Instrument:** We adapted the questionnaire designed by Czaja (Taha, Sharit, & Czaja, 2014) to document portal usability barriers to a one page, two-sided survey with English on one side and Spanish on the other. The questionnaire took 3-5 minutes to complete and consisted of demographics, internet use, past portal use, and future portal use.

**Recruitment:** From March 2017 to October 2017, a bilingual, bicultural research associate recruited potential participants from a convenience sample as they waited for a regularly scheduled clinic visit. Participants were eligible if they were receiving care from the clinic, were 18 or older, were English or Spanish readers, and were willing to complete the survey.

## Results:

*Participants Demographics:* One hundred fifteen participants ranging in age from 18 to 84 (mean 42.1) completed the survey. Two participants (1.5%) completed the survey in Spanish. Thirty-five (30%) of the participants self-identified as Latino; 12 (10%) as Asian; and 20 (17%) as other. Almost 80% reported their health as good or better. Although 38% reported completing some college and 47% reported being college graduates, 60% reported a household income of less than \$50,000.

*Technology Use:* Within the sample 87% had used the internet for more than a year and 60% reported using the internet for 5 or more hours a week. *Portal Use:* 47 (42%) had used the portal previously. There were significant differences in previous portal use by reported time spent on the internet during the week (Fisher's Exact = 9.59;  $p = .02$ ) and smart phone internet access (Fisher's Exact = 6.15;  $p = .02$ ). Using a computer for internet access was significantly associated with income level (Fisher's Exact = 16.91;  $p < .001$ ). Reported use varied from looking at test results (31%); secure communication with providers (20%); scheduling appointments (18%); and requesting prescription refills (9%). Ninety respondents (83%) would like to use the portal in the future, primarily to view test results (79%), secure communication with provider (59%); and prescription refills (59%). A logistic regression was used to determine the relationship of the significant predictors for future portal use of phone internet access, computer access, self-reported health status, sex, and age. With an overall chi-square of 22.90 ( $p = .001$ ), a Naglekerke R-squared of 0.33; and a classification of 86%, computer internet access (OR 4.3 (95% CI: 1.15, 16.3)) was the only significant variable in the model, when controlling for the other independent variables.

## Conclusions:

Among this highly educated but lower economic sample, there was a high level of access to the internet as well as weekly use of the internet. Within the sample, use and technological gateway modality were not only associated with past use but also the likelihood of future use. There are limitations to this study including convenience sample recruitment and the fact that the race/ethnicity profile of participation do not match the clinic's demographics. Although there was no difference in past or predicted use of portal by income, the significance of using the computer, which is associated with higher income, to access the portal may reflect less restricted internet access without data allowances and the need to be able to interact with the relatively complex medical record on a screen that is large enough to see the information in a single view without scrolling.

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## Title:

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## Keywords:

electronic health record, patient engagement and underserved populations

## References:

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### **Abstract Summary:**

This study quantified whether patients attending a community clinic in southern California had the technology and internet experience to access the patient portal. There was no association between income and portal use. Computer portal access was associated with likely future use. Computers may permit better internet access and record viewing.

### **Content Outline:**

Introduction:

- Patient portal access to the electronic health is designed to:
  - Facilitate patient engagement
  - Improve patient and health provider communication
  - Increase patient satisfaction from care received
  - Result in better clinical outcomes
- Several studies indicate a digital divide with lower income patient less likely to adopt portals
  - As smart phones proliferate and data access costs decline, does this divide still exist

Main Points:

- Quantify whether patients attending a community clinic had the necessary technological gateway and internet experience to use the patient portal.
- Examine covariates of educational level, household income, and health self-perception with previous and future portal use
  - Adapt questionnaire designed by Czaja to document portal usability barriers
  - One hundred fifteen participants ranging in age from 18 to 84 (mean 42.1) completed the survey
- Noted associations
  - Differences in previous portal use by reported weekly internet use (Fisher's Exact = 9.59; p = .02)
  - Association with smart phone internet access (Fisher's Exact = 6.15; p = .02)
  - Computer internet access and income level (Fisher's Exact = 16.91; p < .001)
- Logistic regression examined relationship of significant predictors for future portal use of phone internet access, computer access, self-reported health status, sex, and age
  - With an overall chi-square of 22.90 (p = .001), a Naglekerke R-squared of 0.33; and a classification of 86%, computer internet access (OR 4.3 (95% CI: 1.15, 16.3)) was the only significant variable in the model, when controlling for the other independent variables

Conclusions:

- Among this sample, there was a high level of access to the internet as well as weekly use of the internet

- Within the sample, use and technological gateway modality were not only associated with past use but also likelihood of future use
- Although there was no difference in past or predicted use of portal by income, the significance of using the computer, which is associated with higher income, to access the portal may reflect less restricted internet access without data allowances and the need to see complex medical record on a large screen

First Primary Presenting Author

**Primary Presenting Author**

Ruth A. Bush, PhD, MPH

University of San Diego

Hahn School of Nursing and Health Science, Beyster Institute for Nursing Research

Associate Professor

San Diego CA

USA

**Professional Experience:** 1992 – 1994 Research Associate, Medical School, University of California San Diego 1994 – 1997 Research Associate, Graduate School of Public Health, San Diego State 1995 – 1998 Adjunct Instructor, School of Public Health, San Diego State University 1997 – 2000 Epidemiologist, Henry M. Jackson Foundation, San Diego 2000 – 2003 Clinical Analyst, Pfizer Research and Development, San Diego 2003 – 2006 Research Consultant, Booz Allen Hamilton, San Diego 2006 – 2009 Adjunct Professor, Psychology Department, Point Loma Nazarene University, San Diego 2008 – 2012 Adjunct Professor, Allied Health Department, San Diego Community College District 2007 – Present Assistant Research Scientist, Rady Children’s Hospital San Diego 2013 - 2015 Clinical Associate Professor, Hahn School of Nursing and Health Science, University of San Diego 2015- Present Associate Professor, Hahn School of Nursing and Health Science, University of San Diego

**Author Summary:** Dr. Bush’s current research interests and funding are focused on patient-centered outcomes. She is the PI of an AHRQ PCOR award and has created a multi-disciplinary team of patients, parents, caretakers, and researchers to address patient engagement using technology such as the patient portal in predominantly under-served populations with chronic illness.

Second Author

Halsey Barlow, BSN

University of San Diego

Hahn School of Nursing and Health Science, Beyster Institute for Nursing Research

PhD Student

San Diego CA

USA

**Professional Experience:** Ms. Barlow is a PhD student conducting research in patient engagement. In addition, Ms. Barlow is a critical care nurse in the UC San Diego Thornton ICU. In addition to working bedside and as a Code Nurse, Ms. Barlow teaches ART/BART with a focus on data analysis and continuous quality improvement.

**Author Summary:** Ms. Barlow is a PhD student conducting research in patient engagement. In addition, Ms. Barlow is a critical care nurse in the UC San Diego Thornton ICU. In addition to working bedside and as a Code Nurse, Ms. Barlow teaches ART/BART with a focus on data analysis

Third Author

Alexa Perez, BA

University of San Diego

Hahn School of Nursing and Health Science, Beyster Institute for Nursing Research

Research Associate

San Diego CA

USA

**Professional Experience:** Research Coordinator, September 2015 – Present University of San Diego Support of AHRQ and PCORI funded research projects including Data management activities, including database set-up and management, data entry, and data analysis Research Assistant, 2012 – 2013 University of San Diego Assisted in all aspects of a multisite project start-up (The Effectiveness of Non-pharmacological Treatment for Insomnia during Pregnancy [R01NR013662])

**Author Summary:** Alexa Perez, BA, is a Research Associate who conducts research in the study of technology and patient engagement as well as recruiting participants for action research. She specializes in survey design, database creation, and data analysis.

Fourth Author

Bianca Vazquez, BA

University of San Diego

Hahn School of Nursing and Health Science, Beyster Institute for Nursing Research

Research Associate

San Diego CA

USA

**Professional Experience:** Research Coordinator, September 2015 – Present University of San Diego Support of AHRQ and PCORI funded research projects including patient recruitment, patient enrollment, and patient retention. Research Assistant, 2012 – 2013 University of San Diego Assisted in all aspects of a multisite project start-up (The Effectiveness of Non-pharmacological Treatment for Insomnia during Pregnancy [R01NR013662])

**Author Summary:** Bianca Vazquez, BA, is a Research Associate who conducts research in the study of technology and patient engagement as well as recruiting participants for action research. She specializes in patient recruitment and retention.

Fifth Author

Jonathan Mack, PhD

University of San Diego

Hahn School of Nursing and Health Science, Beyster Institute for Nursing Research

Associate Professor

San Diego CA

USA

**Professional Experience:** Program Coordinator, Health Care Informatics Graduate Program University of San Diego, Hahn School of Nursing and Health Science 2006 to present Nurse Practitioner Culture of Life Family Services 2014 to present Nurse Practitioner St. Bernardines Medical Center, Emergency Services 2008 to present Director Research and Development West Health 2010 to 2013 Administrative Director, Inpatient Clinical Services: Clinical Research Services Scripps Health System 2007 to 2010

**Author Summary:** Dr. Mack's program of research centers on application of systems engineering to the healthcare environment. Dr. Mack has over 27 years' experience as a registered Nurse, which includes 15 years as an Acute Care Nurse Practitioner. Dr. Mack has held senior level hospital positions, including executive positions as a Chief Nursing Officer and Chief Operating Officer for several southern California Hospitals. Dr. Mack maintains an active practice as an acute care Nurse Practitioner.

Sixth Author

Cynthia D. Connelly, PhD, RN, FAAN

University of San Diego

Hahn School of Nursing and Health Science, Beyster Institute for Nursing Research

Professor and Director of Nursing Research

San Diego CA

USA

**Professional Experience:** Dr. Connelly has a broad background in nursing, with specific training and expertise in areas including: Decreasing disparities and improving care for diverse populations and dissemination; and evaluating methods by which appropriate interventions are introduced and adopted in clinical practice, . Since starting her research career with a NIDA funded postdoctoral fellowship, she has served on and led, numerous NIH funded studies in promoting health through prevention/early intervention including PI on R01- MH075788, a recently completed successful randomized clinical trial evaluating the effectiveness of an intervention incorporating telehealth to improve the screening, referral, and treatment for maternal depression among low-income culturally diverse women during the perinatal period. She has led 6 major studies focusing on women and family physical and mental health issues and health inequities, as well as developing and testing culturally responsive interventions in the healthcare system to improve its response to families and co-occurring health inequities.

**Author Summary:** Dr. Cynthia Donaldson Connelly is the Scholars Professor and Director of Research at the University of San Diego Hahn School of Nursing and Health Science Beyster Institute for Nursing Research. She is also a research scientist at the Child and Adolescent Services Research Center, San Diego, Rady Children's Hospital and Health Center - San Diego, and a Fellow in the American Academy of Nursing.