

## ORIGINAL RESEARCH

# Evaluation of communication techniques used by HIV specialty providers caring for patients with low health literacy in an outpatient HIV clinical setting

Alycia T. Dickens<sup>1</sup>, Queen Utley-Smith<sup>1</sup>, Geraldine Stott<sup>2</sup>, Michael V. Relf<sup>1</sup>

1. School of Nursing, Duke University, Durham, North Carolina, USA. 2. Eastern Virginia Medical School, Norfolk, Virginia, USA

**Correspondence:** Alycia T. Dickens. Address: School of Nursing, Duke University, Durham, North Carolina, USA. Email: Alycia.Dickens@va.gov.

**Received:** September 17, 2012

**Accepted:** November 15, 2012

**Online Published:** January 14, 2013

**DOI:** 10.5430/jnep.v3n7p114

**URL:** <http://dx.doi.org/10.5430/jnep.v3n7p114>

## Abstract

According to the Agency of Healthcare Research and Quality, nine out of ten adults lack the literacy skills necessary to manage their health. Racial and ethnic minorities are more likely than white adults to have below-basic health literacy. This demographic is also highly representative of the current HIV epidemic in the United States. Studies suggest that health care providers may need additional training in communicating with individuals with low health literacy in order to improve health outcomes and reduce health disparities. This performance improvement project evaluated the integration of a health literacy-screening tool into an HIV outpatient clinic and evaluated the outcome of a workshop designed to enhance HIV specialty providers' communication skills when working with persons with low health literacy.

## Key words

HIV/AIDS, Health literacy, Patient-provider communication, The newest vital sign

## 1 Introduction

The Institute of Medicine (IOM) defines health literacy as “the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions”<sup>[8]</sup>. Low health literacy, also known as limited health literacy, is “the condition in which individuals are unable to comprehend health-related information or instructions and may fail to make appropriate decisions regarding their care”<sup>[14]</sup>. Low or limited health literacy contributes to poor health outcomes and racial disparities in health<sup>[6, 12, 15]</sup>. Moreover, there is research that shows a direct relationship between low health literacy, poor health outcomes and increased healthcare expenditures. According to health economist Robert Friedland, the annual cost of low health literacy ranges from \$106 billion - \$238 billion<sup>[2]</sup>. Low or limited health literacy is a modifiable factor in the prevention and management of disease and is a powerful force in the alleviation of health disparities<sup>[12, 15]</sup>. As health care providers, it is essential to address the negative effects of low health literacy on clinical outcomes by verifying that patients understand essential medical information<sup>[3, 21]</sup>.

In the past few years, several federal policy agendas have recognized the importance of addressing low health literacy. In 2010, three initiatives were developed by federal health agencies to help address the problem of low health literacy in the United States<sup>[10]</sup>—The Affordable Care Act of 2010, The Plain Writing Act of 2010, and The National Action Plan to Improve Health Literacy were launched by the Department of Health and Human Services (DHHS). The Affordable Care Act addressed health literacy by providing training and funds to those agencies simplifying the enrollment process into Medicaid, The Children’s Health Insurance Program and the state-based insurance exchanges. All federal agencies, under The Plain Writing Act, are required to keep language within their documents simple and concise to increase public use and understanding. The National Action Plan to Improve Health Literacy was based on the tenet that everyone has the right to make health care decisions on information that they understand and that is beneficial to them. This agency seeks to collaborate with communities, individuals, organizations and policy makers to further develop these ideas<sup>[10]</sup>.

In the United States, almost 1.2 million individuals are living with HIV or AIDS. Annually, approximately 50,000 Americans become infected with HIV. African Americans/Blacks, comprising 14% of the US population, accounted for 44% of all new infections in 2009<sup>[4]</sup>. Similarly, in Virginia, African Americans/Blacks comprise 23% of the state’s population but accounted for 59% of new HIV infections in 2009. The HIV infection rate among African Americans/Blacks was nearly five times as high as all other race categories combined<sup>[7]</sup>.

Patients with low health literacy, according to Wolf and colleagues were more than three times as likely to be non-adherent to their anti-retroviral regimens as those with adequate literacy<sup>[22]</sup>. Other researchers also found that people with limited health literacy living with HIV/AIDS are less likely to use preventive health care services, have increased use of emergency rooms and frequent hospitalizations, poor health outcomes, lower CD4+ T-cell counts, and poor medication adherence<sup>[16, 17]</sup>.

Drainoni and colleagues (2008) recommend that health care and support service providers must be aware of the critical need to assess health literacy when caring for all patients with HIV and be able to work effectively with those who have low health literacy<sup>[5]</sup>. Similarly, Mallinson and colleagues (2005) identified the need to improve health literacy to promote active engagement in HIV-oriented primary medical care among those living with HIV/AIDS<sup>[9]</sup>. Therefore, this performance improvement project addressed two key factors that impact health disparities in HIV/AIDS treatment which include (1) the lack of universal health literacy assessment in clinical practice and (2) the lack of research identifying which communication techniques give the best clinical outcomes when working with low literate patients<sup>[3, 21]</sup>.

## 2 Methods

### 2.1 Setting

The Center of Comprehensive Care for Immune Deficiency (C3ID) at Eastern Virginia Medical School (EVMS) was founded in 1994 to provide HIV medical care to the uninsured and the underserved at nine clinical sites throughout Southeastern Virginia, including three clinics in Norfolk and clinical sites in Virginia Beach, Portsmouth, Chesapeake, Williamsburg, Gloucester and on the Eastern Shore. C3ID serves almost 2,000 HIV infected patients. The client demographic is disproportionately indigent as evidenced by the Ryan White, Medicaid, and Medicare eligibility of nearly 70% of the current patient population. Of this total, approximately 20% are eligible for Ryan White Primary Care Services and AIDS Drug Assistance Program (ADAP), 92% earn less than \$24,000 per year<sup>[11]</sup>.

### 2.2 Human subjects protection

Approval for this performance improvement project was obtained from the Institutional Review Boards of Eastern Virginia Medical School and Duke University. Submission of a completed survey implied verbal consent to participate in the study among the participants. Completed surveys, both pre and post survey, were stored in a locked file cabinet in the project coordinator’s office. A unique identification number was assigned to each volunteer study participant to help

protect confidentiality and promote anonymity of participants. The participants indicated if they were MD, PA, NP or nurse (RN/LPN) and data was aggregated according to profession. Only the aggregated data was presented.

### **Objective 1: Implementing health literacy screening**

Upon receiving all official authorizations and health services approval, the Center of Comprehensive Care for Immune Deficiency (C3ID) at Eastern Virginia Medical School, implemented the use of the health literacy screening tool, The Newest Vital Sign, developed by Pfizer Pharmaceuticals (2002) <sup>[13]</sup>. Clinic staff was trained prior to implementation on how to perform the assessment. Using a laminated version of the health literacy props, the clinic staff asked each patient a series of six questions read from the assessment-scoring sheet. The patient's answers to the screening questions and total score were documented in the electronic medical record and became a permanent part of the clinic progress note, thus becoming available for review by all health care providers. The staff evaluated this objective by answering a short set of evaluation questions regarding their perceptions (barriers, obstacles, time demand) of the implementation of this health literacy-screening tool.

### **The Newest Vital Sign**

The health literacy assessment tool implemented in this project, The Newest Vital Sign is a rapid screening test suitable for use in the primary health care setting <sup>[19]</sup>. It includes a nutrition label that is accompanied by six questions and takes three minutes to administer. Results categorize individuals as having a high likelihood of limited health literacy (score of 0-1); possible limited health literacy (score of 2-3) or adequate health literacy (score of 5-6). This instrument is reliable in English (Cronbach  $\alpha=0.76$ ) and in Spanish (Cronbach  $\alpha=0.69$ ) and highly correlates with the Test of Functional Health Literacy in Adults (TOFHLA) which is a longer instrument and take 23 minutes to administer <sup>[18]</sup>. For The Newest Vital Sign, the area under the Relative Operating Characteristic (ROC) curve is 0.88 for English and 0.72 for the Spanish version suggesting good sensitivity and specificity in determining health literacy of individuals <sup>[19]</sup>. Further, while time and cost constraints associated with The Newest Vital Sign were found to be minimal <sup>[20]</sup>, clinician utilization of the data in clinical decision- making requires further research <sup>[20]</sup>.

### **Evaluation of Health Literacy Screening**

The following questions were asked of the clinic staff to assess their perceptions (barriers, obstacles, time demand) regarding the implementation of The Newest Vital Sign in the C3ID Clinic:

- Was The Newest Vital Sign easy to use?
- Was The Newest Vital Sign time consuming to implement?
- If you did not assess a patient what was the primary reason?
- Was it easy to explain to patients?
- How long (time demand) did the assessment take per patient, on average?
- Did patients refuse the health-literacy assessment?
- Where there barriers or obstacles with implementing this tool?

The clinic staff's perception of the implementation of The Newest Vital Sign into the HIV clinical setting was positive. Staff found the tool to be easy to use, easy to explain to patients, and took between five and seven minutes to administer. During the 30 day performance improvement project period, no patient refused the assessment. However, primary reasons for not performing the intervention were related to patient scheduling conflicts and patient specific factors such as patients' stating, "The lettering on the form is too small" or "I forgot my glasses". Staff reported that the individuals with limited literacy became easily frustrated and thought the questions were meant to deceive them and they subsequently stopped answering the questions.

## **Objective 2: Improving provider communication techniques when working with patients with low health literacy**

The second objective examined modifications in communication techniques employed by HIV specialty providers when working with patients identified as having low health literacy. Immediately prior to implementing The Newest Vital Sign, all providers (2 nurse practitioners, 1 physician assistant, 3 Infectious Disease Fellows, and 6 Infectious Disease physicians) of the C3ID clinic participated in a 60-minute workshop about health literacy. The literacy workshop offered to the providers included review of the prevalence and impact of low health literacy, benefits of assessment and evaluation and review of strategies for mediating this problem.

### **2.3 Modified HIV health literacy feedback survey**

At the beginning of the workshop (Time 1), the providers were asked to complete the Modified HIV Health Literacy Feedback Survey. This 42-item reliable and valid questionnaire assessed the reported use and efficacy of a variety of techniques used to communicate with patients with low or limited health literacy. Providers were asked to complete the pre-test survey by recalling their past week's use of the techniques used for communicating with patients to answer the Time -1 survey questions. The survey used a 5-point Likert scale to assess frequency of use. Respondents were also asked, in a separate question, to report the effectiveness of each technique (yes, no or don't know)<sup>[14]</sup>.

The Newest Vital Sign, health literacy survey tool was implemented within the C3ID clinic setting upon completion of the health literacy workshop. The health care providers were surveyed 30 days later (Time 2) to assess for any modification in their clinic encounter or communication techniques with patients identified as having low health literacy. Two questions were also added regarding articles read and workshops attended on health literacy. The words "adherence nurse" and "case manager" were added to the question regarding "follow up to review instructions".

## **3 Results**

There were 12 providers who responded to the modified HIV health literacy feedback survey at time 1 and 9 providers that responded at Time 2. Four providers were male and the age range was from 28-75 years of age. In terms of years of experience working with people living with HIV/AIDS, the range was between 2-31 years for this group of providers.

All quantitative analyses were conducted using the SPSS statistical program. Wilcoxon Signed Ranks Test was used to evaluate changes in clinic encounters and communication techniques from Time 1 to Time 2 for the sample.

A non-parametric Wilcoxon Signed Ranks Test was used to determine if a difference existed between the provider groups from Time 1 to Time 2 (4 physicians, 2 Infectious Disease Fellows, and 2 Nurse Practitioners). Results revealed no significant difference between pre- and post-intervention time points for the providers' reported use of the techniques.

Paired t-tests were conducted to compare the reported use of the communication techniques for the group (n=3). This parametric test was used because of the normal distribution and the Likert scale of at least 5 items. Questions 4 and 6 were found to be significant among provider groups. Question 4 (asking patient how they will follow instructions at home) had a significantly lower frequency at the post-time point (M= 2.77, SD= .66) than the pre-time point (M= 3.55, SD = .88),  $t(8) = 2.80, p < .05$ . Question 6 (reading aloud instructions) also had a significantly lower frequency at the post-time point (M=2.66, SD = .50) than the pre-time point (M = 3.44, SD = .72),  $t(8) = 2.80, p < .05$ . These specific techniques were used less often on posttest suggesting that providers considered these among the least effective. The effectiveness items were not normally distributed (skewed) and therefore Cochran's Q and McNemar non-parametric tests were used based on how respondents answered the items. The results revealed no significant differences between the pre- and post-test time points across categories of effectiveness.

## 4 Discussion

At least half of the participants reported using 4 of the communication techniques (speaking more slowly, presenting 2-3 concepts and checking for understanding, using simple language and following up with adherence nurse) routinely in their clinical practice on pre-test analysis. Routine use is defined as combining the responses of “most of the time” and “always”. On post-test analysis, 4 of the 9 providers reported using 7 of the communication techniques (“teach-back”, speaking more slowly, presenting 2-3 concepts and checking for understanding, using simple language, handing out printed material, writing out instructions and following up with adherence nurse) routinely. This study revealed that providers nearly doubled their reported use of the various communication techniques, going from 4 to 7 techniques used routinely on post-test analysis. This clearly reflects a modification in communication during the patient-provider encounter from Time-1 to Time-2. It also shows the providers’ commitment to use a combination of methods to convey information and verify patient understanding. The Newest Vital Sign assessment test actually took approximately 5-7 minutes to perform. This extended time could be attributed to the staff to provider clinic ratio which led to a serious disruption in clinic workflow. As a result, the assessment was discontinued in the patient triage area. The Eligibility Intake Workers continued to perform the literacy screening during the intake interview throughout the assessed time interval. Some of the limitations of this study include: recall bias and a small, convenience sample which created difficulty in gathering robust statistical findings. Future studies are encouraged to replicate this design with larger samples to examine these objectives utilizing more powerful statistical analysis. Additionally, there was no follow-up on patient outcomes as a result of the modifications in provider communication, e.g. did medication adherence improve, were unplanned emergency rooms avoided and/or did patient satisfaction improve? These issues could be addressed in future studies.

## 5 Conclusion

Improving communication during the patient-provider encounter can help increase the patient’s understanding of self-care measures which can help to improve health related outcomes. Employing a variety of communication techniques and modifying those techniques based on the patient’s response and level of understanding engages patients and helps them comply with recommendations. This pilot project proved that implementing The Newest Vital Sign health literacy-screening tool during clinic triage assessment is challenging and can negatively affect workflow. However, it can be easily incorporated into a new patient intake visit for an HIV clinical office setting done by a skilled staff member. Secondly, this project proved that educating HIV specialty providers about the prevalence of low health literacy increases their awareness about interacting with persons with low health literacy and that awareness can prompt change in the patient-provider clinical encounter.

## Clinical considerations

Developing strategies to incorporate patient literacy assessment and educating providers and clinic staff about low health literacy is needed. All clinics should implement some type of health literacy assessment so that adjustments in communication can be made during the patient-provider encounter to ensure that patients with low health literacy understand all recommendations and instructions made. Providers, most importantly, should not accept silence as an acknowledgement of understanding of information presented to patients.

## References

- [1] Agency for Healthcare Research and Quality. National Healthcare Disparities Report, Rockville MD: The Agency, 2008.
- [2] Amerigroup Corp. Real solutions: policy briefs. Retrieved March 12, 2012. 2010. Available from: <http://hcr.amerigroupcorp.com/wp-content/uploads/2011/07/Option-20-Promote-Health-Literacy-To-Improve-Beneficiary-Health-Outcomes.pdf>
- [3] Berkman, N., Sheridan, K., Donahue, K., Halpern, D., and Crotty, K. Low Health Literacy and Health Outcomes: An Updated Systematic Review. *Annals of Internal Medicine*. 2011; 55(2): 97-107.

- [4] Centers for Disease Control and Prevention (CDC). Disparities in diagnoses of HIV infection between blacks/African Americans and other racial/ethnic populations-37states. Available from: <http://www.cdc.gov/hiv/resources/factsheets/us.htm>
- [5] Drainoni, M., Rajabuni, S., Rumpitz, M., Welles, S. L., Relf, M., Rebbholz, C., Holmes, L., Dyl, A., Lovejoy, T., Dekker, D., & Frye, A. Health literacy of HIV-positive individuals enrolled in an outreach intervention: results of a cross-site analysis. *Journal of Health Communication*. 2008; 13(3): 287-302. PMID:18569359 <http://dx.doi.org/10.1080/10810730801985442>
- [6] Howard, D., Sentell, T.L., Gazmarian, J. Impact of health literacy on socioeconomic and racial difference in health in an elderly population. *Journal of General Internal Medicine*. 2006; 21: 857-861. PMID:16881947 <http://dx.doi.org/10.1111/j.1525-1497.2006.00530.x>
- [7] HIV incidence estimation. Retrieved March 12, 2012. Available from: [http://www.vdh.state.va.us/epidemiology/DiseasePrevention/Profile2011/Incidence\\_2011.pdf](http://www.vdh.state.va.us/epidemiology/DiseasePrevention/Profile2011/Incidence_2011.pdf).
- [8] IOM. Health Literacy: A Prescription to End Confusion. Washington, D.C.: National Academies Press; 2004.
- [9] Mallinson, R.K., Relf, M., Dekker, D., Dolan, K., Darcy, A., Ford, A. Maintaining normalcy: A grounded theory of engaging in HIV-oriented primary medical care. *Advanced Nursing Science*. 2005; 28(3): 265-277. PMID:16106155
- [10] Mitka, M. Federal Agencies Poised to Help Improve Health Literacy in the United States. *The Journal of the American Medical Association*. 2012; 307(7): 653. PMID:22337664 <http://dx.doi.org/10.1001/jama.2012.128>
- [11] Oldfield, E.C. (2010, November). Lecture. Eastern Virginia Medical School, Norfolk, VA.
- [12] Osborn, C.Y., Paache-Orlow, M.K., Davis, T.C., and Wolf, M.S. Health literacy: an overlooked factor in understanding HIV health disparities. *American Journal of Prevention Medicine*. 2007; 33(5): 374-378. PMID:17950402 <http://dx.doi.org/10.1016/j.amepre.2007.07.022>
- [13] Pfizer Pharmaceuticals. The Newest Vital Sign: a new health literacy assessment tool for health care providers. 2002. Available from: <http://www.pfizerhealthliteracy.com/physicians-providers/NewestVitalSign.aspx>
- [14] Schwartzberg, J. G., Cowett, A., VanGeest, J., and Wolf, M.S. Communication techniques for patients with low health literacy: a survey of physicians, nurses, and pharmacists. *American Journal of Health Behaviors*. 2007; 31(Suppl 1): S96-104. <http://dx.doi.org/10.5993/AJHB.31.s1.12>
- [15] Sentell, T. L., and Halprin, H.A. Importance of adult literacy in understanding health disparities. *Journal of Internal Medicine*. 2006; 21: 862-866.
- [16] Van Servellen, G., Brown, J.S., Lombardi, E., and Herrera, G. Health literacy in low-income Latino men and women receiving antiretroviral therapy in community-based treatment centers. *AIDS Patient Care STDS*. 2003; 17(6): 283-298. PMID:12880492 <http://dx.doi.org/10.1089/108729103322108166>
- [17] Van Servellen, G., Chang, B, Garcia, L. and Lombardi, E. Individual and system level factors associated with treatment non adherence in human immunodeficiency virus-infected men and women. *AIDS Patient Care STDS*. 2002; 16(6): 269-281. PMID:12133262 <http://dx.doi.org/10.1089/10872910260066705>
- [18] Wallace, L. Patients' health literacy skills: The Missing demographic variable in primary care research. *Annals of Family Medicine*. 2006; 4(1): 85-86. PMID:16449402 <http://dx.doi.org/10.1370/afm.501>
- [19] Weiss B.D., Mays M.Z., Martz, W., Castro, K.M., DeWalt, D.A., Pignone, M.P., Mockbee, J., and Hale, F. A. Quick assessment of literacy in primary care: the Newest vital sign. *Annals of Family Medicine*. 2005; 3: 514-22. PMID:16338915 <http://dx.doi.org/10.1370/afm.405>
- [20] Welch, V. L., VanGeest, J. B., & Caskey, R. Time, costs, and clinical utilization of screening for health literacy: A case study using the newest vital sign (nvs) instrument. *Journal of the American Board of Family Medicine*. 2011; 24(3): 281-289. Available from: <http://www.jabfm.org/content/24/3/281.full>. PMID:21551400 <http://dx.doi.org/10.3122/jabfm.2011.03.100212>
- [21] Williams, M.V., Davis, T., Parker, R., and Weiss, B.D. The Role of health literacy in patient-provider communication. *Family Medicine*. 2002; 34(5): 383-389. PMID:12038721
- [22] Wolf, M. S., Davis, T.C., Arozullah, A., Penn, R., Arnold, C., Sugar, M. and Bennett, C.L. Relation between literacy and HIV treatment knowledge among patients on HAART regimens. *AIDS Care*. 2005; 17(7): 863-873. PMID:16120503 <http://dx.doi.org/10.1080/09540120500038660>
- [23] Wolf, M. S., Davis, T.C., Cross, J.T., Marin, E., Green, K., and Bennett, C.L. Health literacy and patient knowledge in a Southern US HIV clinic. *Internal Journal of STD AIDS*. 2004; 15(11): 747-752. PMID:15537462 <http://dx.doi.org/10.1258/0956462042395131>